Department of Energy
Carlsbad Field Office
P.O. Box 3090
Carlsbad, New Mexico 88221

MAR 10 2014

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MAR 11 2014
NMED
Hazardous Waste Bureau

Mr. John E. Kieling, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Subject: Transmittal of the Final Audit Report for CBFO Audit A-14-03 of the ORNL/CCP

Dear Mr. Kieling:

This letter transmits the Final Audit Report for Carlsbad Field Office (CBFO) Audit A-14-03 of the Oak Ridge National Laboratory (ORNL) Central Characterization Program (CCP) for processes performed to characterize and certify waste in accordance with the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit. Audit A-14-03 was conducted on January 14-16, 2014.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Mr. Michael R. Brown, Director of the CBFO Office of Quality Assurance, at (575) 234-7476.

Sincerely,

Jose R. Franco, Manager
Carlsbad Field Office

Enclosure

CBFO:OQA:MPN:MAG:14-1052:UFC 2300.00

140348

cc: w/Report Narrative

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T. Kliphuis, NMED	ED
S. Holmes, NMED	ED
R. Maestas, NMED	ED
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V. Daub, CTAC	ED
R. Allen, CTAC	ED
B. Pace, CTAC	ED
R. Castillo, CTAC	ED
D. Harvill, CTAC	ED
G. White, CTAC	ED
Site Documents	ED
WWIS Database Administrators	ED
R. Chavez, RES	ED
W. Most, RES	ED
L. Pastorello, RES	ED
A. Urquidez, RES	ED
RCRA Chronology Record	ED

*ED denotes electronic distribution

cc: w/enclosures

WIPP Operating Record	*EF
CBFO QA File	EF
CBFO M&RC	EF

*EF denotes electronic file format

CBFO:OQA:MPN:MAG:14-1052:UFC 2300.00

U.S. Department of Energy
Carlsbad Field Office

CONTENT MAP

Final Audit Report of Audit A-14-03 of the

Oakridge National Laboratory (ORNL)
Central Characterization Program (CCP)

Waste Characterization and Certification Program

Audit Number A-14-03
January 14 – 16, 2014

CONTENT MAP

This box contains the Final Audit Report of CBFO Audit A-14-03 of the ORNL/CCP Quality Assurance Program and the ORNLCCP (TRU) Waste Characterization and Certification Program conducted January 14 - 16, 2014. The box also contains a list of objective evidence used to conduct the audit. The documents have been organized into color-coded folders, one each for the SRS CCP Implementing Procedures (purple folder), Final Audit Report (manila folder), the C-6 Checklist (brown folder), General Information (green folder), Acceptable Knowledge (blue folder), Real-Time Radiography (red folder), and Visual Examination (yellow folder). The list below identifies each document by name and number and indicates where each may be found.

CONTENT MAP	**Black Folder**

Final Audit Report	**Manila Folder**

Final Audit Report
- Attachment 1: Personnel Contacted During the Audit
- Attachment 2: Personnel Contacted During the Audit by Subject Area
- Attachment 3: Objective Evidence Compiled During the Audit (provided in boxes)
- Attachment 4: List of Audited Documents
- Attachment 5: List of Processes and Equipment Evaluated During the Audit

C6 Checklist	**March 13, 2013**	**Brown Folder**
C6-1	Waste Analysis Plan (WAP) Checklist	
C6-2	Acceptable Knowledge (AK) Checklist	
C6-3	Radiography (RTR) Checklist	
C6-4	Visual Examination (VE) Checklist	

SRS/CCP Program Implementing Procedures Audited	**Purple Folder**
See Final Report Attachment 4 for List of Audited SRS CCP Procedures	

Attachment 3 - Objective Evidence

General Information (Checklist C6-1) Waste Analysis Plan (WAP)	**Green Folder**
GEN1	Batch Data Reports - OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, And OR-RTR6-0435
GEN2	Batch Data Reports - ORNLRHVE13005, ORNLRHVE13006, and ORNLRHVE13001
GEN3	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29
GEN4	OR-NFS-CH-HET-A/CIS, Lot 8
GEN5	Draft OR-NFS-CH-HOM-A/CIS, Lot 1
GEN6	OR-NFS-CH-SOIL/CIS, Lot 12
GEN7	CH Quarterly Repeats
GEN8	RH Quarterly Repeats
GEN9	Nonconformance Reports
GEN10	CH Non-conformance Report Logs for Project Level (PL) and Data

	Generation Level (DGL**)**
GEN11	CH Waste Characterization Case Files for the containers X10C0506150B, X10C0506150C, X10C9311454A, and X10C9313063A.
GEN12	RH Waste Characterization Case Files for the containers ORRH00019, ORRH00649, and ORRH00650; and RH loading file for canister OR0073 that is loaded with the three RH containers listed above
GEN13	CH Records Inventory and Disposition Schedule (RIDS) dated 08/01/2013
GEN14	RH Records Inventory and Distribution Schedule (RIDS
GEN15	Qualification records for selected CCP personnel
GEN16	NPTC – Oak Ridge National Labs (ORNL) List of Qualified Individuals
GEN17	RH Program – ORNL List of Qualified Individuals
GEN18	Acceptable Knowledge Expert (AKE) and Site Project Manager (SPM) Training files
Acceptable Knowledge (Checklist C6-2)	**Blue Folder**
AK1	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1
AK2	CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and CCP-AK-ORNL-001 R8
AK3	CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, andCCP-AK-ORNL-500 R3
AK4	Waste Stream Profile Form and attachments for Waste Stream OR-ISTP-CH-HET
AK5	Draft Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-HOM-A
AK6	Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-SOIL
AK7	Waste Stream Profile Form and attachments for waste stream OR-REDC-RH-HET
AK8	Q&MIS Approvals for AK Summaries CCP-AK-ORNL-001 R8, CCP-AK-ORNL-008 R1 and CCP-AK-ORNL-500 R3
AK9	AK Source Document Summaries for waste stream OR-ISTP-CH-HET
AK10	AK Source Document Summaries for waste stream OR-NFS-CH-HOM-A
AK11	AK Source Document Summaries for waste stream OR-NFS-CH-SOIL
AK12	AK Source Document Summaries for waste stream OR-REDC-RH-HET
AK13	AK Documentation Checklist, Attachment 1, for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET
AK14	AK Information List for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET
AK15	AK Att. 5, Hazardous Constituents for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET
AK16	AK Att. 6, Waste Form, Waste Material Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET
AK17	AK Waste Containers List Att. 8 for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET
AK18	AK Discrepancy Resolutions in the AK Record

AK19	AK Discrepancy Resolutions at Characterization and AK Reevaluations
AK20	IDC database with “reject” field
AK21	AK CH and RH Tracking Spreadsheets for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET
AK22	Container Input Forms for traceability containers
AK23	NCRs for prohibited items
AK24	Container inspection reports
AK25	“Hold” tag
AK26	Internal Audit
AK27	AK Accuracy Reports for waste streams OR-ISTP-CH-HET,OR-NFS-CH-SOIL, and OR-REDC-RH-HET
AK28	Waste Stream Characterization Checklists and AK Data Reconciliation
AK29	Batch Data Report - OR-RTR6-0092
AK30	Batch Data Report - OR-RTR6-0342
AK31	Batch Data Report - OR-RTR6-0353
AK32	Batch Data Report - OR-RTR6-0437
AK33	Batch Data Report - OR-RTR6-0438
AK34	Batch Data Report - OR-RTR7-0002
AK35	Batch Data Report - OR-RTR7-0003
AK36	Batch Data Report - ORNLRHVE13004
Real-Time Radiography (Checklist C6-3)	**Red Folder**
RTR1	Batch Data Reports - OR-RTR6-0433, OR-RTR6-0437, OR-RTR6-0439, OR-RTR6-0440, OR-RTR7-0001, OR-RTR7-0003, OR-RTR7-0008, and OR-RTR7-0009
RTR2	Training and Qualification Records for four RTR Operators
Visual Examination (Checklist C6-4)	**Yellow Folder**
VE1	Batch Data Reports - ORNLRHVE13001, ORNLRHVE13002, ORNLRHVE13003, ORNLRHVE13004, ORNLRHVE13005, and ORNLRHVE13006
VE2	VE Training Records for 3 Operators
VE3	VEE Appointment Letter

U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

FINAL AUDIT REPORT

OF THE

OAK RIDGE NATIONAL LABORATORY
CENTRAL CHARACTERIZATION PROGRAM

OAK RIDGE, TENNESSEE
and CARLSBAD, NEW MEXICO

AUDIT NUMBER A-14-03

JANUARY 14 – 16, 2014

TRU WASTE CHARACTERIZATION AND CERTIFICATION

Prepared by: _____ **Date:** 2/20/14
Berry D. Pace, CTAC
Audit Team Leader

Approved by: _____ **Date:** 2-25-14
Michael R. Brown, Director
CBFO Office of Quality Assurance

1.0 EXECUTIVE SUMMARY

U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Audit A-14-03 was performed to evaluate the adequacy, implementation, and effectiveness of established programs for transuranic (TRU) waste characterization activities performed for the Oak Ridge National Laboratory (ORNL) by the Nuclear Waste Partnership LLC (NWP) Central Characterization Program (CCP). The audit team evaluated the programs, procedures, and processes for characterizing contact-handled CH and remote-handled RH SCG S5000 debris waste, CH SCG S3000 homogeneous solids waste, and CH SCG S4000 soils/gravel waste. The audit was conducted relative to the requirements of the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP) and the *CBFO Quality Assurance Program Document* (QAPD).

Audit activities were conducted at ORNL TRU Waste Processing Center (TWPC) facilities in Oak Ridge, Tennessee, and at the Skeen-Whitlock Building in Carlsbad, New Mexico, January 14 – 16, 2014. Overall, the audit team concluded that the ORNL/CCP technical and quality assurance (QA) programs evaluated were adequately established for compliance with applicable upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

The audit team identified five concerns during the audit, as described in the interim audit report. No HWFP Waste Analysis Plan (WAP)-related deficiencies were identified.

2.0 SCOPE AND PURPOSE

2.1 Scope

The following general areas were audited, as required by Attachment C6, Section C6-3 of the WAP:

- Results of Previous Audits
- Changes in Programs or Operations
- New Programs or Activities Being Implemented
- Changes in Key Personnel

The following WAP-related QA elements were audited:

- Personnel Qualification and Training
- Nonconformances
- Records

The following WAP-related waste characterization technical elements were audited:

- Acceptable Knowledge (AK) (including waste certification, e.g., Waste Stream Profile Form)
- Project-Level Data Validation and Verification (V&V)

- Real-time Radiography (RTR)
- Visual Examination (VE)
- WIPP Waste Information System (WWIS)/Waste Data System (WDS)

Evaluation of adequacy of ORNL/CCP documents was based on the current revisions of the following documents:

- *CBFO Quality Assurance Program Document,* DOE/CBFO-94-1012
- Waste Isolation Pilot Plant Hazardous Waste Facility Permit NM4890139088-TSDF

Programmatic and technical checklists were developed from the current revisions of the following documents:

- *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (QAPjP), CCP-PO-001
- Related ORNL/CCP technical and QA implementing procedures

2.2 Purpose

Audit A-14-03 was conducted to determine the degree of adequacy and effective implementation of program requirements for the characterization and certification of CH and RH SCG S5000 debris waste, CH SCG S3000 homogeneous solids waste, and CH SCG S4000 soils/gravel waste at the ORNL. The audit team also evaluated specific QA elements relating to HWFP WAP requirements.

3.0 AUDIT TEAM AND OBSERVERS

AUDITORS/TECHNICAL SPECIALISTS

Martin Navarrete	Management Representative, CBFO Office of Quality Assurance
Dennis Miehls	QA Representative, CBFO
Berry Pace	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Rick Castillo	Audit Team Co-Leader, CTAC
Cindi Castillo	Auditor, CTAC
Katie Martin	Auditor, CTAC
Prissy Martinez	Auditor, CTAC
Jim Schuetz	Auditor, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Rhett Bradford	Technical Specialist, CTAC
Kirk Kirkes	Technical Specialist, CTAC
Porf Martinez	Technical Specialist, CTAC
Charleen Roberts	Technical Specialist, CTAC

OBSERVERS

Trais Kliphuis	New Mexico Environment Department (NMED)
Steve Holmes	NMED
Connie Walker	NMED Contractor
Tom Morgan	CBFO Office of the National TRU Program (NTP)
Norma Castaneda	CBFO NTP
Kenneth Lickliter	CBFO NTP
Patsy Gilbert	Los Alamos National Laboratory-Carlsbad Office (LANL-CO)

4.0 AUDIT PARTICIPANTS

The ORNL/CCP personnel contacted during the audit process are identified in Attachment 1. A pre-audit meeting was held on January 14, 2014, at the TWPC in Oak Ridge, Tennessee, and at the Skeen-Whitlock Building in Carlsbad, New Mexico. Daily management briefings were conducted to update ORNL/CCP management and staff on audit progress and identified concerns. A post-audit meeting was held on January 16, 2014, at the TWPC in Oak Ridge, Tennessee, and at the Skeen-Whitlock Building in Carlsbad, New Mexico.

Attachment 2 lists the ORNL/CCP personnel contacted during the audit by subject area, Attachment 3 identifies the objective evidence compiled (provided in boxes), Attachment 4 lists the audited documents, and Attachment 5 lists the processes and equipment evaluated.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

The characterization methods assessed were AK, VE, and RTR. Other areas evaluated were data generation and project-level data V&V, WWIS/WDS data entry, data quality objective (DQO) reconciliation, container management, and the preparation of Waste Stream Profile Forms (WSPFs).

The audit team concluded that, based on personnel interviews, observance of operations, and review of associated documentation and records, the ORNL/CCP TRU waste characterization program activities for characterizing CH and RH SCG S5000 debris waste, CH SCG S3000 homogeneous solids waste, and CH SCG S4000 soils/gravel waste are adequately established, satisfactorily implemented, and effective in achieving the desired results.

5.2 General Activities

5.2.1 Results of Previous Audits

The audit team examined the results of the previous CBFO audit of the ORNL/CCP (A-13-12). The audit team verified that no waste characterization activities had been performed. Accordingly, since no concerns were identified, the need to conduct follow-up evaluations was deemed unnecessary.

5.2.2 Changes in Programs or Operations

No waste characterization activities have been performed by the ORNL/CCP since the previous audit. The most significant change in programs and operations for waste characterization at ORNL was the elimination of chemical sampling and analysis with the modification of the HWFP on March 13, 2013. Additionally, ORNL/CCP has added RTR Unit #7 for performing RTR, which was evaluated during this audit.

5.2.3 New Programs or Activities Being Implemented

At the request of NTP, this audit evaluated programs and processes for the characterization of CH SCG S3000 homogeneous solids waste. In addition, RTR Unit #7 was introduced for the processing of CH SCG S3000 homogeneous solids waste, SCG S4000 soils/gravel waste, and SCG S5000 debris waste.

5.2.4 Changes in Key Personnel

Changes in key personnel included the appointment of Mr. Andrew Stallings as the Vendor Project Manager (VPM) and Ms. Beverly Schrock as the Site Project Manager (SPM).

5.3 WAP-related Quality Assurance Activities

The audit team evaluated the applicable QA elements for personnel qualification and training, nonconformances, and records for compliance with requirements in the HWFP WAP. The evaluation results for each area audited are described below.

5.3.1 Personnel Qualification and Training

The audit team conducted interviews with responsible personnel and reviewed implementing procedure CCP-QP-002, Rev. 35, *CCP Training and Qualification Plan,* to determine the degree to which the procedure adequately addresses upper-tier requirements. Results of the review indicate that the procedure adequately addresses upper-tier requirements.

Personnel training records associated with VE, RTR, AK, and SPMs were examined to verify compliance with associated requirements and to confirm that personnel were

appropriately trained/qualified. Record reviews included qualification cards and other pertinent qualification documentation, including attendance sheets/briefings on newly-revised AK summaries for RTR and VE operators, capability demonstration tests, training container documentation, VE expert (VEE) appointment letters, and eye exams.

No WAP-related deficiencies regarding personnel qualification and training were identified. The procedures reviewed and objective evidence assembled provided evidence to confirm that the applicable requirements for personnel qualification and training are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

5.3.2 Nonconformances

The audit team conducted interviews with responsible personnel and reviewed implementing procedure CCP-QP-005, Rev. 23, *CCP TRU Nonconforming Item Reporting and Control,* to determine the degree to which the procedure adequately addresses upper-tier requirements. Results of the review indicate that the procedure adequately addresses upper-tier requirements.

The audit team interviewed the CCP project office QA engineer and randomly selected the following nonconformance reports (NCRs) for review:

NCR-ORNL-0838-13	NCR-ORNL-0249-14
NCR-ORNL-0843-13	NCR-ORNL-0250-14
NCR-ORNL-0845-13	NCR-ORNL-0251-14
NCR-ORNL-0846-13	NCR-ORNL-0252-14
NCR-ORNL-0872-13	NCR-ORNL-0253-14
NCR-ORNL-0898-13	NCR-ORNL-0254-14
NCR-ORNL-0903-13	NCR-ORNL-0255-14
NCR-ORNL-0904-13	NCR-ORNL-0256-14

The team concluded that deficiencies are being appropriately documented and tracked through resolution as required. Two of the NCRs selected (NCR-ORNL-0903-13 and NCR-ORNL-0904-13) documented non-administrative deficiencies first identified at the SPM level. These NCRs were verified as having been reported to the Permitees within seven days, as required by the Permit. All the NCRs examined were verified to have been entered, managed, and tracked in both the CCP Integrated Data Center (IDC) and the NCR 2013 and 2014 Logs, and through the required reconciliation reporting mechanism.

No WAP-related deficiencies regarding NCRs were identified. The procedures reviewed and objective evidence assembled provided evidence to confirm that the applicable requirements for nonconformances are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

5.3.3 Records

The audit team conducted interviews with responsible personnel and reviewed implementing procedures CCP-QP-008, Rev. 21, *CCP Records Management*, and CCP-QP- 028, Rev. 15, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning,* to determine the degree to which the procedures adequately address upper-tier requirements. Results of the review indicate that the procedures adequately address upper-tier requirements.

Control of records was verified through review of the CH Records Inventory and Disposition Schedule (RIDS) dated August 1, 2013, and the RH RIDS dated July 23, 2013.

The audit team evaluated a sample of transmittal forms used to document submittal of records from the ORNL/CCP host site location to the records center in Carlsbad, New Mexico. The audit team determined that the completed forms adequately described the records being transmitted, and that the transmittal process was performed in accordance with procedure requirements. The audit team verified the maintenance of records in paper files and in the electronic reference system. Records that are maintained in paper copy in the Carlsbad records center are placed in locked fire-resistant cabinets. Access to these file cabinets is controlled. Files that require control of access, such as those determined to be Unclassified Controlled Nuclear Information (UCNI), Official Use Only (OUO), Internal Use Only (IUO), and No Foreign National (NFORN) documents are maintained on separate electronic servers where access is controlled by restriction of computer user access. Paper copies of these restricted access documents are stored separate from non-restricted documents. The audit team witnessed a demonstration of the electronic control of access performed by the National TRU Program Certification (NTPC) Records Manager. The audit team determined that access to all records is adequately controlled.

No WAP-related deficiencies regarding records were identified. The procedures reviewed and objective evidence assembled provided evidence that the applicable requirements for records are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

5.4 Technical Activities

Each technical area audited is discussed in detail in the following sections. The method used to select objective evidence is discussed, the objective evidence used to assess compliance with the HWFP is cited briefly, and the result of the assessment is provided.

5.4.1 Table C6-1, WAP Checklist

The C6-1 WAP Checklist addresses general program requirements from an overall management perspective. The general requirements checklist addresses both technical requirements and specific WAP-related QA programmatic requirements that, when

collectively implemented, ensure effective overall management of TRU waste characterization activities. Requirements are integrated into controlled documents to ensure the waste characterization strategy, as defined in the WAP, is accomplished and documented in accordance with controlled processes and procedures.

Technical activities evaluated for characterization activities consisted of data generation and project-level data V&V, AK, RTR, VE, and preparation of WSPFs. Objective evidence was selected and reviewed to evaluate the implementation of the associated characterization activities. Batch data reports (BDRs), sampling records, and personnel qualification and training documentation were included in the evaluation. Where possible, the audit included direct observation of actual waste characterization activities. Each characterization process involves:

- Collecting raw data
- Collecting quality assurance/quality control samples or information
- Reducing the data to a useable format, including a standard report
- Review of the report by the data generation facility and the site project office
- Comparing the data against program DQOs
- Reporting the final waste characterization information to the WIPP

The flow of data from the point of generation to inclusion in the WSPF for each characterization technique was reviewed to ensure that all applicable requirements were captured in the site operating procedures. Specific procedures audited and the objective evidence reviewed are described in the following sections.

During the audit, ORNL/CCP demonstrated compliance with the waste characterization requirements of the WAP through documentation and by performing characterization activities.

Project-Level Data Validation and Verification (V&V)

The audit team conducted interviews with responsible personnel and reviewed implementing procedures CCP-TP-001, Rev. 21, *CCP Project Level Data Validation and Verification*; CCP-TP-002, Rev. 26, *CCP Reconciliation of DQOs and Reporting Characterization Data*; CCP-TP-500, Rev. 13, *CCP Remote-Handled Waste Visual Examination*; and CCP-TP-005, Rev. 26, *CCP Acceptable Knowledge Documentation,* to determine the degree to which the procedures address upper-tier requirements. Results of the review indicate that the procedures adequately address upper-tier requirements.

The audit team evaluated the following BDRs in support of both CH and RH waste characterization activities completed at the ORNL to verify that project-level data V&V activities are performed in compliance with applicable procedural requirements.

RTR
OR-RTR6-0438 OR-RTR7-0002 OR-RTR7-0009 OR-RTR6-0435

VE
ORNLRHVE13005 ORNLRHVE13006 ORNLRHVE13001

The audit team reviewed four WSPFs for the following waste streams: OR-NFS-CH-HET-A, OR-NFS-CH-SOIL, OR-REDC-RH-HET, and draft OR-NFS-CH-HOM-A. The WSPFs were properly completed with characterization information summaries (CISs).

ORNL did not start waste characterization activities until November 2013; therefore, quarterly repeat reviews for the last quarter of 2013 had not been completed at the time of the audit. Although container characterization data has been generated and reviewed since November 2013, there are currently no new approved CISs/Shipping Lots associated with the waste streams audited.

WIPP Waste Information System (WWIS)/Waste Data System (WDS)

The audit team conducted interviews with responsible personnel and reviewed implementing procedures CCP-TP-030, Rev. 33, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry,* and CCP-TP-530, Rev. 11, *CCP RH TRU Waste Certification and WWIS/WDS Data Entry,* to determine the degree to which the procedures address upper-tier requirements. Results of the review indicate that the procedures adequately address upper-tier requirements.

The audit team evaluated the implementation of the WWIS/WDS data entry procedures for manual data entry and electronic data transfer into the WWIS/WDS software application. The evaluation included review of records of data population of the spreadsheet, review of data entry by a waste certification assistant (WCA), and waste certification by the waste certification official (WCO). Other records reviewed included container information summaries, pages from BDRs showing analyses values, WWIS/WDS Waste Container Data Reports, and submittals for WWIS/WDS review/approval. Records for data entry of both CH- and RH-type waste characterization data were reviewed and determined to be compliant with applicable requirements.

The audit team reviewed the CH waste characterization case files for four CH waste containers: X10C0506150B and X10C0506150C from the CH SCG S5000 debris waste stream OR-ISTP-CH-HET, and X10C9311454A and X10C9313063A from the CH SCG S3000 homogeneous solids waste stream OR-NFS-CH-SOIL. The audit team reviewed files for the RH waste canister OR0073, which was loaded with three internal containers (ORRH00019, ORRH00649, and ORRH00650). The RH waste containers were from the RH SCG S5000 debris waste stream OR-REDC-RH-HET. The RH loading file for the loaded canister and the RH waste characterization case files for the individual RH waste containers were reviewed. In all cases the files reviewed were determined to be complete and acceptable.

CH and RH waste characterization case files included CIS excerpts, Waste Certification Data Entry Form signed spreadsheet copies, supporting forms and data, and WWIS/WDS Waste Container Data Reports. The RH loading file for the RH canister included the canister container summary, supporting forms and data, and the WWIS/WDS Waste Container Data Report.

The case files reviewed covered analytical data and the data entry process for work that was performed prior to suspension of characterization activities at ORNL. The data entry packages that were reviewed provide evidence of the ability of CCP WCA and WCO personnel to perform data entry and waste certification for ORNL waste containers. All of the files reviewed were determined to be accurate and complete.

No WAP-related deficiencies regarding Table C6-1 were identified. The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that Table C6-1 requirements are adequately established, satisfactorily implemented, and achieving the desired results.

5.4.2 Table C6-2, Acceptable Knowledge Checklist

The audit team conducted interviews with responsible personnel and reviewed implementing procedures CCP-TP-002, Rev. 26, *CCP Reconciliation of DQOs and Reporting Characterization Data*; CCP-TP-005, Rev. 26, *CCP Acceptable Knowledge Documentation*; CCP-TP-506, Rev. 4, *CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report*; and CCP-QP-021, Rev. 9, *CCP Surveillance Program,* to determine the degree to which the procedures address upper-tier requirements. Results of the review indicate that the procedures adequately address upper-tier requirements.

In addition, the audit team reviewed the latest revisions to the AK summary reports for four distinct waste streams representing the waste subject to the scope of this audit. The AK summary reports and respective waste stream designations reviewed included: CCP-AK-ORNL-001, Rev. 8, for CH SCG S3000 homogenous solids waste stream OR-NFS-CH-HOM-A and CH SCG S4000 soils/gravel waste stream OR-NFS-CH-SOIL; CCP-AK-ORNL-008, Rev. 1, for CH SCG S5000 debris waste stream OR-ISTP-CH-HET; and CCP-AK-ORNL-500, Rev. 3, for RH SCG S5000 debris waste stream OR-REDC-RH-HET. These AK summary reports were reviewed with respect to the information related to specific WAP requirements and were determined to be compliant. In addition, WSPFs or draft WSPFs and attachments were examined for each audited waste stream. Numerous AK source documents were reviewed to establish support for the waste stream descriptions and parameters noted in the AK summaries, particularly with respect to the assignment of hazardous waste numbers and the historical management of the containers in the waste streams. The audit team also examined the respective AK documentation checklists from CCP-TP-005 consisting of Attachment 1, CCP Acceptable Knowledge Documentation Checklist; Attachment 4, Acceptable Knowledge Information List; Attachment 5, Hazardous Constituents; Attachment 6, Waste Form, Waste Material Parameters, Prohibited Items, and Packaging; and

Attachment 8, Waste Containers List. The audit team also examined the justification memoranda for waste material parameter weight estimates, and the Add-Containers documentation that assures that the parameters of containers added to a waste stream are examined to confirm that the assignment is appropriate.

Examples of the resolution of AK discrepancies in the AK record and discrepancy resolution at characterization along with AK reevaluation forms were reviewed and added to the AK objective evidence. WAP-compliant AK accuracy reports and the most recent internal surveillance information was collected and examined. Requisite training records were reviewed for AK experts (AKEs) and SPMs. With regard to non-compliant waste containers, the audit team examined NCRs dealing with prohibited items and compiled objective evidence of container inspection prior to characterization activities. The WAP-required container traceability exercise was conducted by the AK audit team for a total of eight waste containers from the four waste streams evaluated. Additional traceability documentation was collected through IDC database screenshots, AK tracking spreadsheet data, waste container lists, and waste container input forms. Several waste stream characterization checklists and supporting data were also examined to verify reconciliation of characterization data with the AK record.

No WAP-related deficiencies regarding Table C6-2 were identified during the audit. The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that Table C6-2 requirements are adequately established, effectively implemented, and achieving the desired results.

5.4.3 Table C6-3, Radiography Checklist

The audit team conducted interviews with responsible personnel and reviewed implementing procedures CCP-QP-002, Rev. 35, *CCP Training and Qualification Plan;* CCP-TP-028, Rev. 8, *CCP Radiographic Test Drum and Training Container Construction*; CCP-TP-053, Rev. 14, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*; CCP-TP-164, Rev. 0, *CCP Real-Time Radiography #7 Operating Procedure;* and CCP-TP-165, Rev. 3, *CCP Real-Time Radiography #6 Operating Procedure,* to determine the degree to which the procedures address upper-tier requirements. Results of the review indicate that the procedures adequately address upper-tier requirements.

The audit team examined the following CH RTR BDRs generated from characterization scans of containers characterized with RTR Units #6 and #7:

OR-RTR6-0433
OR-RTR6-0437
OR-RTR6-0439
OR-RTR6-0440
OR-RTR7-0001
OR-RTR7-0003
OR-RTR7-0008

OR-RTR7-0009

The audit team also reviewed a sampling of audio/video media recordings of containers characterized in the referenced BDRs. The audio/video recordings reviewed consisted of containers representing CH SCGs S3000 homogeneous solids waste, S4000 soils/gravel waste, and S5000 debris waste.

The audit team performed a walk-down of the RTR Unit #6 in building 7880J. The audit team interviewed the RTR operators and verified the availability and use of current AK summaries and RTR operating procedures. The audit team also examined RTR Unit #6 operational logbook CCP-ORNL-RTR-002, 2014, ORNL-TWPC-RTR6, 7880J and verified logbook entries were reviewed by the VPM as required. The audit team witnessed the image (lines/pair) test and the RTR characterization scan on container X10C9400031A performed with RTR Unit #6. The RTR unit contained the components required by the WAP to effectively characterize the CH SCG wastes subject to the scope of the audit.

During the audit, no RTR waste characterization activities were being performed with RTR Unit #7. The audit team conducted a walk-down of RTR Unit #7 in building 7880ZZ and verified the RTR unit contained the required components to effectively characterize CH SCGs S3000 homogeneous solids waste, S4000 soils/gravel waste, and S5000 debris waste. The audit team interviewed RTR operators, reviewed CCP standing orders, and verified the availability of current AK summaries and RTR operating procedures. The audit team also examined RTR operational logbook CCP-ORNL-RTR-007-001, 2013, ORNL-TWPC, 7880ZZ and verified entries were logged correctly and reviewed by the VPM as required. Although RTR Unit #7 was not operational at the time of the audit, the audit team concluded through personnel interviews, evaluations of completed BDRs, examination of operational logbooks, and verification of RTR operator qualifications, that waste characterization activities performed using RTR Unit #7, are effective for characterizing CH SCGs S3000 homogeneous solids waste, S4000 soils/gravel waste, and S5000 debris waste.

The audit team evaluated RTR operator required test and training drum audio/video media for four RTR operators. Records of RTR operator training and qualification, including test and training drum documentation, eye exams, and waste stream training were examined. The audit team verified that RTR operators were appropriately trained and qualified as required.

No WAP-related deficiencies regarding Table C6-3 were identified during the audit. The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that Table C6-3 requirements are adequately established, effectively implemented, and achieving the desired results.

5.4.4 Table C6-4, Visual Examination Checklist

The audit team conducted interviews with responsible personnel and reviewed implementing procedures CCP-TP-500, Rev. 13, *CCP Remote-Handled Waste Visual Examination,* and CCP-QP-002, Rev. 35, *CCP Training and Qualification Plan,* to determine the degree to which the procedures adequately address upper-tier requirements. Results of the review indicate that the procedures adequately address upper-tier requirements.

ORNL/CCP uses the two-operator method when performing VE characterization. The two qualified operators visually examine the waste and place into containers. The audit team interviewed VE operators and the VEE. The audit team also examined the VE operational logbook (CCP-RH-ORNL-VE-002) and verified logbook entries were logged correctly and reviewed by the VPM as required. The audit team toured the TWPC Hot Cell Facility and observed VE being performed on container ORRH00685.

The audit team examined the following RH VE BDRs generated from operations performed in the TWPC Hot Cell Facility to verify implementation and compliance with the requirements in CCP-TP-500:

- ORNLRHVE13001
- ORNLRHVE13002
- ORNLRHVE13003
- ORNLRHVE13004
- ORNLRHVE13005
- ORNLRHVE13006

The audit team examined training records for three VE operators/independent technical reviewers (ITRs), and confirmed the appointment of one ORNL/CCP VEE. The audit team verified that VE operators, ITRs, and the VEE were appropriately trained and qualified as required.

No WAP-related deficiencies regarding Table C6-4 were identified during the audit. The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that Table C6-4 requirements are adequately established, effectively implemented, and achieving the desired results.

6.0 CORRECTIVE ACTIONS

6.1 Corrective Action Reports

During the audit, the audit team may identify conditions adverse to quality, as defined below, and document such conditions on Corrective Action Reports (CARs).

> Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

> Significant Condition Adverse to Quality – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification, compliance demonstration, or the effective implementation of the QA program.

No WAP-related deficiencies necessitating a CAR were identified during the audit.

6.2 Deficiencies Corrected During the Audit

During the audit, the audit team may identify CAQs. Audit team members, the audit team leader (ATL), and the CBFO QA representative evaluate the CAQs to determine if they are significant. Once a determination is made that the CAQ is not significant, the audit team member, in conjunction with the ATL and the CBFO QA representative, determines if the CAQ is an isolated case requiring only remedial action and therefore can be corrected during the audit. Upon determination that the CAQ is isolated, the audit team member, in conjunction with the ATL and the CBFO QA representative, evaluates/verifies any objective evidence/actions submitted or taken by the audited organization and determines if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been corrected, the CBFO QA representative categorizes the condition as corrected during audit (CDA) according to the definition below:

> CDAs – Isolated deficiencies that do not require a root cause determination or actions to preclude recurrence. Correction of the deficiency can be verified prior to the end of the audit. Examples include one or two minor changes required to correct a procedure (isolated), one or two forms not signed or not dated (isolated), and one or two individuals that have not completed a reading assignment.

No WAP-related deficiencies were corrected during the audit.

7.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit
Attachment 2: Personnel Contacted During the Audit by Subject Area
Attachment 3: Objective Evidence Reviewed During the Audit (provided in boxes)
Attachment 4: Table of Audited Documents
Attachment 5: List of Processes and Equipment Evaluated During the Audit

PERSONNEL CONTACTED DURING THE AUDIT

PERSONNEL CONTACTED DURING AUDIT				
NAME	**ORG/TITLE**	**PREAUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
Randall Allen	CTAC QA Manager	X		X
Cheryl Armijo	NWP/CCP Training Records Clerk		X	
Michele Billett	NWP/CCP NTPC Training Coordinator		X	
Daphne Brothers	NWP/CCP RTR Operator		X	
Michael R. Brown	CBFO QA Director			X
W. P. Byrd	WAI TWPC QA	X		X
Norma Castaneda	CBFO/NTP Waste Certification Manager	X		X
Robert Ceo	MCS EA		X	
Dan E. Coffey	TWPC PK/Characterization Support	X		X
Daniel Crosby	MCS NDA Operator-In-Training		X	
Neil Dickes	NWP/CCP NDA Support	X		X
Kevin D. East	TWPC RH Procurement Specialist	X		
A.J. Fisher	NWP/CCP Support Group Manager	X	X	
Joe Franco	CBFO Manager			X
James Gaenslen	RH PAR Operator		X	
Chad Gerlock	MCS NDA Operator		X	
Patsy Gilbert	LANL-CO Site Docs Administrator/Observer	X		
Ed Gulbransen	NWP/CCP NTP Certification Manager			X
Anthony Harley	NWP/CCP VEE	X	X	
LaTrana Harmon	NWP/CCP QA	X		X

PERSONNEL CONTACTED DURING AUDIT				
NAME	**ORG/TITLE**	**PREAUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
Jeff Harrison	NWP/CCP AK Expert	X	X	X
Fred Heacker	WAI TWPC Deputy General Manager	X		X
Steve Holmes	NMED/HWB Observer	X		
Laura Jones	NWP/CCP QAE		X	
Martin Jones	TWPC RH Floor Supervisor	X	X	
Irene Joo	NWP/CCP RH Manager	X	X	X
Creta Kirkes	NWP/CCP WCO		X	
Trais Kliphuis	NMED/HWB Observer	X		
Scott Kranker	TWPC STR	X		X
Wayne Ledford	NWP/CCP QA Specialist	X		X
Ronnie Lee	NWP/CCP Waste Certification Manager	X	X	X
Kenneth Lickliter	CBFO/CTAC/NTP Observer	X		X
Eric Lyles	NWP/CCP RTR Operator		X	
Ricardo Maestas	NMED Observer			X
R.C. McKay	WAI TWPC General Manager	X		
Kevin Meyer	MCS EA		X	
Dennis Miehls	CBFO Sr. QA Specialist	X		X
David Moody	NWP/CCP SPM	X	X	X
Tom Morgan	CBFO/NTP Certification Manager	X		X
Martin Navarrete	CBFO QA Representative	X		X
Fred Oney	NWP/CCP RTR Operator	X	X	
Jose Payanes	NWP/CCP Document Services Manager		X	
Mark Pearcy	NWP/CCP SPM	X		
Sheila Pearcy	NWP/CCP NTPC Records Manager	X	X	

PERSONNEL CONTACTED DURING AUDIT				
NAME	**ORG/TITLE**	**PREAUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
Kevin Peters	NWP/CCP AK Expert	X	X	X
Mike Ramirez	NWP/CCP Certification Manager	X		X
Steve Redmond	NWP/CCP RTR Operator		X	
Jeremy Robinson	NFT FGA Lead Operator	X	X	
Beverly Schrock	NWP/CCP SPM	X	X	X
Patrick Smith	NWP/CCP Records Lead	X	X	
Andrew Stallings	NWP/CCP VPM	X	X	X
Brett Stockdale	DOE/UCOR Support			X
Shawn Treadway	NWP/CCP Container Manager		X	
Joe Wachter	MCS Technical Director	X	X	
Daniel Wade	NWP/CCP SPM	X		X
Connie Walker	NMED Contractor/Observer	X	X	
Wade Weyerman	LANL MLU Manager	X		
Ronald Whitson	MCS Operator/ITR	X	X	

PERSONNEL CONTACTED DURING THE AUDIT BY SUBJECT AREA

Personnel Qualification and Training	Cheryl Armijo Michele Billett AJ Fisher
Control of Nonconforming Items	Laura Jones
Records	Sheila Pearcy
WIPP Waste Information System (WWIS Data Entry)	Creta Kirkes
Waste Certification/Project Level Data V&V	Irene Joo David Moody Beverly Schrock
Acceptable Knowledge	Michelle Billet Trey Greenwood Jeff Harrison Laura Jones Shiela Pearcy Kevin Peters
Real-Time Radiography	Steve Redmond Fred Oney Eric Lyles
Visual Examination	James Gaenslen Anthony Harley Martin Jones

Objective Evidence Reviewed During the Audit

The objective evidence supporting Audit A-14-03 is included in the box(es) submitted with this report. Included in the box(es) is a "Content Map" describing the location (using color coding) and identity of all required objective evidence supporting the performance of the audit.

Table C6-1 Waste Analysis Plan (WAP) Checklist
ORNL/CCP Audit A-14-03
January 14-16, 2014

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Waste Analysis Plan (WAP) General Checklist for use at DOE's Generator/Storage Sites

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	WASTE STREAM IDENTIFICATION					
1	Does the generator/storage site define "waste stream" as waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity? (Attachment C Section C-0a)	CCP-PO-001, S. C-0a CCP-TP-005, S. 4.4.11 NOTE above	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)**	Y	
2	Are procedures in place to ensure that the generator/storage site assigns one of the Summary Category Groups (S3000-homogeneous solids, S4000-soils/gravel, S5000-debris waste) to each waste stream? (Section C-1b)	CCP-TP-005, S. 4.4.14 S. 4.4.15 CCP-TP-002, S. 4.3 Att. 2	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S2.0 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S2.2, 2.3 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				REDC-RH-HET, CCP-AK-ORNL-500 R3, S2.0 **(AK-3)** Waste Stream Profile Form and attachments for Waste Stream OR-ISTP-CH-HET **(AK-4)** Draft Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-HOM-A **(AK-5)** Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-SOIL **(AK-6)** Waste Stream Profile Form and attachments for waste stream OR-REDC-RH-HET **(AK-7)**		
3	Are procedures in place to ensure that the generator/storage site assigns Waste Matrix Code Groups (e.g., solidified inorganics, solidified organics, salt waste, soils, combustible waste, filters, graphite, heterogeneous debris waste, inorganic nonmetal waste, lead/cadmium metal, uncategorized metal) to each waste stream? (Section C-0a)	CCP-TP-005, S. 4.4.13 NOTE Above CCP-TP-002, S. 4.3 Att. 2	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S2.0 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S2.2, 2.3 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				REDC-RH-HET, CCP-AK-ORNL-500 R3, S2.0 **(AK-3)** Waste Stream Profile Form and attachments for Waste Stream OR-ISTP-CH-HET **(AK-4)** Draft Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-HOM-A **(AK-5)** Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-SOIL **(AK-6)** Waste Stream Profile Form and attachments for waste stream OR-REDC-RH-HET **(AK-7)**		
4	Are procedures in place to ensure that the generator/storage site assigns a Waste Stream WIPP Identifier (ID) to each waste stream? (Section C3-6b(1))	CCP-TP-002, S. 4.3 Att. 2	Y	Waste Stream Profile Form and attachments for Waste Stream OR-ISTP-CH-HET **(AK-4)** Draft Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-HOM-A **(AK-5)** Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-SOIL **(AK-6)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				Waste Stream Profile Form and attachments for waste stream OR-REDC-RH-HET **(AK-7)**		
4a	Are procedures in place for generator/storage sites to submit an AK Sufficiency Determination (Determination Request) to the Permittees to meet all or part of the waste characterization requirements including: • All information specified in Permit Attachment C4, Section C4-3d • Identification of relevant hazardous constituents, and correctly identifies all toxicity characteristic and listed hazardous waste numbers • All hazardous waste number assignments must be substantiated by supporting data and, if not, whether this lack of substantiation compromises the interpretation • Resolution of data discrepancies between different AK sources must be technically correct and documented • The AK Summary includes all the identification of waste material parameter weights by percentage of the material in the waste stream, and determinations are technically correct • All prohibited items specified in the TSDF-WAC should be addressed, and conclusions drawn are technically adequate and substantiated by supporting information • If the AK record includes process control information specified in Permit Attachment C4, Section C4-3b, the information should include procedures, waste manifests, or other documentation demonstrating that the controls were adequate and sufficient. • The site must provide the supporting information necessary to substantiate technical conclusions within the Determination Request, and this information must be correctly interpreted. (Section C-0b, Section C4-3d)	CCP-TP-005, S. 4.7	Y	N/A	N/A	An AK Sufficiency Determination is not being sought for any ORNL waste streams examined during this audit
4b	If a generator/storage site does not submit a Determination Request or if the Determination Request is not approved, are procedures in place for the generator/storage site to perform radiography or VE on 100% of the containers in a waste stream as specified in Permit Attachment C1? (Section C-0b)	CCP-TP-001, S. 3.1, 4.2 CCP-TP-002, (ALL) CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**	Y	No determination request has been submitted since the last audit

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
4c	Are procedures in place to ensure that the generator/storage sites complete a Waste Stream Profile Form (WSPF) and Characterization Information Summary (CIS) as specified in Permit Attachment C3, Sections C3-6b(1) and C3-6b(2)? (Section C-0c)	CCP-TP-002, S. 4.0	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)**	Y	
6	Are procedures in place to ensure that the generator/storage site assigns EPA hazardous waste numbers associated with the waste? If so, do these assigned EPA hazardous waste numbers correspond to the permitted EPA hazardous waste numbers in Table C-5? Are there any assigned EPA hazardous waste numbers that are not permitted EPA hazardous waste numbers on the Table C-5? If so, did the generator/storage site reject the waste for shipment to and disposal at WIPP? Did the generator assign a state hazardous waste codes or numbers? If so, is it assigned to waste that is permitted at WIPP? (Section C-1b)	CCP-TP-005, S. 4.4.16- 4.4.21 Att. 5	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.3, Tables 5-4, 5-5 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.3, 7.4.3, Table 7-5 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2, Tables 5-2, 5-3 **(AK-3)** AK Att. 5, Hazardous Constituents for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-15)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
7	Are procedures in place to ensure that Summary Category Groups are defined as follows: S3000- Homogeneous solids are solid material, inorganic process residues, inorganic sludges, salt waste, and pyrochemical salt waste excluding soils, that do not meet NMED criteria for classification as debris and are at least 50 percent by volume homogeneous solids or comprise the majority of the waste stream S4000- Waste streams that are at least 50 percent by volume soil/gravel, or comprise the majority of the waste stream S5000- Waste streams that are at least 50 percent volume materials that meet the NMED criteria for debris, or comprise the majority matrix of materials. The criteria for debris are solid materials intended for disposal that exceed 2.36 inch particle size and is a manufactured object, plant or animal matter, or natural geologic material. Particles smaller than 2.36 inches in size may be considered debris if the debris is a manufactured object and if it is not a particle of S3000 or S4000 material. (Section C-0a)	CCP-TP-005, S. 4.4.14	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S2.0 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S2.2, 2.3 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S2.0 **(AK-3)** Waste Stream Profile Form and attachments for Waste Stream OR-ISTP-CH-HET **(AK-4)** Draft Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-HOM-A **(AK-5)** Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-SOIL **(AK-6)** Waste Stream Profile Form and attachments for waste stream OR-REDC-RH-HET **(AK-7)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
8	Does the generator/storage facility have procedures in place to ensure that the following waste characterization parameters will be obtained: • Determination whether TRU mixed waste streams comply with the applicable provisions of the TSDF-WAC • Determination whether TRU mixed wastes exhibit a hazardous characteristic per 20.4.1.200 NMAC (incorporating 40 CFR 261 Subpart C) • Determination whether TRU mixed wastes are listed per 20.4.1.200 NMAC (incorporating 40 CFR 261 Subpart D) • Estimation of waste material parameter weights (Section C-2)	CCP-TP-005, S. 4.4.16 S. 4.4.17 S. 4.4.26 S. 4.4.27[A] S. 4.4.30 S. 4.4.33[K], [L] & [M] CCP-TP-500, S. 4.0 CCP-TP-001, S. 4.2 CCP-TP-002, S. 4.0 CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	B1- CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.3.5, 5.4.3.6, 5.5 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.3.5, 6.4.3.6, 6.4.4, 7.4.3.5, 7.4.3.6, 7.4.4 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2.3, 5.4.5, 5.4.6 **(AK-3)** NCRs for prohibited items **(AK-23)** AK Att. 6, Waste Form, Waste Material Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-16)** ORNLRHVE13004 **(AK-36)** B2&3- CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				CH-HET, CCP-AK-ORNL-008 R1, S5.4.3, Tables 5-4, 5-5 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.3, 7.4.3, Table 7-5 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2, Tables 5-2, 5-3 **(AK-3)** AK Att. 5, Hazardous Constituents for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-15)** B4- CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.1.2, Table 5-1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.1.2, 7.4.1.2, Tables 6-1, 7-1 **(AK-2)**		

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.1.2, table 5-1 **(AK-3)** Memos attached to AK Att. 6, Waste Form, Waste Material Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-16)** OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**		
9	Are procedures in place to ensure that waste streams identified to contain incompatible materials or materials incompatible with waste containers cannot be	CCP-TP-005, S. 4.4.27[A],	Y	AK Att. 6, Waste Form, Waste Material	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	shipped unless treated to remove the incompatibility? (Section C-1c)	4.4.30 & 4.4.33[K] CCP-TP-001, S. 2.7 & 4.1, 4.2 CCP-TP-500, S. 4.0 CCP-TP-068 S. 4.1, 4.4.4[G], 4.5.4, Att. 2 & 3		Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-16)** NCRs for prohibited items **(AK-23)** IDC database with "reject" field **(AK-20)** Container inspection reports **(AK-24)** "Hold" tag **(AK-25)** ORNLRHVE13004 **(AK-36)**		
10	Are procedures in place to ensure that the generator/storage site uses acceptable knowledge and, as necessary, radiography and visual examination analysis as specified in Table C-1? (Section C-3)	CCP-TP-005, S. 4.4 S. 4.5 CCP-TP-001, S. 4.2 CCP-TP-005, S. 4.5 CCP-TP-002, S. 4.2 CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				BDRS OR-RTR6-0092 **(AK-29)** OR-RTR6-0342 **(AK-30)** OR-RTR6-0353 **(AK-31)** OR-RTR6-0437 **(AK-32)** OR-RTR6-0438 **(AK-33)** OR-RTR7-0002 **(AK-34)** OR-RTR7-0003 **(AK-35)** ORNLRHVE13004 **(AK-36)** OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**		
	UNACCEPTABLE WASTE					
12	Are procedures in place to ensure that the generator/storage site ensures, through administrative and operational procedures and characterization techniques, that waste containers do not include the following unacceptable waste: • liquid waste is not acceptable at WIPP. Liquid in the quantities delineated below is acceptable • Observable liquid shall be no more than 1 percent by volume of the outermost container at the time of radiography or visual	CCP-TP-001, S. 4.2 CCP-TP-002, Att. 1 & 2 CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	examination • Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited • Containers with Hazardous Waste number U134 assigned shall have no observable liquid • Overpacking the outermost container that was examined during radiography or visual examination or redistributing untreated liquid within the container shall not be used to meet the liquid volume limits • non-radionuclide pyrophoric materials • hazardous wastes not occurring as co-contaminants with TRU wastes (non-mixed hazardous wastes) • wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes • wastes containing explosives or compressed gases (continued below)			Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**		
12a	• wastes with polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization • wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003) • waste that has ever been managed as high-level waste and waste from tanks specified in Table C-4, unless specifically approved through a Class 3 permit modification • any waste container from a waste stream (or waste stream lot) which has not undergone either radiographic or visual examination of a statistically representative subpopulation of the wastes stream in each shipment pursuant to Permit Attachment C7 • any waste container from a waste stream which has not been preceded by an appropriate, certified Waste Stream Profile Form (see Section C-1d) (Section C-1c)	CCP-TP-001, S. 4.2 CCP-TP-002, Att. 1 & 2 CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	WASTE ACCEPTANCE CONTROL					
14	Are procedures in place to ensure that the generator/storage site uses a Waste Stream Profile Form (WSPF) which includes, at a minimum, the information indicated on the attached WSPF found in Figure C-1 and a Characterization Information Summary (CIS) prior to waste disposal at the WIPP? (Section C-1d)	CCP-TP-002, (ALL)	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)**	Y	
16	Are procedures in place to ensure that additional WSPFs are provided to WIPP and NMED for waste streams or portions of waste streams that are reclassified based upon waste characterization information? (Section C-1d)	CCP-TP-002, (ALL)	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)**	Y	
16a	Are criteria in place to determine the specific circumstances under which a WSPF is revised versus when a new WSPF is required? (Section C-1d)	CCP-TP-002, S. 4.7	Y	N/A	N/A	There were no examples of revisions to WSPFs for the waste streams examined during this audit
	GENERAL CHARACTERIZATION REQUIREMENTS					
25	Are procedures in place to ensure that Acceptable Knowledge is used in waste characterization activities to delineate TRU mixed waste streams, to assess whether TRU mixed wastes comply with the TSDF-WAC, to assess whether TRU mixed waste exhibits a hazardous characteristic (20.4.1.200 NMAC, incorporating 40 CFR 261 Subpart C), and to assess whether TRU wastes are listed (20.4.1.200 NMAC, incorporating 40 CFR 261 Subpart D), and to estimate waste material parameter weights? (Section C-3a)	CCP-TP-005, S. 4.11 S. 4.4.16 S. 4.4.17 S. 4.4.26 S. 4.4.27[A] S. 4.4.30 S. 4.4.33[K], [L] & [M]	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S2.0 **(AK-1)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
		CCP-TP-500, S. 4.0		CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S2.2, 2.3 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S2.0 **(AK-3)** CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.3.5, 5.4.3.6, 5.5 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.3.5, 6.4.3.6, 6.4.4, 7.4.3.5, 7.4.3.6, 7.4.4 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2.3, 5.4.5, 5.4.6 **(AK-3)** NCRs for prohibited items **(AK-23)** AK Att. 6, Waste Form, Waste Material		

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-16)** ORNLRHVE13004 **(AK-36)** CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.3, Tables 5-4, 5-5 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.3, 7.4.3, Table 7-5 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2, Tables 5-2, 5-3 **(AK-3)** AK Att. 5, Hazardous Constituents for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-15)** CCP AK Summary Report for ORNL		

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.1.2, Table 5-1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.1.2, 7.4.1.2, Tables 6-1, 7-1 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.1.2, Table 5-1 **(AK-3)** Memos attached to AK Att. 6, Waste Form, Waste Material Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-16)**		
26	Are procedures in place to ensure that radiography and/or visual examination are used as necessary to: • Examine a waste container to determine the physical form • Identify observable liquid in excess of TSDF-WAC limits and containerized gases • Verify the physical form matches the waste stream description (Section C-3b)	CCP-TP-053, S. 1.0, Table 1 & Att. 2 CCP-TP-500 Att. 1	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)**		
28	Are procedures in place to ensure that the following characterization activities shall occur: • Acceptable Knowledge for all wastes, with testing as necessary to augment AK including; - Visual examination or radiography for all waste containers	CCP-TP-005, S. 4.4 S. 4.5 CCP-TP-001, S. 4.2 CCP-TP-002, (ALL) CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)** BDRS OR-RTR6-0092 **(AK-29)** OR-RTR6-0342 **(AK-30)** OR-RTR6-0353 **(AK-31)** OR-RTR6-0437 **(AK-32)** OR-RTR6-0438 **(AK-33)** OR-RTR7-0002 **(AK-34)** OR-RTR7-0003 **(AK-35)** ORNLRHVE13004 **(AK-36)** Waste Stream Characterization Checklists and AK Data Reconciliation **(AK-28)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**		

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	DATA GENERATION, VERIFICATION, VALIDATION, DOCUMENTATION, AND QUALITY ASSURANCE					
30	Are procedures in place to ensure that the following Data Quality Objectives are met: • Use Acceptable Knowledge to delineate TRU mixed waste streams, assess whether TRU mixed wastes comply with the applicable requirements of the TSDF-WAC, assess whether TRU mixed wastes exhibit a hazardous characteristic, assess whether TRU mixed wastes are listed and to estimate waste material parameter weights • Use radiography or visual examination to verify the physical form of the waste matches its waste stream description as determined by AK and to verify the absence of prohibited items (Section C-4a(1))	CCP-TP-005, S. 4.11 S. 4.4.16 S. 4.4.17 S. 4.4.26 S. 4.4.27[A] S. 4.4.30 S. 4.4.33[K], [L] & [M] CCP-TP-500, S. 4.4 CCP-TP-001, S. 4.2 CCP-TP-002, (ALL) CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S2.0 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S2.2, 2.3 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S2.0 **(AK-3)** CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.3.5, 5.4.3.6, 5.5 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.3.5, 6.4.3.6, 6.4.4, 7.4.3.5, 7.4.3.6, 7.4.4 **(AK-2)** CCP AK Summary Report for ORNL REDC	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2.3, 5.4.5, 5.4.6 **(AK-3)** NCRs for prohibited items **(AK-23)** AK Att. 6, Waste Form, Waste Material Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-16)** ORNLRHVE13004 **(AK-36)** CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.3, Tables 5-4, 5-5 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.3, 7.4.3, Table 7-5 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2, Tables 5-2, 5-3 **(AK-3)**		

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				AK Att. 5, Hazardous Constituents for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-15)** CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.1.2, Table 5-1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.1.2, 7.4.1.2, Tables 6-1, 7-1 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.1.2, Table 5-1 **(AK-3)** Memos attached to AK Att. 6, Waste Form, Waste Material Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-16)**		

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**		
31	Are procedures in place to ensure that the following Quality Assurance Objectives are adequately defined and assessed for each characterization method: • Precision as a measure of the mutual agreement among multiple measurements. • Accuracy as the degree of agreement between a measurement result and a true or known value. • Completeness is a measure of the amount of valid data obtained from a method compared to the total amount of data obtained that is expressed as a percentage. • Comparability is the degree to which one data set can be compared to another data set. • Representativeness as an expression of the degree to which data represent characteristics of a population. (Section C-4a(2))	CCP-TP-500, Att. 2 & 3 CCP-TP-053, Att. 3	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** <u>RTR BDRs:</u> OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	
32	With respect to data generation, are procedures in place to ensure that the generator/storage site's waste characterization program meets the following general	CCP-TP-500, Att. 1 & 2	Y	BDRs ORNLRHVE13001 ORNLRHVE13002	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	requirements: • Testing data packages and batch data reports must be reported accurately in a pre-approved format, must be maintained in permanent files, and must be traceable? • All data must receive a technical review by another qualified operator? (Section C3-4a)	CCP-TP-053, S. 4.9, 4.10, 5.0, Att. 2 & 3		ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**		
33	Are procedures in place to ensure that the generator/storage site performs validation of waste characterization data for each waste container? (Section C-4)	CCP-TP-500, Att. 1,2, & 3 CCP-TP-053, S. 4.10 & Att. 3 CCP-TP-001, S. 4.2 CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
34	Are procedures in place to ensure that the generator/storage site has a pre-approved format for reporting waste characterization data? (Section C-4a(3))	CCP-TP-500 Att. 1 & 2 CCP-TP-053, (ALL) CCP-TP-001, S. 4.2 CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** <u>RTR BDRs:</u> OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**	Y	
35	Are procedures in place to ensure that the generator/storage site prepares testing batch data reports to meet the requirements of their own site-specific QAPjP and/or SOPs? (Section C-4a(3))	CCP-TP-500, S. 4.3.2 CCP-TP-053, (ALL) CCP-TP-001, S. 4.2 CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** <u>RTR BDRs:</u> OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				OR-RTR7-0009 **(RTR-1)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**		
36	Are procedures in place to ensure that all raw data is collected and managed at the data generation level in accordance with the following criteria: • All raw data shall be signed and dated in reproducible ink by the individual collecting the data, or signed and dated using electronic signatures • All data shall be recorded clearly, legibly, and accurately in field records • All changes to original data shall be lined out, initialed, and dated by the individual making the change. Original data may not be obliterated or otherwise be made unreadable • All data shall be transferred and reduced from field records completely and accurately • All field records shall be maintained as specified in Table C-2 of Attachment C • Data shall be organized into standard reporting formats for reporting purposes • All electronic and video data must be stored to ensure that waste container and QC data are readily retrievable (Section C3-4a)	CCP-TP-500, S. 5.0 & Att. 2 CCP-TP-053, S. 5.0, Att. 2 & 3	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	
37	Are procedures in place to ensure that 100 % of batch data reports are subject to independent technical review by an individual qualified to review the data who was not involved in the generation or recording of the data under review. The reviewer shall release the data through signature with an associated review checklist prior to characterization of the associated waste and shipment to the WIPP. The review shall ensure the following, as applicable: • Data generation and reduction were conducted according to the methods used and reported in the proper units and significant figures • Calculations have been verified by a valid calculation program, a spot check of verified calculation programs, and/or a 100 percent check of all	CCP-TP-500, Att. 2 S. 3.2.2 S. 4.3.2[C] CCP-TP-053, S. 4.6, 4.10, Att. 2 & 3	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** RTR BDRs: OR-RTR6-0433 OR-RTR6-0437	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	hand calculations • The data have been reviewed for transcription errors • The testing QA documentation for BDRs is complete and includes, as applicable, raw data, calculation records, calibration records • Radiography tapes are reviewed on a waste container basis at a minimum of once per testing batch or once per day of operation, whichever is less frequent. The radiography tape will be reviewed against the data on the radiography form to ensure that data are complete and correct • QAOs have been met (Section C3-4a(1))			OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**		
40	Are procedures in place to ensure that 100 percent of all batch data reports receive a Site Project Manager signature release with an associated review checklist prior to characterization of the associated waste and shipment to the WIPP. This release shall ensure the following: • Testing batch QC checks were properly performed. Radiography data are complete and acceptable based on evidence of videotape review of one waste container per day or once per testing batch, whichever is less frequent • Data generation level independent technical review, validation, and verification have been performed as evidenced by the completed review checklists and appropriate signature releases. • Independent technical reviewers were not involved in the generation or recording of the data under review. • Batch Data review checklists are complete • Batch Data Reports are complete and data properly reported • Verify that data are within established data assessment criteria and meet all applicable QAOs (Section C3-4b(1))	CCP-TP-001, S. 4.2 CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**	Y	
42	Are procedures in place to ensure that a repeat of the data review process at the data generation level will be performed on a minimum of one randomly chosen waste container every quarter to determine if the verification and validation is performed according to documented procedures? (Section C3-4b)	CCP-TP-001, S. 4.3	Y	CP:13:01443, CP:13:01444, CP:13:01447 **(GEN-7)** CP:14:01010 **(GEN-8)**	Y	
43	Are procedures in place and checklists are available to prepare a Site Project Manager (SPM) Summary and a Data Validation Summary (the summaries may be in the same document)? The SPM Summary includes a validation checklist for each	CCP-TP-001, S. 3.1.6, 3.1.8, & 4.2	Y	OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009,	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	batch that is of sufficient detail to document all aspects of a batch data report that could affect data quality. The Data Validation Summary must identify each Batch Data Report reviewed, describe how the validation was performed, identify all problems, and identify all acceptable and unacceptable data. Summaries must include release signatures. (Section C3-4b(2))	CCP-TP-500, S. 3.4, 4.4, & Att. 3		OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**		
44	Are procedures in place to ensure that non-administrative, WAP-related nonconformances first identified at the site project manager level are reported to the Permittees within seven calendar days of identification, that nonconformance reports are prepared within 30 calendar days, and that corrective action is implemented prior to waste shipment? (Section C3-7)	CCP-QP-005, S.4.4	Y	NCRs evaluated (none of these were reportable): NCR-ORNL-0249-14, R0; NCR-ORNL-0250-14, R0; NCR-ORNL-0251-14, R0; NCR-ORNL-0252-14, R0; NCR-ORNL-0253-14, R0; NCR-ORNL-0254-14, R0; NCR-ORNL-0255-14, R0; NCR-ORNL-0256-14, R0; NCR-ORNL-0838-13, R0; NCR-ORNL-0843-13, R0; NCR-ORNL-0845-13, R0; NCR-ORNL-0846-13, R0; NCR-ORNL-0872-13, R0; NCR-ORNL-0898-13, R0; NCR-ORNL-0903-13, R0; NCR-ORNL-0904-13, R0; **(GEN-9)** CH Non-conformance Report Logs for Project Level (PL) and Data Generation Level (DGL); both dated 01/14/2014 **(GEN-10)**	Y	There were no CH or RH NCRs reportable to CBFO since the previous recertification audit. The RH Non-conformance Report Logs, for DGL and PL are not provided because there have been no RH related NCRs written since the previous recertification audit.
45	Are procedures in place to ensure that any waste container for which a nonconformance report (**NCR**) has been written will not be shipped to the WIPP facility unless the condition that led to the NCR for that container is appropriately identified, reconciled, corrected, and documented? Are nonconformance reports prepared for nonconformances identified? Are nonconformances identified and tracked, and does the Site Project Manager oversee the nonconformance report process? (Section C3-7)	CCP-QP-005, (ALL)	Y	Records packages for the following NCRs were evaluated: NCR-ORNL-0249-14, R0; NCR-ORNL-0250-14, R0; NCR-ORNL-0251-14, R0; NCR-ORNL-0252-14, R0; NCR-ORNL-0253-14, R0; NCR-ORNL-0254-14, R0; NCR-ORNL-0255-14, R0; NCR-ORNL-0256-14, R0; NCR-ORNL-0838-13, R0;	Y	There were no CH or RH NCRs reportable to CBFO since the previous recertification audit. The RH Non-conformance Report Logs, for DGL and PL are not provided because there have been no RH related NCRs written since the previous recertification audit.

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				NCR-ORNL-0843-13, R0; NCR-ORNL-0845-13, R0; NCR-ORNL-0846-13, R0; NCR-ORNL-0872-13, R0; NCR-ORNL-0898-13, R0; NCR-ORNL-0903-13, R0; NCR-ORNL-0904-13, R0; **(GEN-9)** CH Non-conformance Report Logs for Project Level (PL) and Data Generation Level (DGL); both dated 01/14/2014 **(GEN-10)**		
	DATA TRANSMITTAL					
48	Are procedures in place to ensure that the generator/storage site transmits data by hard copy or electronic copy from the data generation level to the site project level? If electronic, does the generator/site have a hard copy available on demand? (Section C-4a(5))	CCP-TP-001, S. 4.2 CCP-TP-500, S. 3.4, 4.4, & Att. 3	Y	OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**	Y	
50	Are procedures in place to ensure that the generator/storage site inputs the data into the WWIS manually or electronically? (Section C-4a(5))	CCP-TP-030, (ALL) CCP-TP-530, (ALL)	Y	**CH** Waste Characterization Case Files for the containers X10C0506150B, X10C0506150C, X10C9311454A, and X10C9313063A. **(GEN-11)** **RH** Waste Characterization Case Files for the containers ORRH00019, ORRH00649, and ORRH00650; and **RH** loading file for canister OR0073 that is loaded with the three RH containers listed above. **(GEN-12)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
51	Are procedures in place to ensure that the generator/storage site enters the data into the WWIS in the exact format required by the database? (Section C-4a(5))	CCP-TP-030, (ALL) CCP-TP-530, (ALL)	Y	**CH** Waste Characterization Case Files for the containers X10C0506150B, X10C0506150C, X10C9311454A, and X10C9313063A. **(GEN-11)** **RH** Waste Characterization Case Files for the containers ORRH00019, ORRH00649, and ORRH00650; and **RH** loading file for canister OR0073 that is loaded with the three RH containers listed above. **(GEN-12)**	Y	
52	Are procedures in place to ensure all of the data presented on Table C-3 of the Permit is transmitted to the WWIS? (Table C-3)	CCP-TP-030, (ALL) CCP-TP-530, (ALL)	Y	**CH** Waste Characterization Case Files for the containers X10C0506150B, X10C0506150C, X10C9311454A, and X10C9313063A. **(GEN-11)** **RH** Waste Characterization Case Files for the containers ORRH00019, ORRH00649, and ORRH00650; and **RH** loading file for canister OR0073 that is loaded with the three RH containers listed above. **(GEN-12)**	Y	
	RECORDS AND RECORD MANAGEMENT					
55	Are procedures in place to ensure that the generator/storage site's hard copy and/or electronic data reports follow the Permittees' format requirements? (Section C-4a(3))	CCP-TP-001, S. 4.2 CCP-TP-500, S. 3.4, 4.4, Att. 3	Y	OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)**	Y	

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		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**		
56	Are procedures in place to ensure that hard copy or electronic Waste Stream Profile Form will include the following: • Generator/storage site name • Generator/storage site EPA ID • Date of audit report approval by NMED (if obtained) • Original generator of waste stream • Whether waste is Contact-Handled or Remote-Handled • Waste Stream WIPP Identification Number • Summary Category Group • Waste Matrix Code Group • Waste Material Parameter Weight Estimates per unit of waste • Waste stream name • A description of the waste stream • Applicable EPA hazardous waste codes numbers • Applicable TRUCON codes • A listing of acceptable knowledge documentation used to identify the waste stream • The waste characterization procedures used and the reference and date of the procedure • Certification signature of Site Project Manager, name, title, and date signed (Section C3-6b(1))	CCP-TP-002, S. 4.3	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)**	Y	
56a	Are procedures in place to ensure that hard copy or electronic Characterization Information Summary will include the following: • Data reconciliation with DQOs • Radiography and visual examination summary to document that all prohibited items are absent in the waste and to verify that the physical form of the waste matches its waste stream description as determined by AK (if applicable)	CCP-TP-002, S. 4.4	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)**	Y	

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		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	• A complete listing of all container identification numbers used to generate the Waste Stream Profile Form, cross-referenced to each Batch Data Report • Complete AK summary, including stream name and number, point of generation, waste stream volume (current and projected), generation dates, TRUCON codes, Summary Category Group, Waste Matrix Code(s) and Waste Matrix Code Group, other TWBIR information, waste stream description, areas of operation, generating processes, RCRA determinations, radionuclide information, all references used to generate the AK summary, and any other information required by Permit Attachment C4, Section C4-2b. • Method for determining Waste Material Parameter Weights per unit of waste. • List of any AK Sufficiency Determinations requested for the waste stream • Certification through acceptable knowledge or testing that any waste assigned the hazardous waste number of U134 (hydrofluoric acid) no longer exhibits the characteristic of corrosivity. This is verified by ensuring that no liquid is present in U134 waste. • A justification for the selection of radiography and/or VE as an appropriate method of characterizing the waste. (Section C3-6b(2))			Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)**		
56b	Are procedures in place to assure that ongoing container characterization results are cross referenced to Batch Data Reports? (Section C3-6b)	CCP-TP-002, S. 4.4	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**		
58	Are procedures in place to ensure that project level reports are compiled into Characterization Information Summaries? (Section C3-6b)	CCP-TP-002, S. 4.4	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)**	Y	
59	Are procedures in place to ensure that the generator/storage site uses forms for data reporting that are pre-approved forms in site-specific documentation? (Section C3-6)	CCP-TP-500, Att. 1 & 2 CCP-TP-053, Att. 1, 2, 3, 4 & 5	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** <u>RTR BDRs:</u> OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
60	Are procedures in place to ensure that the generator/storage site's site project manager submits to the WIPP facility a summary of the waste stream information and reconciliation with data quality objectives (DQOs) once a waste stream is characterized? (Section C-4a(5))	CCP-TP-002, S. 4.6	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**	Y	
61	Are procedures in place to ensure that the generator/storage site project office completes a WSPF based on the Batch Data Reports? (C3-6b)	CCP-TP-002, S. 4.3	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)**		
62	Are procedures in place to ensure that the generator/storage Site Project Manager submits the WSPF to the Permittees for DOE's approval along with the accompanying Characterization Information Summary for that waste stream? (Section C-4a(5))	CCP-TP-002, S. 4.6	Y	OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)**	Y	
63	Are procedures in place to ensure that the generator/storage site maintains records related to waste characterization testing activities in the testing facility files, or site project files for those facilities located on-site? (Section C-4a(6))	CCP-QP-008, (ALL) CCP-QP-028, (ALL)	Y	CH Records Inventory and Disposition Schedule (RIDS) dated 08/01/2013 **(GEN-13)** RH Records Inventory and Distribution Schedule (RIDS) dated 07/23/2013 **(GEN-14)**	Y	
64	Are procedures in place to ensure that the appropriate documented training and indoctrination is performed for all individuals and that procedures are documented in site specific QAPjPs and procedures? (Section C3-8)	CCP-PO-001, (ALL) CCP-QP-002, S. 4.0	Y	Qualification records for selected CCP personnel **(GEN-15)** NPTC – Oak Ridge National Labs (ORNL) List of Qualified Individuals dated 1/6/2014 **(GEN-16)** RH Program – ORNL List of Qualified Individuals dated 1/6/2014 **(GEN-17)**	Y	
66	Are procedures in place to ensure that the generator/storage site has an appropriate records inventory and disposition schedule (RIDS) or equivalent that was prepared and approved by appropriate site personnel? (Section C-4a(6))	CCP-QP-008, S.3.1.2 CCP-QP-028, S.3.1.1	Y	CH Records Inventory and Disposition Schedule (RIDS) dated 08/01/2013 **(GEN-13)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
				RH Records Inventory and Distribution Schedule (RIDS) dated 07/23/2013 **(GEN-14)**		
67	Are procedures in place to ensure that the generator/storage site maintains all records relevant to an enforcement action, regardless of disposition, until they are no longer needed for enforcement action, and then dispositioned per the approved RIDS? (Section C-4a(6))	CCP-QP-008, S.4.15.1 (NOTE) CCP-QP-028, (ALL)	Y	CH Records Inventory and Disposition Schedule (RIDS) dated 08/01/2013 **(GEN-13)** RH Records Inventory and Distribution Schedule (RIDS) dated 07/23/2013 **(GEN-14)**	Y	
68	Are procedures in place to ensure that the generator/storage site maintains records that are designated as Lifetime Records for the life of the waste characterization program plus six years or that the records have been transferred to the WIPP Records Archive facility? Lifetime Records include: • Test facility Batch Data Reports, • Waste Stream Characterization Package, • Data reduction, validation, and reporting documentation, • Acceptable knowledge documentation, • WSPF and Characterization Information Summary (Section C-4a(6), Table C-2)	CCP-PO-001, S.C-4a(6) TABLE C-2 CCP-PO-002, S.5.5 CCP-QP-008, (ALL) CCP-QP-028, (ALL)	Y	CH Records Inventory and Disposition Schedule (RIDS) dated 08/01/2013 **(GEN-13)** RH Records Inventory and Distribution Schedule (RIDS) dated 07/23/2013 **(GEN-14)**	Y	
69	Are procedures in place to ensure that the generator/storage site maintains records that are designated as Non-Permanent Records for ten years from the date of record generation, and then dispositioned according per the approved RIDS or transferred to the WIPP Records Archive facility? Non-Permanent Records include: • Nonconformance documentation, • Variance documentation, • Assessment documentation, • Calculations and related software documentation, • Training/qualification documentation, • QAPjP documentation (all revisions), • Calibration documentation, • Procurement documentation,	CCP-PO-001, S. C-4a(6), C-7, TABLE C-2 CCP-PO-002, S.5.5 CCP-QP-008, (ALL) CCP-QP-028, (ALL)	Y	CH Records Inventory and Disposition Schedule (RIDS) dated 08/01/2013 **(GEN-13)** RH Records Inventory and Distribution Schedule (RIDS) dated 07/23/2013 **(GEN-14)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	• QA procedures (all revisions), • Technical implementing procedures (all revisions), and • Audio/video recording (radiography, visual, etc.). (Section C-4a(6), Table C-2)					
70	Are procedures in place to ensure that the generator/storage site has raw data that is identifiable and legible, and provides documentary evidence of quality? (Section C-4a(6))	CCP-TP-500, Att. 1 & 2 CCP-TP-053, Att. 1, 2, & 3	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	
71	Are procedures in place to ensure that if the generator/storage site ceases to operate, that all records be transferred before closeout? (Section C-4a(6))	CCP-QP-008 S.4.10.2	Y	N/A	N/A	This site has not ceased operations.
	SHIPMENT					
72	Are procedures in place to ensure that the generator/storage site accurately completes an EPA Hazardous Waste Manifest prior to shipping the waste to WIPP that contains the following information: • Generator/storage site name and EPA ID • Generator/storage site contact name and phone number • Quantity of waste • List of up to six state and/or federal hazardous waste numbers in each line item • Listing of all container IDS • Signature of authorized generator representative (Section C-5b)	CCP-TP-033, (ALL) CCP-TP-507, (ALL)	Y	N/A	N/A	CCP/ORNL has not produced any Hazardous Waste Manifests as of this audit.

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-1 Waste Analysis Plan (WAP) Checklist [1]	Procedure Documented		Example of Implementation/Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
73	Are procedures in place to ensure that the generator/storage site accurately completes the following container specific information: • Waste stream identification number • List of hazardous waste numbers per container • Certification data • Shipping data (Section C-5b)	CCP-TP-030, (ALL) CCP-TP-033, (ALL) CCP-TP-507, (ALL) CCP-TP-530, (ALL)	Y	N/A	N/A	CCP/ORNL has not produced any Hazardous Waste Manifests as of this audit.

1. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements is meant to ask whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR6-0438	Examination Date(s): 12/04/2013			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: NFS0880A NFS0673A NFS0150A1 NFS0805A NFS0759A NFS0506B NFS0506A NFS0929A NFS0151A NFS0592A NFS0789A
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**	X			NCR-ORNL-0872-13 places container NFS0788A on an interim disposition of hold.
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			Except container NFS0788A.

NTPC RECORDS ORIGINAL
DATE REC'D 12.13.13

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0438				Examination Date(s): 12/04/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			Except container NFS0788A.
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**			X	
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0438	Examination Date(s): 12/04/2013			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.				
Daniel Wade				12/12/2013
SPM Printed Name	Signature			Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR6-0438 ☑ CH ☐ RH Date: 12-4-13

Waste Container ID Numbers	
Replicate Scan:	NFS0506B
Independent Observation:	NFS0880A
1	NFS0788A
2	NFS0880A
3	NFS0673A
4	NFS0150A1
5	NFS0805A
6	NFS0759A
7	NFS0506B
8	NFS0506A
9	NFS0929A
10	NFS0151A
11	NFS0592A
12	NFS0789A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Printed Name	Signature	Date
Eric Lyles		12-4-13 12/11/13

Independent Technical Reviewer:

Printed Name	Signature	Date
Fred Owey		12-11-13

NTPC RECORDS ORIGINAL
DATE REC'D 12-11-2013

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR6-0438 Date: 12-4-13

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	~~46~~ N/A EL 12/11/13
6	CCP Independent Technical Reviewer Checklist	~~46~~ 49 EL 12/11/13

EL 12/11/13

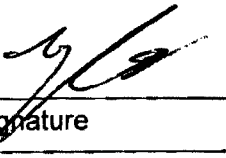
Batch Narrative
All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Eric Lyles
RTR Operator

Signature

12-4-13
Date 12/11/13

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR6-0438		
Examination Date: 12-4-13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 10 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator:		
Eric Lyles		12-4-13
Printed Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0506B
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 90.4 kg Tare Wt.: 43.8 kg Net Wt.: 46.6 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0506B

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other: Cardboard tube inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	6.5
Organic Matrix (OR):	8.6
Inorganic Matrix (IN):	31.5
Soils (S):	
Total WMP Weight:	46.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0506B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Replicate scan agrees with the original scan.	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☒ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0880A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 96.4 kg Tare Wt.: 43.8 kg Net Wt.: 52.6 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0880A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Metal Hardware, scrap metal

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other:Cardboard tube inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	7.5
Organic Matrix (OR):	6.0
Inorganic Matrix (IN):	37.1
Soils (S):	
Total WMP Weight:	52.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0880A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Independent Observation agrees with the original scan.	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0788A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [X] Yes NCR No.: ~~N/A~~ NCR-ORNL-0872-13 EC12/11/13 NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 80.0 kg Tare Wt.: 43.8 kg Net Wt.: 36.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0788A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM: AA battery

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	0.1
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	8.0
Organic Matrix (OR):	5.0
Inorganic Matrix (IN):	21.1
Soils (S):	
Total WMP Weight:	36.2

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0788A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☒ Yes ~~☒ No~~ EL 12/11/13 EL 12/11/13
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: ~~N/A~~ EL 12/11/13
NCR-ORNL-0872-13 Battery is not listed in AK. EL 12/11/13

RTR Operator:

Eric Lyles — Print Name

Signature

12/4/2013 — Date 12/11/13

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0880A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 96.4 kg Tare Wt.: 43.8 kg Net Wt.: 52.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0880A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	11.0
Organic Matrix (OR):	5.0
Inorganic Matrix (IN):	34.1
Soils (S):	
Total WMP Weight:	52.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0880A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0673A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 49.6 kg Tare Wt.: 43.8 kg Net Wt.: 5.8 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	60 12/12/13 ~~95~~ % 12/12/13

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0673A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R: Rubber gloves

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	1.0
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	1.0
Inorganic Matrix (IN):	1.8
Soils (S):	
Total WMP Weight:	5.8

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0673A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: ~~N/A~~ EL 12/11/13
on the audio video recording operator stated 95%. the correct utilization is 60. this attachment 2 reflects my decision. EL 12/11/13

RTR Operator:

Eric Lyles — Print Name

Signature

12/4/2013 — Date 12/11/13

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination	[ ] RTR Replicate Scan [ ] RTR Independent Observation
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0150A1
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 53.7 kg Tare Wt.: 43.8 kg Net Wt.: 9.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0150A1

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.5
Organic Matrix (OR):	3.0
Inorganic Matrix (IN):	4.4
Soils (S):	
Total WMP Weight:	9.9

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0150A1

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0805A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 52.9 kg Tare Wt.: 43.8 kg Net Wt.: 9.1 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0805A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.5
Organic Matrix (OR):	2.0
Inorganic Matrix (IN):	4.6
Soils (S):	
Total WMP Weight:	9.1

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0805A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0759A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 48.7 kg Tare Wt.: 43.8 kg Net Wt.: 4.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	60 ~~95~~ %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0759A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	1.0
Inorganic Matrix (IN):	2.4
Soils (S):	
Total WMP Weight:	4.9

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0759A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: ~~N/A~~ EL 12/11/13
on the audio video recording media operator noted 95. after review I agree the utilization is 60. This attachment reflects my decision. CL 12/11/13

RTR Operator:

Print Name	Signature	Date
Eric Lyles		12/4/2013
		Date 12/11/13

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0506B
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 90.4 kg Tare Wt.: 43.8 kg Net Wt.: 46.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0506B

Section 3: Container Inventory and Comments (Detailed descriptions)

IM:

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	7.0
Organic Matrix (OR):	10.0
Inorganic Matrix (IN):	29.6
Soils (S):	
Total WMP Weight:	46.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0506B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0506A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 87.2 kg Tare Wt.: 43.8 kg Net Wt.: 43.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0506A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM:

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	8.0
Organic Matrix (OR):	10.0
Inorganic Matrix (IN):	25.4
Soils (S):	
Total WMP Weight:	43.4

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0506A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination	[ ] RTR Replicate Scan [ ] RTR Independent Observation
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0929A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 86.5 kg Tare Wt.: 43.8 kg Net Wt.: 42.7 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0929A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	7.0
Organic Matrix (OR):	3.0
Inorganic Matrix (IN):	32.2
Soils (S):	
Total WMP Weight:	42.7

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0929A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0151A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 53.7 kg Tare Wt.: 43.8 kg Net Wt.: 9.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0151A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.5
Organic Matrix (OR):	2.0
Inorganic Matrix (IN):	4.4
Soils (S):	
Total WMP Weight:	9.9

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0151A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0592A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 85.4 kg Tare Wt.: 43.8 kg Net Wt.: 41.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0592A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	8.0
Organic Matrix (OR):	10.0
Inorganic Matrix (IN):	20.6
Soils (S):	
Total WMP Weight:	41.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0592A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination	[ ] RTR Replicate Scan [ ] RTR Independent Observation
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0789A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 85.0 kg Tare Wt.: 43.8 kg Net Wt.: 41.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0789A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	6.0
Organic Matrix (OR):	8.0
Inorganic Matrix (IN):	26.2
Soils (S):	
Total WMP Weight:	41.2

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0789A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0872-13 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR6-0438
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): NFS0788A
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text): CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [H.2] states in part IF the waste form DOES NOT match the Waste Stream description and/or the Waste Matrix Code, THEN initiate an NCR in accordance with CCP-QP-005, AND record NCR number in Section 1 and in the comments block of Attachment 2.

7c. Actual Condition: Container(s) currently assigned to Waste Stream OR-NFS-CH-HOM-A. Waste contains a AA battery which is potential hazardous waste not noted in the AK therefore, the waste does not match the waste stream description or the waste matrix code.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Fred Oney (printed name) — signature — 12/10/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☒ YES ☐ NO ☐ INDETERMINATE

10. Trend Code: L	11. Responsible Manager: **Beverly Schrock**
12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaRavia Harmon (printed name) — signature — 12/11/13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0872-13 **Revision 0**

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☐ N/A (See Final Disposition) ☒ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:
1. Responsible Manager send this NCR to the AK Expert for re-evaluation in accordance with CCP-TP-005.
2. AK Expert perform the AK re-evaluation and include a copy of documented results as an attachment to this NCR.
3. SPM determine Final Disposition (block 19) based on the results of the AK Expert for re-evaluation.

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name	signature	date
Beverly Schrock	Andrew Stallings for Beverly Schrock	12/11/13

16b. QA Engineer or QA Designee:

printed name	signature	date
LaTrawa Harmon	LaTrawa Harmon	12/11/13

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name	signature	date

18. Interim Disposition Verified – QA Engineer:

printed name	signature	date

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0872-13 **Revision 0**

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☐ N/A for Reject, Rework, or Scrap]

☐ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☐ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

printed name _____ signature _____ date _____

21. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name _____ signature _____ date _____

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name _____ signature _____ date _____

COPY

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR6-0438

	Description			
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☒ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☒ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☒ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR6-0438

	Description			
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☒ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: DURING ITR DRUM NFS0788A WAS identified AS NOT MACHING the WASTE STREAM. NCR-ORNL-0872-13 WAS issued. TO 12-11-13

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Printed Name	Signature	Date
Fred Olney		12-11-13

DIVIDER PAGE ONLY

NOT PART OF PAGE COUNT

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-12-13
Telephone Number:	575-234-7523		

OR-RTR6-0438	BACKUP RTR DVD	12-4-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [X] — Signature — Misty Waldrip (Printed Name) — 12.16.13 (Date)

Records Rejected [ ] — Signature — Printed Name — Date

Reason for Rejection:

Re-submittal: — Signature — Printed Name — Date

****
*** Send Results ***
****

Sending is complete.

Job No.	0072
Address	918655768703
Name	ORNL
Start Time	12/16 01:18 PM
Call Length	00'47
Sheets	1
Result	OK

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-12-13
Telephone Number:	575-234-7523		

OR-RTR6-0438	BACKUP RTR DVD	12-4-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X] Signature — Misty Waldrip Printed Name — 12.16.13 Date

Records Rejected [ ] _____

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-16-13
Telephone Number:	575-234-7523		

OR-RTR6-0438	RTR BDR	12-04-2013	50
OR-RTR6-0438	PRIMARY DVD	12-04-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X]	Signature	Misty Waldrip (Printed Name)	12-18-13 (Date)
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:	Signature	Printed Name	Date

****
*** Send Results ***
****

Sending is complete.

Job No.	0120
Address	918655768703
Name	ORNL
Start Time	12/18 09:57 AM
Call Length	00'48
Sheets	1
Result	OK

Controlled Copy

CCP-QP-008, Rev. 21
CCP Records Management

Effective Date: 02/28/2013

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-16-13
Telephone Number:	575-234-7523		

OR-RTR6-0438	RTR BDR	12-04-2013	50
OR-RTR6-0438	PRIMARY DVD	12-04-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X] Signature — Misty Waldrip Printed Name — 12-18-13 Date

Records Rejected [ ]

DIVIDER

PAGE

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR7-0002				Examination Date(s): 12/03/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: X10C0506151C ✓ X10C0506148C ✓ X10C0506154A ✓ X10C0506150B ✓ X10C0506151B ✓ X10C0506149B ✓ X10C0506149E ✓
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**			X	
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			

NTPC RECORDS ORIGINAL
DATE REC'D 2/3/14

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0002	Examination Date(s): 12/03/2013			
Description of Criteria Reviewed	Criteria Met?			Comments/Qualifiers
	YES	NO	NA	
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**	X			
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0002	Examination Date(s): 12/03/2013			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.				
Daniel Wade				12/12/2013
SPM Printed Name	Signature			Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR7-0002 ☑ CH ☐ RH Date: 12/3/13

Waste Container ID Numbers	
Replicate Scan:	X10C0506149E
Independent Observation:	X10C0506151C
1	X10C0506151C
2	X10C0506148C
3	X10C0506154A
4	X10C0506150B
5	X10C0506151B
6	X10C0506149B
7	X10C0506149E
8	N/A
9	N/A
10	N/A
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Steve Redmond		12/3/13
Printed Name	Signature	Date

Independent Technical Reviewer:

FRED ONEY		12-9-13
Printed Name	Signature	Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-10-2013

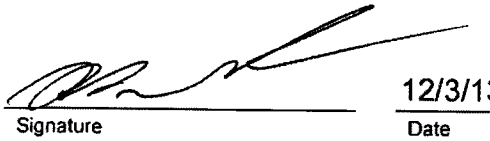
Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR7-0002 Date: 12/3/13

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	N/A
6	CCP Independent Technical Reviewer Checklist	31

Batch Narrative
All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Steve Redmond
RTR Operator


Signature

12/3/13
Date

2

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR7-0002		
Examination Date: 12/3/13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 15 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator: Steve Redmond (Printed Name) — (Signature) — 12/3/13 (Date)		

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506149E
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 256.6 kg Tare Wt.: 33.2 kg Net Wt.: 223.4 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506149E

Section 3: Container Inventory and Comments (Detailed descriptions)
IM:
AM:
OM:
OI:
C:
R:
XPM: Plastic bag
OR:
IN:
S: Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	0.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	222.9
Total WMP Weight:	223.4

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506149E

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: This Replicate scan agrees with the original scan.	

RTR Operator:

Eric Lyles		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☒ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506151C
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 241.2 kg Tare Wt.: 33.2 kg Net Wt.: 208.0 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506151C

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Absorbent

C:

R:

XPM: Plastic bags

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	1.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	201.9
Total WMP Weight:	208.0

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CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506151C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Independent Observation agrees with the original scan.	

RTR Operator:

Eric Lyles		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506151C
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 241.2 kg Tare Wt.: 33.2 kg Net Wt.: 208.0 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506151C

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Absorbent

C:

R:

XPM: Plastic bags

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.5
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	202.4
Total WMP Weight:	208.0

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CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506151C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:N/A	

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506148C
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 270.0 kg Tare Wt.: 33.2 kg Net Wt.: 236.8 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506148C

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Absorbent

C:

R:

XPM: Plastic bags

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.3
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	231.4
Total WMP Weight:	236.8

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506148C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506154A
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 162.4 kg Tare Wt.: 33.2 kg Net Wt.: 129.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506154A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Absorbent

C: Tape

R:

XPM: Plastic bag

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	6.0
Cellulosics (C):	0.2
Rubber (R):	
Plastics (waste materials) (XPM):	0.3
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	122.2
Total WMP Weight:	129.2

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506154A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506150B
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 259.2 kg Tare Wt.: 33.2 kg Net Wt.: 226.0 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506150B

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Concrete pieces, absorbent

C:

R:

XPM: Scrap plastic

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	4.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.3
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	217.7
Total WMP Weight:	226.0

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506150B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: N/A	

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506151B
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 264.8 kg Tare Wt.: 33.2 kg Net Wt.: 231.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506151B

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Absorbent

C:

R:

XPM: Scrap plastic

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.3
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	225.3
Total WMP Weight:	231.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506151B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: N/A	

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506149B
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 276.4 kg Tare Wt.: 33.2 kg Net Wt.: 243.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506149B

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R:

XPM: Scrap plastic

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	0.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	242.2
Total WMP Weight:	243.2

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506149B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: ~~N/A~~ 12-3-13 On the audio/video recording of this container the incorrect ID (X10C0506498) was entered on the display and called out in the recording. ATTACHMENT 2 reflects the correct container ID. 12-3-13

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506149E
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 256.6 kg Tare Wt.: 33.2 kg Net Wt.: 223.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: X10C0506149E

Section 3: Container Inventory and Comments (Detailed descriptions)

IM:

AM:

OM:

OI:

C:

R:

XPM: Scrap plastic

OR:

IN:

S: Soil

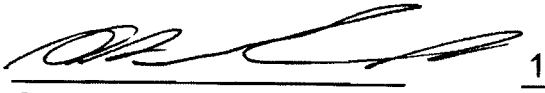
Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	0.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	222.9
Total WMP Weight:	223.4

CCP Radiography Data Sheet

Waste Container ID: X10C0506149E

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: On the audio/video recording of this container the incorrect container ID(X10C050649E) was entered on the the display and called out in the recording. Attachment 2 reflects the correct container ID.	

RTR Operator:		
Steve Redmond		12/3/2013
Print Name	Signature	Date

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR 7-0002

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☒ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☒ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☒ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR - RTR 7 - 0002

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☐ YES	☒ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

FRED ONEY		12-9-13
Printed Name	Signature	Date

DIVIDER PAGE ONLY

NOT PART OF PAGE COUNT

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	0986
DESTINATION TEL #	918655768703
DESTINATION ID	ORNL
ST. TIME	12/16 10:19
TIME USE	00'41
PAGES SENT	1
RESULT	OK

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-10-2013
Telephone Number:	575-234-7523		

OR-RTR7-0002	BACKUP RTR DVD	12-03-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

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Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-10-2013
Telephone Number:	575-234-7523		

OR-RTR7-0002	BACKUP RTR DVD	12-03-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Remarks

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [ ]	Signature	Misty Waldrip (Printed Name)	12-13-13 (Date)
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

[ ] Copy

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-16-13
Telephone Number:	575-234-7523		

OR-RTR7-0002	RTR BDR	12-03-2013	32
OR-RTR7-0002	PRIMARY DVD	12-03-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [ ] _____ (Signature) _____ (Printed Name) _____ (Date)

Records Rejected [ ] _____ (Signature) _____ (Printed Name) _____ (Date)

Reason for Rejection:

Re-submittal: _____ (Signature) _____ (Printed Name) _____ (Date)

****
*** TX REPORT ***
****

TRANSMISSION OK

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DESTINATION ID	ORNL
ST. TIME	01/06 09:02
TIME USE	00'39
PAGES SENT	1
RESULT	OK

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Fax Record [ ] Electronic Record [ ] Copy

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-16-13
Telephone Number:	575-234-7523		

OR-RTR7-0002	RTR BDR	12-03-2013	32
OR-RTR7-0002	PRIMARY DVD	12-03-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

DIVIDER PAGE

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR7-0009				Examination Date(s): 12/16/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: NFS0117A · NFS0423B · NFS0404B · NFS0754A · X10C0402817F · X10CSATN02640J · X10C0402918AI · X10C0402918BG · X10C0402885G ·
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**	X			NCR-ORNL-0871-13 rejects container X10C0402918BN. ·
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			Except container X10C0402918BN, an impenetrable item made this undeterminable.

NTPC RECORDS ORIGINAL
DATE REC'D 12-31-13 mw

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0009	**Examination Date(s): 12/16/2013**			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			Except container X10C0402918BN, an impenetrable item made this undeterminable.
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			Except container X10C0402918BN. This container contained an impenetrable item.
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**	X			Except container X10C0402918BN, an impenetrable item made this undeterminable.
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0009	Examination Date(s): 12/16/2013			
Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.				
Daniel Wade (SPM Printed Name)	Signature			12/27/2013 (Date)

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR7-0009 ☑ CH ☐ RH Date: 12-16-13

Waste Container ID Numbers	
Replicate Scan:	X10C0402885G
Independent Observation:	NFS0117A
1	NFS0117A
2	NFS0423B
3	NFS0404B
4	NFS0754A
5	X10C0402918BN
6	X10C0402817F
7	X10CSATN02640J
8	X10C0402918AI
9	X10C0402918BG
10	X10C0402885G
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Eric Lyles		12-16-13
Printed Name	Signature	Date

Independent Technical Reviewer:

Fred Owey		12-24-13
Printed Name	Signature	Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-24-2013

1

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR7-0009 Date: 12/16/13

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	40
6	CCP Independent Technical Reviewer Checklist	43

Batch Narrative
All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Eric Lyles — RTR Operator

Signature

12/16/13 — Date

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR7-0009		
Examination Date: 12/16/13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 7 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator:		
Eric Lyles	[signature]	12/16/13
Printed Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10C0402885G
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 67.9 kg Tare Wt.: 33.2 kg Net Wt.: 34.7 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

Waste Container ID: X10C0402885G

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal, metal containers

AM:

OM:

OI: Glass containers, absorbent, glassware

C:

R:

XPM: Plastic bag, plastic containers, plastic sheeting, plastic caps

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	27.2
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	4.5
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	3.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	34.7

CCP Radiography Data Sheet

Waste Container ID: X10C0402885G

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:This Replicate scan agrees with the original scan.	

RTR Operator:

Steve Redmond		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☒ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	NFS0117A
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 152.8 kg Tare Wt.: 33.2 kg Net Wt.: 119.6 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0117A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Broken glass, raschig rings

C:

R:

XPM: Scrap plastic

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	116.7
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.8
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	119.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0117A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Independent Observation agrees with the original scan.	

RTR Operator:

Steve Redmond		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	NFS0117A
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 152.8 kg Tare Wt.: 33.2 kg Net Wt.: 119.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0117A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Raschig rings, broken glass

C:

R:

XPM: Plastic bag, liner lids

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	115.6
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	3.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	119.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0117A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	NFS0423B
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 205.8 kg Tare Wt.: 33.2 kg Net Wt.: 172.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: NFS0423B

Section 3: Container Inventory and Comments (Detailed descriptions)

IM:

AM:

OM:

OI: Broken concrete

C:

R:

XPM: Plastic bag

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	171.6
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	172.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0423B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	NFS0404B
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 162.8 kg Tare Wt.: 33.2 kg Net Wt.: 129.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0404B

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Broken concrete

C:

R:

XPM: Plastic bag, plastic sheeting, liner lid

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	15.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	110.6
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	4.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	129.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0404B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: N/A

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	NFS0754A
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 48.4 kg Tare Wt.: 43.8 kg Net Wt.: 4.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	65 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0754A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM:

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.5
Organic Matrix (OR):	1.0
Inorganic Matrix (IN):	2.1
Soils (S):	
Total WMP Weight:	4.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0754A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10C0402918BN
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[ ] No [X] Yes NCR No.: NCR-ORNL-0871-13 NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 167.0 kg Tare Wt.: 33.2 kg Net Wt.: 133.8 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402918BN

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Paint cans, scrap metal, saw blade, electrical equipment, hand tools

AM:

OM:

OI: Absorbent

C: Cloth, wooden brush

R:

XPM: Plastic bags,open plastic bucket

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Insert (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	122.8
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	5.0
Rubber (R):	
Plastics (waste materials) (XPM):	4.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	133.8

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402918BN

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☐ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☐ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☐ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☐ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☐ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☐ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☐ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☐ No
Is there an indication of PCBs liquids?	☐ Yes ☐ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☐ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☐ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☐ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☐ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☐ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☐ No

Comments: Impenetrable items in the container limited the ability to complete the scan on this container.
All questions in section 5 could not be answered due to this limitation.
The Impenetrable condition is documented in NCR-ORNL-0871-13

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information		
[X] RTR Examination	[ ] RTR Replicate Scan	[ ] RTR Independent Observation
Site ID:	ORNL	
Batch Number:	OR-RTR7-0009	
Examination Date:	12/16/2013	
Waste Container ID:	X10C0402817F	
Video/Audio Recorded Media Number:	OR-RTR7-0009	A&B
Procedure and Revision No.:	CCP-TP-053	Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A	

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 78.6 kg Tare Wt.: 33.2 kg Net Wt.: 45.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	75 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402817F

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal, paint cans, metal lids, metal pipes

AM:

OM:

OI: Glass containers

C:

R:

XPM: Plastic bags

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	41.4
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	45.4

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402817F

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10CSATN02640J
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 57.5 kg Tare Wt.: 33.2 kg Net Wt.: 24.3 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02640J

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Paint cans, scrap metal

AM:

OM:

OI: Glass containers

C: Cardboard

R:

XPM: Plastic bags, open plastic container

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	16.8
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	1.0
Cellulosics (C):	2.5
Rubber (R):	
Plastics (waste materials) (XPM):	4.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	24.3

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02640J

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10C0402918AI
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 123.7 kg Tare Wt.: 33.2 kg Net Wt.: 90.5 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402918AI

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal, electrical equipment, hand tools, saw blades

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic hose, plastic flashlight with batteries, open plastic bucket, plastic caps

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	85.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	90.5

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402918AI

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10C0402918BG
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 70.1 kg Tare Wt.: 33.2 kg Net Wt.: 36.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402918BG

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal, metal pipe, electrical equipment, saw blades

AM:

OM:

OI:

C: Cardboard

R:

XPM: Plastic bags, plastic bucket open

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	29.4
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	2.5
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	36.9

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402918BG

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10C0402885G
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 67.9 kg Tare Wt.: 33.2 kg Net Wt.: 34.7 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402885G

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Paint cans, metal lids, scrap metal, electrical equipment

AM:

OM:

OI: Glass containers, absorbent, broken glass

C:

R:

XPM: Plastic container

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	30.7
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	3.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	34.7

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402885G

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0871-13 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR7-0009
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): X10C0402918BN
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text): CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [B] states in part "IF a container is identified in the S5000 summary category group that CAN NOT be penetrated by the RTR method because of the presence of lead, or other shielding, THEN initiate a NCR..."

7c. Actual Condition: impenetrable item(s).

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Eric Lyles (printed name) — signature — 12/16/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☒ NO ☐ INDETERMINATE

10. Trend Code: **K**	11. Responsible Manager: **Fred Oney**
12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

Steve Redmond (printed name) — signature — 12-17-13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0871-13 **Revision 0**

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☒ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name _____ signature _____ date _____

16b. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name _____ signature _____ date _____

18. Interim Disposition Verified – QA Engineer:

printed name _____ signature _____ date _____

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0871-13 **Revision 0**

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification–Required for Use-As-Is or Repair dispositions. [☒ N/A for Reject, Rework, or Scrap]

☒ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion–Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]
Send to CH VE

19c. Corrective Actions (Actions to Prevent Recurrence–For Repair or Rework, if applicable.
[☒ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Fred Oney	[signature]	12-17-13
printed name	signature	date

21. QA Engineer or QA Designee:

Steve Redmond	[signature]	12-17-13
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified–NCR Closed QA Engineer:

printed name	signature	date

COPY

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR7-0009

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	☒ N/A
12.	Was justification made for changing the original data?	☐ NO	☐ YES	☒ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☐ YES	☒ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR7-0009

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☒ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Fred Ovey
Printed Name

Signature

12-24-13
Date

DIVIDER PAGE ONLY

NOT PART OF PAGE COUNT

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-24-2013
Telephone Number:	575-234-7009		

OR-RTR7-0009	BACKUP RTR DVD	12-16-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [ ]	Signature	Misty Waldrip Printed Name	12.30.13 Date
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

****
*** Send Results ***
****

Sending is complete.

Job No.	0196
Address	918655768703
Name	ORNL
Start Time	12/30 02:53 PM
Call Length	00'47
Sheets	1
Result	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-24-2013
Telephone Number:	575-234-7009		

OR-RTR7-0009	BACKUP RTR DVD	12-16-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [ ] Signature — Misty Waldrip (Printed Name) — 12-30-13 (Date)

Records Rejected [ ]

DIVIDER

PAGE

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR6-0435	Examination Date(s): 11/26/2013			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: X10CSATN02446R · X10CSATN02023F · X10CSATN02260J · X10CSATN02682C · X10CSATN02241B · X10CSATN02023E · X10CSATN02241L · X10CSATN02260I · X10CSATN02093C · X10CSATN02296L · X10CSATN02260K · X10CSATN02474L · X10CSATN02223M · X10CSATN02241I ·
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**	X			NCR-ORNL-0869-13 rejects container X10CSATN02607C.
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			

NTPC RECORDS ORIGINAL
DATE REC'D 12/3/13 mw

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0435			Examination Date(s): 11/26/2013	
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			Except for container X10CSATN02607C. This container contained impenetrable items
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**	X			Except for container X10CSATN02607C. This container was impenetrable, therefore it is not known if there is any observable liquid that meets TSDF-WAC criteria.
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0435	Examination Date(s): 11/26/2013			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.				
Daniel Wade (SPM Printed Name)	(Signature)			12/10/2013 (Date)

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR6-0435 ☑ CH ☐ RH Date: 11-26-13

Waste Container ID Numbers	
Replicate Scan:	X10CSATN02023F
Independent Observation:	X10CSATN02446R
1	X10CSATN02446R
2	X10CSATN02023F
3	X10CSATN02260J
4	X10CSATN02682C
5	X10CSATN02241B
6	X10CSATN02023E
7	X10CSATN02241L
8	X10CSATN02260I
9	X10CSATN02093C
10	X10CSATN02296L
11	X10CSATN02260K
12	X10CSATN02474L
13	X10CSATN02607C
14	X10CSATN02223M
15	X10CSATN02241I
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Eric Lyles — Printed Name

Signature

11-26-13 — Date 12/4/13

Independent Technical Reviewer:

Daphne Brothers — Printed Name

Signature

12/5/13 — Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-09-2013

1

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR6-0435 Date: 11-26-13

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	~~N/A~~ 55
6	CCP Independent Technical Reviewer Checklist	~~55~~ 58

Batch Narrative
All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Eric Lyles
RTR Operator

Signature

11-26-13
Date 12/4/13

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR6-0435		
Examination Date: 11-26-13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 10 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator:		
Eric Iyles	[signature]	11-26-13
Printed Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02023F
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 47.1 kg Tare Wt.: 33.2 kg Net Wt.: 13.9 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	75 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02023F

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Metal pipe, Bolt fo 12-4-13

AM:

OM:

OI: Glass containers, absorbent

C: Cloth coveralls

R:

XPM: Plastic bags, plastic containers

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	1.2
Cellulosics (C):	5.0
Rubber (R):	
Plastics (waste materials) (XPM):	5.7
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	13.9

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02023F

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Replicate scan agrees with the original scan.	

RTR Operator:

Fred Oney		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☒ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02446R
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 70.4 kg Tare Wt.: 33.2 kg Net Wt.: 37.2 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02446R

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal, aerosol can punctured

AM:

OM:

OI: Absorbent

C: Cardboard

R:

XPM: Plastic bags, plastic sheeting

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	25.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.5
Cellulosics (C):	3.0
Rubber (R):	
Plastics (waste materials) (XPM):	8.2
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	37.2

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02446R

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Independent Observation agrees with the original scan.	

RTR Operator:

Fred Oney		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02446R
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 70.4 kg Tare Wt.: 33.2 kg Net Wt.: 37.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02446R

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Punctured aerosol can, scrap metal

AM:

OM:

OI:

C: Cardboard

R:

XPM: Plastic sheeting, plastic bags

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	31.2
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	2.0
Rubber (R):	
Plastics (waste materials) (XPM):	4.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	37.2

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02446R

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02023F
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 47.1 kg Tare Wt.: 33.2 kg Net Wt.: 13.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	75 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02023F

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Metal pipe, metal hardware
AM:	
OM:	
OI:	Glass containers, absorbent
C:	Cloth
R:	Rubber gloves
XPM:	Plastic bags, plastic containers
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	3.0
Rubber (R):	3.9
Plastics (waste materials) (XPM):	3.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	13.9

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02023F

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02260J
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 49.2 kg Tare Wt.: 33.2 kg Net Wt.: 16.0 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	65 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02260J

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Metal lids, scrap metal, saw blades

AM:

OM:

OI: Absorbent

C:

R:

XPM: Plastic bags, plastic sheeting, plastic containers, plastic caps

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	1.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	12.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	16.0

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02260J

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02682C
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 48.2 kg Tare Wt.: 33.2 kg Net Wt.: 15.0 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02682C

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Lightbulb bases, metal can, metal container, metal lids

AM:

OM: Scrap lead

OI: Glass containers, lightbulb

C: Cardboard, wood

R:

XPM: Plastic bags, plastic sheeting, plastic containers, plastic tubing, plastic lids

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	3.0
Other Inorganic Materials (OI)	0.5
Cellulosics (C):	3.0
Rubber (R):	
Plastics (waste materials) (XPM):	7.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	15.0

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02682C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02241B
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 47.9 kg Tare Wt.: 33.2 kg Net Wt.: 14.7 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02241B

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Metal cans, scrap metal, metal lids, saw blade

AM:

OM:

OI: Glass containers

C: Cardboard

R:

XPM: Plastic bags, plastic containers, open plastic container, plastic boot

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	1.0
Cellulosics (C):	3.0
Rubber (R):	
Plastics (waste materials) (XPM):	7.7
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	14.7

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02241B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02023E
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 42.5 kg Tare Wt.: 33.2 kg Net Wt.: 9.3 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	70 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02023E

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Glass container, absorbent

C:

R: Rubber gloves

XPM: plastic containers, plastic bags, plastic sheeting, plastic caps

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	1.0
Cellulosics (C):	
Rubber (R):	1.0
Plastics (waste materials) (XPM):	5.3
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	9.3

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02023E

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02241L
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 45.6 kg Tare Wt.: 33.2 kg Net Wt.: 12.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02241L

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Paint cans, scrap metal, electrical equipment

AM:

OM:

OI: Absorbent, glass containers, lightbulb

C: Cardboard

R:

XPM: Plastic bags, plastic boots, plastic lid, plastic containers

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	1.0
Rubber (R):	
Plastics (waste materials) (XPM):	6.4
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	12.4

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02241L

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02260I
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 42.5 kg Tare Wt.: 33.2 kg Net Wt.: 9.3 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02260I

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R:

XPM: Plastic containers, plastic boots, plastic bags

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.2
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	9.1
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	9.3

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02260I

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02093C
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 60.3 kg Tare Wt.: 33.2 kg Net Wt.: 27.1 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	75 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02093C

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal, metal lids, paint cans

AM:

OM:

OI:

C:

R: Rubber gloves

XPM: Plastic bags, plastic sheeting, plastic containers

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	8.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	2.0
Plastics (waste materials) (XPM):	17.1
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	27.1

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02093C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02296L
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 44.3 kg Tare Wt.: 33.2 kg Net Wt.: 11.1 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02296L

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Metal pipe,. metal pan, hand tool, sissors

AM:

OM:

OI: Broken glass, glass container

C: Cloth

R: Rubber shoe covers

XPM: Plastic bags, plastic tubing, plastic sheeting, plastic containers

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	1.0
Rubber (R):	0.5
Plastics (waste materials) (XPM):	5.6
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	11.1

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02296L

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02260K
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 52.9 kg Tare Wt.: 33.2 kg Net Wt.: 19.7 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02260K

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Paint cans, saw blades, metal lids, scrap metal, hand tool, electrical equipment

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic boot, plastic tubing, plastic containers

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	12.7
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	7.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	19.7

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02260K

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02474L
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 50.7 kg Tare Wt.: 33.2 kg Net Wt.: 17.5 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02474L

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Paint cans, scrap metal
AM:	
OM:	
OI:	Broken glass, absorbent, glass container
C:	
R:	
XPM:	plastic bags, plastic boots, plastic sheeting, plastic containers
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	9.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	8.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	17.5

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02474L

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02607C
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	~~[X]~~ No [X] Yes CL 12/4/13 CL 12/4/13 CL 12/4/13 NCR No.: ~~N/A~~ NCR-ORNL-0869-13 NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 57.6 kg Tare Wt.: 33.2 kg Net Wt.: 24.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02607C

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Paint cans, electrical equipment

AM:

OM: Scrap lead

OI:

C:

R:

XPM: Plastic containers, plastic bags, plastic boots, plastic tubing

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	5.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	10.0
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	9.4
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	24.4

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02607C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ ~~No~~ EL 12/4/13
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ ~~No~~ EL 12/4/13
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ ~~No~~ EL 12/4/13
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ ~~No~~ EL 12/4/13
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ ~~No~~ EL 12/4/13
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ ~~No~~ EL 12/4/13
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ ~~No~~ EL 12/4/13
Is there an indication of PCBs liquids?	☐ Yes ☒ ~~No~~ EL 12/4/13
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ ~~No~~ EL 12/4/13
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: ~~N/A~~ EL 12/4/13
Impenetrable items in the container limited the ability to complete the scan on this container. Some questions in section 5 could not be answered due to this limitation. The impenetrable condition is documented in NCR-ORNL-0869-13.
EL 12/4/13

RTR Operator:

Eric Lyles		11/26/2013 12/4/13
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02223M
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 47.0 kg Tare Wt.: 33.2 kg Net Wt.: 13.8 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02223M

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Paint can, scrap metal

AM:

OM:

OI: Glass container

C: Tape roll

R:

XPM: Plastic containers, plastic bags, plastic sheeting, plastic tubing

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	4.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.2
Cellulosics (C):	0.1
Rubber (R):	
Plastics (waste materials) (XPM):	9.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	13.8

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02223M

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: N/A

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0435
Examination Date:	11/26/2013
Waste Container ID:	X10CSATN02241I
Video/Audio Recorded Media Number:	OR-RTR6-0435 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 48.1 kg Tare Wt.: 33.2 kg Net Wt.: 14.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02241I

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal, metal hardware, paint can

AM:

OM:

OI: Glass containers, broken lightbulb

C: Cardboard

R:

XPM: Plastic bags, plastic containers, plastic caps, plastic tubing, plastic sheeting, plastic lids

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	3.0
Rubber (R):	
Plastics (waste materials) (XPM):	7.9
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	14.9

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02241I

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		11/26/2013
Print Name	Signature	Date

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0869-13 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR6-0435
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): X10CSATN02607C
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text): CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [B] states in part "IF a container is identified in the S5000 summary category group that CAN NOT be penetrated by the RTR method because of the presence of lead, or other shielding, THEN initiate a NCR..."

7c. Actual Condition: impenetrable item(s).

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Daphne Brothers (printed name) Daphne D Brothers (signature) 12/4/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☒ NO ☐ INDETERMINATE

10. Trend Code: **K**	11. Responsible Manager: **Fred Oney**
12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

Steve Redmond (printed name) (signature) 12-5-13 (date)

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0869-13 **Revision 0**

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☒ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name _____ signature _____ date _____

16b. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name _____ signature _____ date _____

18. Interim Disposition Verified – QA Engineer:

printed name _____ signature _____ date _____

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0869-13 **Revision 0**

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☒ N/A for Reject, Rework, or Scrap]

☒ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]
Send to CH VE

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☒ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Fred Oney		12-5-13
printed name	signature	date

21. QA Engineer or QA Designee:

Steve Redmond		12-5-13
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR6-0435

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☒ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☒ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☒ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

CL 12/4/13
55
CR

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR6-0435

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☒ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: During ITR drum X10CSATN02607C was found to have impenetrable item(s). The impenetrable condition is documented in NCR-ORNL-0869-13.

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Printed Name	Signature	Date
Daphne Brothers	Daphne D Brothers	12-5-13

EL 12/4/13
~~56~~
59

DIVIDER PAGE ONLY

NOT PART OF PAGE COUNT

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	0985
DESTINATION TEL #	918655768703
DESTINATION ID	ORNL
ST. TIME	12/16 10:17
TIME USE	00'43
PAGES SENT	1
RESULT	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Fax Record [ ] Electronic Record [ ] Copy

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M STOLLER CORP.
	MS GSA 212	Telephone Number:	865 574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-10-2013
Telephone Number:	575-234-7523		

OR-RTR6-0435	BACKUP RTR DVD	11-26-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-10-2013
Telephone Number:	575-234-7523		

OR-RTR6-0435	BACKUP RTR DVD	11-26-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [X]	Signature	Misty Waldrip Printed Name	12.13.13 Date
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

Attachment 3 – Visual Examination Site Project Manager Checklist

Batch Data Report No.: ORNLRHVE13005

1. Has all the data received an independent technical review as evidenced by a completed checklist (Attachment 2) and the appropriate ITR signature?		☐ NO	☒ YES
2. Are BDR contents complete and match the Visual Examination Batch Data Report Table of Contents?		☐ NO	☒ YES
3. Is the BDR complete (appropriately filled in forms for each container)?		☐ NO	☒ YES
4. Have the RH Quality Assurance Objectives (QAOs) for VE been met?			
Precision – reconciled discrepancies between operators		☐ NO	☒ YES
Accuracy – trained operators		☐ NO	☒ YES
Representativeness – description of container contents		☐ NO	☒ YES
Completeness – completed data form and/or recording		☐ NO	☒ YES
Comparability – proper training and adequate AK for unopened containers		☐ NO	☒ YES
5. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments

No NCRs

SPM:

Laura Nelson
Printed Name

Laura Nelson
Signature

12/30/13
Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-30-13 GL

Attachment 4 – Visual Examination Batch Data Report Cover Sheet

Batch Data Report No.: ORNLRHVE13005 Date: 12-16-13

	Waste Container ID Number:
1	ORRH00683
2	
3	
4	
5	
6	
7	
8	N/A
9	
10	JC 12-16-13
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

NTPC RECORDS ORIGINAL
DATE REC'D 12-18-2013

Attachment 5 – Visual Examination Batch Data Report Table of Contents

Batch Data Report No.: ORNLRHVE 13005 Date: 12-16-13

Item	Description	Page No.
1	Visual Examination Batch Data Report Cover Sheet (Attachment 4)	1
2	Visual Examination Batch Data Report Table of Contents (Attachment 5)	2
3	Visual Examination Data Forms (Attachment 1)	3
4	Visual Examination Independent Technical Reviewer Checklist (Attachment 2)	5
5	Copy of NCRs (N/A [if not applicable])	N/A

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12-16-13		Batch Number: ORNLRHVE13005	
Procedure #: CCP-TP-500		Revision #: 13	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☑N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☑N/A		**Final Container** ☐ N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00683	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: S5400	
Waste Stream:		Waste Stream: OR-2EDC-RH-HET	
		Rigid Liner: ☐Y ☑N Type:	Rigid Liner Lid: ☐ Y ☑N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 90
Layers of Confinement:	Closure Method:	Layers of Confinement: 0	Closure Method: N/A

Comments (e.g., filter information, NCRs):
Cask # X10C96000188
NUCFIL-019DS #FK839

Waste Description:

Metal Cans (IM)
Metal Pieces (IM)
Cheese Cloth (C)
Plastic Pieces (P)
Glass (OIM)
Plastic Bags (P)
Melted Plastic (P)
Glass Viles (OIM)
Rubber Gaskets (R)
Metal Valve (IM)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH006683

	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	X	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	X	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	X	
Does the container have observable liquid containing PCBs?	☐	X	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	X	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	X	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	X	
Is there an indication of wastes containing explosives or compressed gases?	☐	X	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	X	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	X	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	X	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	X	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	X	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	X	
Is the waste consistent with the TRUCON Code?	X	☐	

Comments: N/A

Visual Examination Operator 1:
Jason Cofer — Print Name
Signature — Date: 12-16-13

Visual Examination Operator 2:
Anthony Harley — Print Name
Signature — Date: 12-16-13

Attachment 2 – Visual Examination Independent Technical Reviewer Checklist

Batch Data Report No.: ORNLRHVE13005

1. Were data generation and reduction conducted in a technically correct manner in accordance with the methods (procedure) used?	☐ NO	☒ YES	☐ N/A
2. Was the correct revision of the operating procedure used?	☐ NO	☒ YES	☐ N/A
3. Were all the transcription errors corrected?	☐ NO	☐ YES	☒ N/A
4. Are BDR contents complete and match the Visual Examination Batch Data report Table of Contents?	☐ NO	☒ YES	☐ N/A
5. Does the BDR include VE for no more than 20 containers?	☐ NO	☒ YES	☐ N/A
6. Is all data recorded signed and dated in reproducible ink?	☐ NO	☒ YES	☐ N/A
7. Is all raw data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	☐ N/A
8. Are all changes to original data lined out, initialed and dated by the individual making the changes or an individual authorized to make the change?	☐ NO	☐ YES	☒ N/A
9. Is there an adequate written description of the contents?	☐ NO	☒ YES	☐ N/A
10. Were the recording equipment checks satisfactory?	☐ NO	☐ YES	☒ N/A
11. Has each container in this BDR been evaluated for the presence of prohibited wastes?	☐ NO	☒ YES	☐ N/A
12. Has the physical waste form in each container in this BDR been evaluated against the Waste Stream Description and the Waste Matrix Code?	☐ NO	☒ YES	☐ N/A
13. Have the RH Quality Assurance Objectives (QAOs) for VE been met?	☐ NO	☒ YES	☐ N/A
Precision – reconciled discrepancies between operators or between the operator and ITR.	☐	☒	☐
Accuracy – trained operators	☐	☒	☐
Representativeness – description of container contents	☐	☒	☐
Completeness – completed data form and/or recording	☐	☒	☐
Comparability – proper training and adequate AK source documents are available for unopened containers.	☐	☒	☐
14. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A
Comments: N/A			

Independent Technical Reviewer:

Chuck Wallace — Printed Name

Signature

12/16/13 — Date

DIVIDER PAGE ONLY

NOT PART OF PAGE COUNT

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record
[ ] Fax Record
[ ] Electronic Record
[ ] Copy

Attn:	Danette Acosta	From:	Laura Nelson
Ship to:	CCP Records	Site:	Denver
	4021 National Parks Highway	Company:	NWP
	MS:GSA:212	Telephone Number:	303-843-2269
	Carlsbad, NM 88220	Date Sent:	12/30/13
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
ORNLRHVE13005	SPM Checklist	12/30/13	1
	NA		

Comments

NA

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [✓]	Signature	Greta Leos (Printed Name)	12-30-13 (Date)
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	1960
DESTINATION TEL #	918655768703
DESTINATION ID	ORNL
ST. TIME	12/30 15:55
TIME USE	00'40
PAGES SENT	1
RESULT	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	Danette Acosta	From:	Laura Nelson
Ship to:	CCP Records	Site:	Denver
	4021 National Parks Highway	Company:	NWP
	MS:GSA:212	Telephone Number:	303-843-2269
	Carlsbad, NM 88220	Date Sent:	12/30/13
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date(s)	Total Pages
ORNLRHVE13005	SPM Checklist	12/30/13	1
	NA		

Comments

NA

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-31-2013
Telephone Number:	575-234-7009		

ORNLRHVE13005	RH VE BDR	12-16-13	5
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted	[X]	DAcosta	Danette Acosta	1/3/14
		Signature	Printed Name	Date
Records Rejected	[ ]			
		Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	2078
DESTINATION TEL #	918655768703
DESTINATION ID	ORNL
ST. TIME	01/03 07:26
TIME USE	00'43
PAGES SENT	1
RESULT	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Fax Record [ ] Electronic Record [ ] Copy

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-31-2013
Telephone Number:	575-234-7009		

ORNLRHVE13005	RH VE BDR	12-16-13	5
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance Signature and Date

DIVIDER

PAGE

Attachment 3 – Visual Examination Site Project Manager Checklist

Batch Data Report No.: ORNLRHVE13006

1. Has all the data received an independent technical review as evidenced by a completed checklist (Attachment 2) and the appropriate ITR signature?		☐ NO	☒ YES
2. Are BDR contents complete and match the Visual Examination Batch Data Report Table of Contents?		☐ NO	☒ YES
3. Is the BDR complete (appropriately filled in forms for each container)?		☐ NO	☒ YES
4. Have the RH Quality Assurance Objectives (QAOs) for VE been met?			
Precision – reconciled discrepancies between operators		☐ NO	☒ YES
Accuracy – trained operators		☐ NO	☒ YES
Representativeness – description of container contents		☐ NO	☒ YES
Completeness – completed data form and/or recording		☐ NO	☒ YES
Comparability – proper training and adequate AK for unopened containers		☐ NO	☒ YES
5. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments

No NCRs

COPY

SPM:

Laura Nelson
Printed Name

Laura Nelson
Signature

11/6/14
Date

Richard Kantrowitz

Richard Kantrowitz

1/15/14

CCP RECORDS ORIGINAL
DATE REC'D 11/6/14
KH

Attachment 4 – Visual Examination Batch Data Report Cover Sheet

Batch Data Report No.: ORNLRHVE130006 Date: 12/19/13

	Waste Container ID Number:
1	ORRH00684
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N/A CW 12/19/13

NTPC RECORDS ORIGINAL
DATE REC'D 12-27-2013

Attachment 5 – Visual Examination Batch Data Report Table of Contents

Batch Data Report No.: ~~ORNLRHVE006~~ ORNLRHVE13006 A.H. 1-6-14 Date: 12/19/13

Item	Description	Page No.
1	Visual Examination Batch Data Report Cover Sheet (Attachment 4)	1
2	Visual Examination Batch Data Report Table of Contents (Attachment 5)	2
3	Visual Examination Data Forms (Attachment 1)	3
4	Visual Examination Independent Technical Reviewer Checklist (Attachment 2)	5
5	Copy of NCRs (N/A [if not applicable])	N/A

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12/19/13		Batch Number: ORNLRHVE13006	
Procedure #: CCP-TP-500		Revision #: 13	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☑N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☑N/A		**Final Container** ☐ N/A	
Container or Package ID Number:		Container or Package ID Number: ORAH00684	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: S5400	
Waste Stream:		Waste Stream: OR-REDC-RH-HET	
		Rigid Liner: ☐Y ☑N Type:	Rigid Liner Lid: ☐ Y ☑N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 60
Layers of Confinement:	Closure Method:	Layers of Confinement: 0	Closure Method: N/A

Comments (e.g., filter information, NCRs):
CASK NUMBER X10C9600188
NucFil-019DS FK828

Waste Description:
Rubber Gaskets (R)
Plastic Buckets (P)
Nylon Rope (P)
Cheesecloth (C)
Metal Lid (IM)
Metal Handle (IM)
Metal Pieces (OM)
Glass Bottles (OIM)
Glass Pipettes (OIM)
Cardboard (C)
Metal Cans (IM)
Sweepings (P)(OIM)(R)(C)
Broken Glass (OIM)
Melted Plastic (P)
Plastic Lids (P)
Metal Equipment (OM)
Plastic Tape (P)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00684

	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☒	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☒	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☒	
Does the container have observable liquid containing PCBs?	☐	☒	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☒	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☒	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☒	
Is there an indication of wastes containing explosives or compressed gases?	☐	☒	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☒	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☒	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☒	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☒	
Are there sealed containers GREATER than 4 liters or heat sealed bags NOT defined in the applicable TRUCON Code?	☐	☒	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☒	
Is the waste consistent with the TRUCON Code?	☒	☐	

Comments:
N/A

Visual Examination Operator 1:
Chuck Wallace
Print Name

Signature

12/19/13
Date
1/15/14

Visual Examination Operator 2:
Anthony Harley
Print Name

Signature

12-19-13
Date
1-15-14

Attachment 2 – Visual Examination Independent Technical Reviewer Checklist

Batch Data Report No.: ORNLRHVE13006

1. Were data generation and reduction conducted in a technically correct manner in accordance with the methods (procedure) used?	☐ NO	☒ YES	☐ N/A
2. Was the correct revision of the operating procedure used?	☐ NO	☒ YES	☐ N/A
3. Were all the transcription errors corrected?	☐ NO	☐ YES	☒ N/A
4. Are BDR contents complete and match the Visual Examination Batch Data report Table of Contents?	☐ NO	☒ YES	☐ N/A
5. Does the BDR include VE for no more than 20 containers?	☐ NO	☒ YES	☐ N/A
6. Is all data recorded signed and dated in reproducible ink?	☐ NO	☒ YES	☐ N/A
7. Is all raw data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	☐ N/A
8. Are all changes to original data lined out, initialed and dated by the individual making the changes or an individual authorized to make the change?	☐ NO	JC 1-15-14 ☒ YES	JC 1-15-14 ~~☒ N/A~~
9. Is there an adequate written description of the contents?	☐ NO	☒ YES	☐ N/A
10. Were the recording equipment checks satisfactory?	☐ NO	☐ YES	☒ N/A
11. Has each container in this BDR been evaluated for the presence of prohibited wastes?	☐ NO	☒ YES	☐ N/A
12. Has the physical waste form in each container in this BDR been evaluated against the Waste Stream Description and the Waste Matrix Code?	☐ NO	☒ YES	☐ N/A
13. Have the RH Quality Assurance Objectives (QAOs) for VE been met?	☐ NO	☒ YES	☐ N/A
Precision – reconciled discrepancies between operators or between the operator and ITR.	☐	☒	☐
Accuracy – trained operators	☐	☒	☐
Representativeness – description of container contents	☐	☒	☐
Completeness – completed data form and/or recording	☐	☒	☐
Comparability – proper training and adequate AK source documents are available for unopened containers.	☐	☒	☐
14. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A
Comments: N/A			

Independent Technical Reviewer:

Jason Cofer
Printed Name

Signature

12-19-13
Date

1-15-14

DIVIDER

PAGE

Attachment 3 – Visual Examination Site Project Manager Checklist

Batch Data Report No.: ORNLRHVE13001

1. Has all the data received an independent technical review as evidenced by a completed checklist (Attachment 2) and the appropriate ITR signature?		☐ NO	☒ YES
2. Are BDR contents complete and match the Visual Examination Batch Data Report Table of Contents?		☐ NO	☒ YES
3. Is the BDR complete (appropriately filled in forms for each container)?		☐ NO	☒ YES
4. Have the RH Quality Assurance Objectives (QAOs) for VE been met? Precision – reconciled discrepancies between operators Accuracy – trained operators Representativeness – description of container contents Completeness – completed data form and/or recording Comparability – proper training and adequate AK for unopened containers		☐ NO ☐ NO ☐ NO ☐ NO ☐ NO ☐ NO	☒ YES ☒ YES ☒ YES ☒ YES ☒ YES ☒ YES
5. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A
Comments No NCRs			

SPM:

Laura Nelson
Printed Name

Laura Nelson
Signature

12/30/13
Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-30-13 GL

Attachment 4 – Visual Examination Batch Data Report Cover Sheet

Batch Data Report No.: ORNLRHVE13001 Date: 12-10-13

	Waste Container ID Number:
1	ORRH00678
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N/A JC 12-10-13

NTPC RECORDS ORIGINAL
DATE REC'D 12-18-2013

1

Attachment 5 – Visual Examination Batch Data Report Table of Contents

Batch Data Report No.: ORNLRHVE1300[Date: 12-10-13

1	Visual Examination Batch Data Report Cover Sheet (Attachment 4)	1
2	Visual Examination Batch Data Report Table of Contents (Attachment 5)	2
3	Visual Examination Data Forms (Attachment 1)	3
4	Visual Examination Independent Technical Reviewer Checklist (Attachment 2)	5
5	Copy of NCRs (N/A [if not applicable])	N/A

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12-10-13		Batch Number: ORNLRHVE 13001	
Procedure #: CCP-TP-500		Revision #: 13	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☑N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☑ N/A		**Final Container** ☐ N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00678	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: S5400	
Waste Stream:		Waste Stream: OR-REDC-RH-HET	
		Rigid Liner: ☐Y ☑N Type:	Rigid Liner Lid: ☐Y ☑N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 80
Layers of Confinement:	Closure Method:	Layers of Confinement: 0 +12-16-13 JC	Closure Method: 12-10-13 JC. Lock & Lever N/A
Comments (e.g., filter information, NCRs): Cask # X10C9600188 NUCFIL-019DS #FK732			

Waste Description:

Plastic Lids (P)
Melted Plastic (P)
Plastic Bags (P)
Tape (P)
Plastic Buckets (P)
Metal Cans (IM)
Bottles (OIM)
Floor Sweepings (P) (IM) (OIM)
Nylon Supersack (C)
Fiber Board (C)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00678

Prohibited Item(s) Summary	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☒	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☒	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☒	
Does the container have observable liquid containing PCBs?	☐	☒	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☒	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☒	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☒	
Is there an indication of wastes containing explosives or compressed gases?	☐	☒	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☒	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☒	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☒	
RH 72B Criteria			
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☒	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	☒	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☒	
Is the waste consistent with the TRUCON Code?	☒	☐	

Comments: N/A

Visual Examination Operator 1:
Jason Cofer
Print Name

Signature

12-16-13
Date 12-16-13

Visual Examination Operator 2:
Anthony Harley
Print Name

Signature

12-10-13
Date

12-16-13

Attachment 2 – Visual Examination Independent Technical Reviewer Checklist

Batch Data Report No.: ORNLRHVE13001

1. Were data generation and reduction conducted in a technically correct manner in accordance with the methods (procedure) used?	☐ NO	☒ YES	☐ N/A
2. Was the correct revision of the operating procedure used?	☐ NO	☒ YES	☐ N/A
3. Were all the transcription errors corrected?	☐ NO	☐ YES	☒ N/A
4. Are BDR contents complete and match the Visual Examination Batch Data report Table of Contents?	☐ NO	☒ YES	☐ N/A
5. Does the BDR include VE for no more than 20 containers?	☐ NO	☒ YES	☐ N/A
6. Is all data recorded signed and dated in reproducible ink?	☐ NO	☒ YES	☐ N/A
7. Is all raw data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	☐ N/A
8. Are all changes to original data lined out, initialed and dated by the individual making the changes or an individual authorized to make the change?	☐ NO	☒ YES	☐ N/A
9. Is there an adequate written description of the contents?	☐ NO	☒ YES	☐ N/A
10. Were the recording equipment checks satisfactory?	☐ NO	☐ YES	☒ N/A
11. Has each container in this BDR been evaluated for the presence of prohibited wastes?	☐ NO	☒ YES	☐ N/A
12. Has the physical waste form in each container in this BDR been evaluated against the Waste Stream Description and the Waste Matrix Code?	☐ NO	☒ YES	☐ N/A
13. Have the RH Quality Assurance Objectives (QAOs) for VE been met?	☐ NO	☒ YES	☐ N/A
Precision – reconciled discrepancies between operators or between the operator and ITR.	☐	☒	☐
Accuracy – trained operators	☐	☒	☐
Representativeness – description of container contents	☐	☒	☐
Completeness – completed data form and/or recording	☐	☒	☐
Comparability – proper training and adequate AK source documents are available for unopened containers.	☐	☒	☐
14. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments: N/A

Independent Technical Reviewer:

Chuck Wallace
Printed Name

Signature

12/11/13
Date

12/16/13

DIVIDER PAGE ONLY

NOT PART OF PAGE COUNT

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

[ ] Copy

Attn:	Danette Acosta	From:	Laura Nelson
Ship to:	CCP Records	Site:	Denver
	4021 National Parks Highway	Company:	NWP
	MS:GSA:212	Telephone Number:	303-843-2269
	Carlsbad, NM 88220	Date Sent:	12/30/13
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
ORNLRHVE13001	SPM Checklist	12/30/13	1
	NA		

Comments

NA

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [✓]	Signature	Greta Leos (Printed Name)	12-30-13 (Date)
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	1957
DESTINATION TEL #	918655768703
DESTINATION ID	ORNL
ST. TIME	12/30 15:51
TIME USE	00'39
PAGES SENT	1
RESULT	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	Danette Acosta	From:	Laura Nelson
Ship to:	CCP Records	Site:	Denver
	4021 National Parks Highway	Company:	NWP
	MS:GSA:212	Telephone Number:	303-843-2269
	Carlsbad, NM 88220	Date Sent:	12/30/13
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
ORNLRHVE13001	SPM Checklist	12/30/13	1
	NA		

Comments

NA

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-31-2013
Telephone Number:	575-234-7009		

ORNLRHVE13001	RH VE BDR	12-10-13	5
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X]	Signature	Danette Acosta Printed Name	1/3/14 Date
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	2075
DESTINATION TEL #	918655768703
DESTINATION ID	ORNL
ST. TIME	01/03 07:22
TIME USE	00'43
PAGES SENT	1
RESULT	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Fax Record [ ] Electronic Record [ ] Copy

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-31-2013
Telephone Number:	575-234-7009		

ORNLRHVE13001	RH VE BDR	12-10-13	5
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

GEN3

Washington
TRU Solutions LLC

CP:09:01234
UFC:5900.00

INTER-OFFICE CORRESPONDENCE

DATE: June 3, 2009

FROM: H. J. Neely

LOCATION: Special Operations and Remote-Handled Development

TO: CCP Records Custodian GSA-103

LOCATION: Retrieval, Characterization & Transportation

SUBJECT: TRANSMITTAL OF WASTE STREAM PROFILE FORM FOR OR-REDC-RH-HET, AT THE OAK RIDGE NATIONAL LABORATORY

Please accept the attached waste stream profile form for OR-REDC-RH-HET, to be placed in records for the Oak Ridge National Laboratory.

HJN:jmc

Attachment

cc: (without enclosure)
I. S. Quintana ED
M. Sensibaugh ED

COPY

Attachment 2 –CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: OR-REDC-RH-HET			
(2) Generator site name: Oak Ridge National Laboratory		(4)Technical contact: Mike Sensibaugh	
(3) Generator site EPA ID: TN1890090003		(6) Technical contact phone number: 575-234-7122	
(5) Date of audit report approval by New Mexico Environment Department (NMED): September 9, 2008			
(7) Title, version number, and date of documents used for WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Rev. 16, October 31, 2007 CCP-PO-002, CCP Transuranic Waste Certification Plan, Rev. 21, January 26, 2009 CCP-PO-027 CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document, Revision 0, October 2, 2007.			
(8) Did your facility generate this waste?	YES X	NO	
(9) If no, provide the name and EPA ID of the original generator: NA			
Waste Stream Information[1]			
(10) WIPP ID: OR-W212[3]		(11) Summary Category Group: S5000	
(12) Waste Matrix Code Group: Heterogeneous Debris Waste		(13) Waste Stream Name: Remote Handled Heterogeneous Debris Waste from the Radiochemistry Engineering Development Center	
(14) Description from the TWBIR: Radionuclides from updated model. Mixed waste treated to LDR.			
(15) Defense TRU Waste:	YES X	NO	
(16) Check One:	CH	RH X	
(17) Number of SWBs: N/A	(18) Number of Drums: NA	(19) Number of Canisters: 691[4]	
(20) Batch Data report numbers supporting this waste stream characterization: See Characterization Information Summary (CIS) Correlation of Container Identification Numbers to Batch Data Report Numbers			
(21) List applicable EPA Hazardous Waste Numbers:[2] D004, D005, D006, D007, D008, D009, D010, D011, D019, F002, and F005			
(22) Applicable TRUCON Content Numbers: OR 325			
(23)**Acceptable Knowledge Information**[1]			
[For the following, enter the supporting documentation used (i.e., references and dates)]			
Required Program Information			
(23A) Map of site: CCP-AK-ORNL-500, Revision 1, October 3, 2008, Figures 1, 2, and 3			
(23B) Facility mission description: CCP-AK-ORNL-500, Revision 1, October 3, 2008, Section 4.1			
(23C) Description of operations that generate waste: CCP-AK-ORNL-500, Revision 1, October 3, 2008, Section 5.3			
(23D) Waste identification/categorization schemes: CCP-AK-ORNL-500, Revision 1, October 3, 2008, Section 4.2 and 5.4			
(23E) Types and quantities of waste generated: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Section 4.2.1			
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-ORNL-500, Revision 1, October 3, 2008, Section 4.2.2			
(24) Waste certification procedures: : CCP-TP-530, Rev. 7, CCP TRU Waste Certification and WWIS Data Entry, July 11, 2008			

(25)Required Waste Stream Information			
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-ORNL-500, Revision 1, October 3, 2008, Section 5.1			
(25B) Waste stream volume and time period of generation: CCP-AK-ORNL-500, Revision 1, October 3, 2008, Section 5.2			
(25C) Waste generating process description for each building: CCP-AK-ORNL-500, Revision 1, October 3, 2008, Section 5.3			
(25D) Waste Process flow diagrams: CCP-AK-ORNL-500, Revision 1, October 3, 2008, Figures 4, 5, 6, 7, 8 and 9			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-ORNL-500, Revision 1, October 3, 2008, Section 5.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See Table 2 of the Summation of Aspects of AK Summary Report: OR-REDC-RH-HET			
(26) Which Defense Activity generated the waste: (check one)[5]			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management	X	Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations		
(27)Supplemental Documentation			
(27A) Process design documents: See S1 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27B) Standard operating procedures: See S2 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27C) Safety Analysis Reports: See S3 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27D) Waste packaging logs: NA			
(28E) Test plans/research project reports: See S5 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27F) Site databases: NA			
(27G) Information from site personnel: See S7 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27H) Standard industry documents: See S8 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27I) Previous analytical data: See S9 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27J) Material safety data sheets: See S10 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27K) Sampling and analysis data from comparable/surrogate Waste: See S12 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27L) Laboratory notebooks: See S11 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
Confirmation Information[2]			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: NA		
(29)	Visual Examination: CCP Remote-Handled Waste Visual Examination, CCP-TP-500, Revision 8, 7/24/2008		

(30)Comments:
For a list of the waste characterization procedures used and date of the respective procedures see the list of procedures on the attached CIS.

Reviewed by AK Expert: YES [X] **Date: 2/18/09**

Reviewed by STR (if necessary): YES [ ] NA [ ] **Date:**

Waste Stream Profile Form Certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

(31)	(32)	(33)
Signature of Site Project Manager	Irene Quintana Printed Name	2/18/09 Date

NOTE:
(1) Use back of sheet or continuation sheets, if required.
(2) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.
(3) TWBIR numbers OR-W211 and OR-W214 also apply.
(4) Waste stream OR-REDC-RH-HET consists of casks, 55-gallon drums and a B-88 box that will be packaged into 2055 55-gallon drums and then into 685 canisters. Six additional canisters are projected for this waste stream.
(5) The following defense activities also resulted in generation of this waste: naval reactors development, defense nuclear waste and by-products management and defense research and development activities.

CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-REDC-RH-HET

Lot 1

TABLE OF CONTENTS

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CCP Characterization Information Summary Cover Page

Waste Stream #: OR-REOC-RH-HET Sub-Lot #: 1

AK Expert Review: Kevin Peters Date: 2/18/2009

SPM Review: Hilart Neely Date: 2/18/2009

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Headspace Gas Sampling and Analyte's (HSG):

CCP-TP-093	Rev. 13	03/19/07	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 6	07/12/07	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-173	Rev. 0	05/03/07	CCP Analysis of Gas Samples for VOCs by GC/FID
CCP-TP-175	Rev. 0	05/02/07	CCP Analysis of Gas Samples for VOCs by GC/MS

Visual Examination (VE):

CCP-TP-500	Rev. 7	02/27/08	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 8	07/24/08	CCP Remote-Handled Waste Visual Examination

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 20	08/18/08	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 16	10/02/07	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 16	11/16/06	CCP Acceptable Knowledge Documentation

WAP Certification:

CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream # OR-REDC-RH-HET Sub-Lot # 1

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			
								Sample	Analysis		
ORRH00001	NA	NA	NA	RHORVE080005	NA	NA		ORHSGS08005	ECL08012M	ECL08012G	NA
ORRH00002	NA	NA	NA	RHORVE080005	NA	NA		ORHSGS08005	ECL08012M	ECL08012G	NA
ORRH00003	NA	NA	NA	RHORVE080005	NA	NA		ORHSGS08005	ECL08012M	ECL08012G	NA
ORRH00004	NA	NA	NA	RHORVE080002	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00005*	NA	NA	NA	NA	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00006	NA	NA	NA	RHORVE080002	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00007*	NA	NA	NA	NA	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00008*	NA	NA	NA	NA	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00009*	NA	NA	NA	NA	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00010*	NA	NA	NA	NA	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00011	NA	NA	NA	RHORVE080004	NA	NA		NA	NA	NA	NA
ORRH00012	NA	NA	NA	RHORVE080004	NA	NA		NA	NA	NA	NA
ORRH00013	NA	NA	NA	RHORVE080005	NA	NA		ORHSGS08005	ECL08012M	ECL08012G	NA
ORRH00014	NA	NA	NA	RHORVE080006	NA	NA		NA	NA	NA	NA
ORRH00015	NA	NA	NA	RHORVE080006	NA	NA		NA	NA	NA	NA
ORRH00016	NA	NA	NA	RHORVE080006	NA	NA		NA	NA	NA	NA
ORRH00017	NA	NA	NA	RHORVE080006	NA	NA		NA	NA	NA	NA

* Container is included for the HSG Charaterization Module for WWIS but are not certifiable

for Hillari J. Neely
Signature of Site Project Manager

Hillari J. Neely
Printed Name

2/19/2009
Date

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-REDC-RH-HET **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	SQRT	9	11	1.76	0.95	0.55	1.18	10	3.16		
Bromoform	SQRT	0	11	0.32	0.18	0.09	0.21	10	3.16		
Carbon tetrachloride	Log	0	11	-2.12	-3.60	0.96	-3.20	10	2.30		
Chlorobenzene	Log	0	11	-1.97	-3.43	0.97	-3.03	10	2.30		
Chloroform	SQRT	1	11	0.32	0.18	0.08	0.21	10	3.16		
Cyclohexane [a]	Log	0	11	-1.29	-2.77	0.97	-2.37	10	2.30		
1,1-Dichloroethane	SQRT	0	11	0.41	0.22	0.11	0.26	10	3.16		
1,2-Dichloroethane	Log	0	11	-1.97	-3.44	0.97	-3.04	10	2.30		
1,1-Dichloroethylene	SQRT	0	11	0.49	0.26	0.13	0.32	10	3.16		
cis-1,2-Dichloroethylene	Log	0	11	-1.83	-3.31	0.97	-2.90	10	2.30		
trans-1,2-Dichloroethylene	Log	0	11	-1.49	-2.96	0.97	-2.56	10	2.30		
Ethyl benzene	SQRT	0	11	0.39	0.21	0.10	0.25	10	3.16		
Ethyl ether	Log	0	11	-1.43	-2.89	0.97	-2.49	10	2.30		
Methylene chloride	No	3	11	0.27	0.11	0.08	0.15	10	N/A		
1,1,2,2-Tetrachloroethane	SQRT	0	11	0.51	0.28	0.13	0.33	10	3.16		
Tetrachloroethylene	SQRT	0	11	0.34	0.18	0.09	0.22	10	3.16		
Toluene	SQRT	5	11	0.61	0.37	0.18	0.45	10	3.16		
1,1,1-Trichloroethane	Log	0	11	-1.97	-3.46	0.97	-3.06	10	2.30		
Trichloroethylene	SQRT	0	11	0.32	0.17	0.08	0.21	10	3.16		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	0	11	-2.21	-3.66	0.97	-3.26	10	2.30		
1,2,4-Trimethylbenzene [a]	SQRT	0	11	0.41	0.22	0.11	0.26	10	3.16		
1,3,5-Trimethylbenzene [a]	SQRT	0	11	0.41	0.22	0.11	0.26	10	3.16		
m-Xylene [b]	Log	0	11	-1.80	-3.28	0.97	-2.88	10	2.30		
p-Xylene [b]	Log	0	11	-1.80	-3.28	0.97	-2.88	10	2.30		
o-Xylene	SQRT	0	11	0.36	0.19	0.09	0.23	10	3.16		
Acetone	SQRT	11	11	11.40	5.83	3.45	7.26	100	10.00		
1-Butanol	Log	10	11	2.25	-0.17	1.69	0.53	100	4.61		
Methanol	No	0	11	4.55	4.35	0.13	4.41	100	N/A		
Methyl ethyl ketone	SQRT	10	11	3.87	1.95	1.17	2.44	100	10.00		
Methyl isobutyl ketone	SQRT	9	11	1.52	0.82	0.48	1.02	100	10.00		

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-REDC-RH-HET **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Chloromethane[a]	SQRT	10	11	2.98	1.61	0.95	2.00	100	3.16		
Carbon Disulfide[a]	Log	1	11	-0.45	-3.03	1.25	-2.51	10	2.30		
1,2-Dichloropropane[a]	Log	0	11	-1.77	-3.23	0.96	-2.83	10	2.30		
Trichlorofluoromethane[c]	Log	0	11	-1.22	-2.69	0.97	-2.29	10	2.30		

[a] These compounds are from the TRAMPAC and or CH TRUCON Appendix B and are flammable VOCs that do not appear in the QAPjP or the WIPP WAP. These are not part of the target analyte list, but samples may be analyzed for these compounds.

[b] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

[c] Noted analytes are not required but are reported by the Environmental Chemistry Laboratory at Idaho and are included on the UCL90 for completeness.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Hillari Neely
Printed Name

2/18/2009
Date

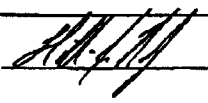
CCP Headspace Gas Summary Data

Waste Stream Number OR-REDC-RH-HET Sub-Lot Number (s) 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
2-Methyl-1-propanol	3.10	1	9.09%

Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature  Date 2/18/2009

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-REDC-RH-HET Sub-Lot(s)#: 1

Container Number	RTR Prohibited Items [a]	Visual Examination Prohibited Items [a]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	Radiography was not used to verify prohibited items.	None of the containers in this lot had prohibited items identified during Visual Examination.

a. See Batch Data Reports

b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Site Project Manager Signature	Hillari Neely Printed Name	2/18/2009 Date

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 1

Sampling Completeness

VE
Number of Valid Samples: 11 Number of Total Samples Analyzed: 11
Percent Complete: 100 (QAO is 100%)

RTR
Number of Valid Samples: NA Number of Total Samples Analyzed: NA
Percent Complete: NA (QAO is 100%)

HSG
Number of Valid Samples: 11 Number of Total Samples collected: 11
Percent Complete: 100 (QAO is ≥90%)

Total VOC
Number of Valid Samples: NA Number of Total Samples collected: NA
Percent Complete: NA (QAO is ≥90%)
Number of Valid Samples: NA Number of Total Samples analyzed: NA
Percent Complete: NA (QAO is ≥90%)

Total SVOC
Number of Valid Samples: NA Number of Total Samples collected: NA
Percent Complete: NA (QAO is ≥90%)
Number of Valid Samples: NA Number of Total Samples analyzed: NA
Percent Complete: NA (QAO is ≥90%)

Total Metals
Number of Valid Samples: NA Number of Total Samples collected: NA
Percent Complete: NA (QAO is ≥90%)
Number of Valid Samples: NA Number of Total Samples analyzed: NA
Percent Complete: NA (QAO is ≥90%)

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 1

	Y/N/NA	Reconcilliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	NA	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	Y	Mean concentrations, UCL90 values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP TP 003, Attachment 3, and additional Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	NA	Mean concentrations, UCL90 values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003-Attachment 4, and additional EPA Hazardous Waste Numbers were assigned as required. Samples were randomly collected.
7b	NA	Mean concentrations, UCL90 values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP TP 003 Attachment 5, and additional EPA Hazardous Waste Numbers were assigned as required. Samples were randomly collected.
7c	NA	Mean concentrations, (UCL90) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP TP 003 Attachment 6, and additional EPA Hazardous Waste Numbers were assigned as required. Samples were randomly collected.

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 1

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	Y	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the QAPjP.
13	Y	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in CCP-PO-001 Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	NA	NA	NA
VE	Y	Y	Y
Headspace Gas Analysis	Y	Y	Y
Solids Sampling	NA	NA	NA
Solids VOCs	NA	NA	NA
Solids SVOCs	NA	NA	NA
Solids Metals	NA	NA	NA

Comments: N/A

Signature of Site Project Manager | Hillari Neely (Printed Name) | 2/19/2009 (Date)

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: OR-REDC-RH-HET

Overview:

Waste Stream OR-REDC-RH-HET is Remote-Handled (RH) Transuranic (TRU) heterogeneous debris generated in Building 7920 of the Radiochemical Engineering Development Center (REDC) and has subsequently been repackaged in Building 7880 of the Transuranic Waste Processing Center (TWPC) at the Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee. The waste was generated from 1972 to present. Waste Stream OR-REDC-RH-HET includes debris originating from target fabrication and processing, analytical chemistry, and process development activities. This debris is currently stored in storage containers such as concrete casks, boxes, and drums at the ORNL. These storage containers are transferred to the TWPC hot cell in the Building 7880 for repackaging and WIPP certification.

Since 1966, the REDC was the production, storage, and distribution center for the Department of Energy (DOE) heavy element research program, producing Berkelium (Bk)-249, Californium (Cf)-252, Einsteinium (Es)-253, and Fermium (Fm)-257. In approximately 1970, target rods containing plutonium, americium, and curium were remotely fabricated in the Building 7920 hot cells, irradiated in the High Flux Isotope Reactor (HFIR) facility, and then processed in the Building 7920 hot cells for the separation and purification of the heavy actinide elements. The purified Bk-249, Es-253, and Fm-257 were packaged for shipment whereas the Cf-252 was fabricated into neutron sources. Between 1979 and 1986, some uranium fuel cycle development work was performed in the Building 7920 Solvent Extraction Test Facility (SETF). Solvent extraction flow sheets for processing irradiated fuels from commercial light water reactors and fast breeder reactors were developed and tested, and plutonium recovery schemes were demonstrated. Since 1991, the REDC has processed Mark-42 target assemblies that were irradiated at the Savannah River Site (SRS). High-purity Americium (Am)-243, Curium (Cm)-244, and Plutonium (Pu)-242 are separated and recovered in Building 7920 for shipment to the Los Alamos National Laboratory (LANL).

The Cf-252 neutron sources are utilized for defense related applications that include neutron radiography of weapons components and military aircraft, neutron counting of fissile material and transuranic waste, land mine detection, and in-field inspection and identification of chemical weapons and high explosives. Special production of targets (referred to as campaigns) ran concurrently with the Solvent Extraction Test Facility (SETF) and Mark-42 campaigns. Due to the similarity in radiological contamination from HFIR target campaigns, the waste generated from SETF and Mark-42 campaigns were not segregated from waste generated by the HFIR target campaigns. Therefore, the TRU wastes generated from the REDC, waste stream OR-REDC-RH-HET, is defense related waste generated from nuclear materials production in addition to naval reactor development, and defense nuclear waste and by-products management.

This Summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) number OR-REDC-RH-HET for RH TRU debris. The primary source of information for this Summation is CCP-AK-ORNL-500, Central Characterization Project Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Radiochemical Engineering Development Center Remote-Handled Transuranic Waste, Waste Stream: OR-REDC-RH-HET, Rev. 1, October 3, 2008. CCP-AK-ORNL-500 includes information obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, program/processing documentation, and interviews with knowledgeable personnel.

Waste Stream Identification Summary:

Site Where TRU Waste Was Generated:	Oak Ridge National Laboratory
Waste Stream Name:	Remote Handled Heterogeneous Debris Waste from the Radiochemistry Engineering Development Center
Waste Stream Number:	OR-REDC-RH-HET
Dates of Waste Generation:	1972 to present
Summary Category Group:	S5000 – Debris Waste
Waste Matrix Code Group:	Heterogeneous Debris Waste
Waste Matrix Code:	S5400, Heterogeneous Debris
Waste Stream TWBIR Identification:	OR-W212[1]
Waste Stream Volume:	685 canisters (current)[2] 6 canisters (projected)[3]
RCRA EPA Hazardous Waste Numbers:	D004, D005, D006, D007, D008, D009, D010, D011, D019, F002, and F005
TRUCON Content Numbers:	OR 325

Waste Stream Description and Physical Form:

Waste Stream OR-REDC-RH-HET is comprised primarily of repackaged organic and inorganic debris waste items. The waste includes cellulosics, plastic, rubber, metal, and glass items as follows: paper, cotton, cloth, and wood, including wipes, swabs, bags, towels, rags, protective clothing, gloves, rope, string, cardboard, brushes, blotter paper, and filter paper; polyethylene, polypropylene, polyvinyl chloride, Tygon tubing, nylon, Bakelite (methacrylate polymer plastic), and Plexiglass items, including sheeting, melted plastic, beads, blocks, tape, tubing, bags, fittings, buckets, bottles, caps, pans, discs, brushes, laboratory equipment (pipettes, syringes), circuit boards, gloves, manipulator boots; gaskets, rings, hose/tubing, squeegees, bulbs, stoppers, gloves, boots, leaded glovebox gloves, wire/cord/cable insulation; glass bottles, laboratory glassware, pipettes, columns, plates, thermometers, light bulbs (mercury and incandescent), mirrors, lenses, insulation, and broken glass; carbon steel, stainless steel, and iron. Non-ferrous materials include items made from aluminum, brass, copper, and lead. Metal waste items include cans, needles, tubes, valves, cable, wire, planchets, piping, tools (tongs, dies, punches, wrenches, knives, clamps, tweezers), foil,

[1] TWBIR numbers OR-W211 and OR-W214 also apply.
[2] Waste stream OR-REDC-RH-HET consists of casks, 55-gallon drums and a B-88 box that will be packaged into 2055 55-gallon drums and then into 685 canisters.
[3] Building 7920 REDC operations will generate approximately 3.4 m3 (two casks) of waste to be reprocessed in the TWPC with no projected end date. The projected waste stream volume includes one year of newly generated waste that will be packaged into canisters.

weights, blocks, plates, frames, columns, racks, shielding, sheeting, light fixtures, equipment (circuit boards, pumps, motors, balances, ultrasonic cleaners, hot plates, furnaces, centrifuges), hardware (nuts, bolts, brackets, washers), manipulator parts, and metal filter components.

Secondary waste generated during repackaging operations in the TWPC hot cell includes amalgamated mercury, water absorbed with Nochar (a proprietary nonhazardous polymer absorbent) and vermiculite, personal protective equipment (PPE), and equipment (tools and manipulator parts).

This waste stream is assigned Waste Matrix Code S5400, Heterogeneous Debris. This category includes waste that is at least 50 percent, by volume, debris materials that do not meet the criteria for assignment as either an Inorganic Debris (S5100) or Organic Debris (S5300). The debris that comprises waste stream OR-REDC-RH-HET was generated from a single process or from an activity that is similar in material, physical form, and hazardous constituents and is therefore, a single waste stream.

Point of Generation - Area and Building of Generation

This heterogeneous debris waste stream was generated in Building 7920 which is part of the REDC located at the ORNL in Oak Ridge, Tennessee. The waste is transferred to the TWPC hot cell in Building 7880 for repackaging and certification.

Generating Process

Building 7920 operations include chemical processing, target fabrication, analytical laboratory, and process development activities. These operations represent the chemical processing activities in the REDC; however, special separation projects, referred to as campaigns, were periodically performed. These special small scale separation campaigns (e.g., separating Cf-249 from decaying Bk-249 or purifying a sample for shipment to another site) were performed in the hot cell. Chemicals used in Building 7920 operations or that were identified as part of the REDC chemical inventory may contaminate this waste stream.

Chemical Processing

Transuranium element processing includes the dissolution of irradiated targets, the separation of the transuranium elements and the removal of impurities and fission products. This is accomplished using solvent extraction, precipitation, and ion-exchange. Recovered americium and curium are purified and converted to oxide for fabrication of new targets.

Berkelium, einsteinium, and fermium are separated from curium and californium and purified further by additional cycles of ion-exchange. The purified products are then packaged for shipment. The californium is sorbed on resin and calcined to convert the californium to the oxysulfate for future use.

The Solvent Extraction Test Facility (SETF) operated from 1979 through 1986 and recovered uranium and plutonium from irradiated commercial power reactor fuels. This was achieved by dissolution of irradiated fuel assembly sections, solvent extraction, ion-exchange, precipitation, and calcination.

The Mark-42 program began operation in 1991 and includes the dissolution of irradiated segments; the separation of the transuranium elements and removal of impurities, activation products, and fission products. This is accomplished using solvent extraction, precipitation, and ion-exchange process steps.

The Global Nuclear Energy Partnering (GNEP) program initiated in May 2007 involves the demonstration of isotopic separations technologies using fuel from the H.B. Robinson and Dresden LWR reactors.

The REDC supports small-scale experiments involving the separation of fission products such as tritium, C-14, iodine, krypton, and xenon from uranium fuel oxides followed by chemical extraction.

Hazardous chemicals used in these processes include: acids (2-ethylhexyl phenylphosphonic, ascorbic, citric, hydrochloric, hydrofluoric, nitric, and oxalic), bases (ammonium hydroxide, lithium hydroxide, potassium hydroxide, and sodium hydroxide), and solvents (1,1,2-trichloro ethane, acetone, benzene, hydrazine, methanol, methyl isobutyl ketone, trichloroethylene, toluene, and xylene).

Target Fabrication

Actinide oxide (americium and curium) is incorporated into aluminum target rods for irradiation in the High Flux Isotope Reactor (HFIR). The operations and inspections performed to incorporate the actinide oxide include pellet forming, weighing, measurement, calorimetry, thermal cleaning, target loading, welding, x-ray examination, helium leak tests, dimensional inspections, hydrostatic compression of the aluminum tube around the pellets, coolant shroud attachment, decontamination, and carrier loading for transfer to the HFIR.

Analytical Laboratory

Samples are collected and then stored in the analytical laboratory. Radiochemical analyses are performed on highly-radioactive samples in analytical chemistry gloveboxes. Sample preparation includes pipetting, titration, dissolution, filtration, solvent extraction, and centrifugation.

Hazardous chemicals used in these processes include: acids (ascorbic, citric, formic, hydrobromic, hydrochloric, hydrofluoric, nitric, nitrous, oxalic, selenic, sulfamic, and sulfuric), bases (ammonium hydroxide, lithium hydroxide, potassium hydroxide, sodium hydroxide, and tetraethylammonium hydroxide), and solvents (1,1,1-trichloroethane, acetone, benzene, hydrazine, methanol, methyl isobutyl ketone, trichloroethylene, toluene, and xylene).

Process Development

The process development alpha laboratories have been used for studies and process development of alpha-active materials. Early work focused on development of sol-gel processes (fuel pellet processes) and isolation and purification of alpha-active materials. Other research and process development work included reprocessing of reactor fuels, conversion of recovered uranium and plutonium for use in reactor fuel elements, and development of waste separation processes. The chemical processes (e.g., solvent extraction, ion-exchange, and precipitation) performed in process development are similar to those processes performed in the hot cells but on a smaller scale.

Maintenance Operations

The processing equipment in the hot cells was maintained or replaced within the hot cell cubicles using remote techniques. Occasionally, large equipment and equipment racks require maintenance that cannot be performed in the cubicles. These items are moved to the decontamination glovebox for cleaning (using acetone, and ethanol-methanol mixtures) and repaired. For maintenance operations in a tank pit, work may be performed directly in the pit or remotely from the top of the pit. Maintenance of the off-gas systems for the cells and the process tanks generate HEPA filters, charcoal and Hopcalite organic vapor trap filters (mixture of copper and manganese oxide used as a catalyst to convert carbon monoxide to carbon dioxide). Glovebox operations are performed using neoprene or leaded glovebox gloves which are periodically replaced. Glovebox equipment and components require periodic decontamination, inspection, maintenance, repair and replacement. Glovebox interiors require regular decontamination using pentasodium diethylene triamine pentaacetate, ethanol and Ajax.

Process Waste Handling

Glovebox waste transfers are accomplished using plastic bags and cardboard ice cream cartons. Large pieces of equipment are transferred through the roof door. Liquid waste is transferred out of the gloveboxes through liquid waste lines and is not part of the waste stream.

Prior to 1976, Building 7920 solid waste was managed as RH TRU waste, even though a significant portion of the inventory produced was CH-TRU waste. In March 1976, operations were initiated to segregate RH from CH-TRU waste but were not fully implemented until 1978. Most of the waste generated prior to 1978 was placed into concrete casks. This waste contains lower dose rate waste (paper, glassware, PPE, wipes, glovebox equipment, and HEPA filters) generated from the laboratory and support areas. The quantity of lower dose rate waste decreased significantly in RH casks loaded after 1978, which contain greater volumes of waste from hot cell activities.

In the hot cell cubicles, waste is placed into small containers (e.g., plastic buckets or metal cans) and monitored for radiation. Depending on the type of waste and radiation level, the item is leached using nitric acid, rinsed with water, and dried before placement into the bucket or can. Larger waste items are cut up to fit into the buckets. To reduce the volume of waste, a furnace is used to melt plastic items such as polyethylene bottles and to consolidate them in a metal bucket.

Spent cation-exchange resins are calcined, leached with nitric acid, collected in a polyethylene bottle and melted in the furnace, then placed into a metal bucket. Spent anion-exchange resins are de-nitrated, rinsed with water and grouted (using concrete) in a metal bucket. Empty metal buckets are crushed. Waste buckets are transferred from the hot cell cubicles for characterization. The buckets are also transferred for monitoring of beta-gamma and neutron radiation. Buckets that have low radiation levels are disposed as waste and are not part of this waste stream.

Larger equipment, such as processing racks, charcoal filter beds, and Hopcalite organic filters traps are directly loaded into the casks. Racks were packaged in polyethylene bags then placed into the concrete cask. Lead bricks were used to balance the processing racks and will be found in the disposal casks. The concrete casks of TRU waste are loaded in a solid waste loading station. The cask lid is installed, sealed with roofing pitch, and secured.

REDC waste has been generated with limited segregation based on the radiological and chemical properties. Solid waste from the REDC is accumulated over a long period of time,

resulting in mixing of campaigns of waste. As containers of REDC debris are generated during repackaging in the TWPC, the container-specific documentation is reviewed to ensure that each container included in waste stream OR-REDC-RH-HET meets the requirements identified in the WIPP-WAP and the WCPIP.

Table 1 identifies the RCRA toxicity characteristic constituents in this waste stream.

Table 1 – Metal and organic TC and F-Listed Contaminants for Waste Stream OR-REDC-RH-HET

Chemical	CAS Number	EPA Hazardous Waste Numbers
Arsenic	7440-38-2	D004
Barium	7440-39-3	D005
Benzene	71-43-2	F005
Cadmium	7440-43-9	D006
Carbon tetrachloride	56-23-5	D019
Chromium	7440-47-3	D007
Lead	7439-92-1	D008
Mercury	7439-97-6	D009
Selenium	7782-49-2	D010
Silver	7440-22-4	D011
Toluene	108-88-3	F005
1,1,1-Trichloroethane	71-55-6	F002
1,1,2-Trichloroethane	79-00-5	F002
Trichloroethylene	79-01-6	F002

RCRA Determinations - Hazardous Waste Determinations

Waste generated in this waste stream does not qualify for any of the exclusions outlined in 40 CFR 260 or 261. Visual examination is used to verify that the waste stream is not a liquid waste and does not contain explosives, non-radioactive pyrophoric material, compressed gasses or reactive waste. Therefore, this waste stream does not exhibit the characteristic for ignitability (D001), corrosivity (D002), or reactivity (D003).

Ignitability

The waste does not meet the definition of ignitability as defined in 40 CFR 261.21. The material is not a liquid, an ignitable compressed gas, or an oxidizer, and is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. The waste does not meet the definition of a DOT oxidizer as defined in 49 CFR 173.

REDC process solutions and reagents (such as hydrazine) were not prepared in the gloveboxes and hot cells and were introduced into the closed loop process tanks. The resulting waste process solutions were piped out of the facility and are not included in the inventory of REDC waste for repackage (References P161, P241, P242, P263, P282, and U011). Acetone and ethanol-methanol mixtures were used for equipment degreasing in the REDC but are not present in liquid form.

Visual examination is performed to ensure the absence of compressed gases (e.g., un-punctured aerosol cans) and that liquids do not exceed the amount allowed by the WIPP-WAP. Any container identified with compressed gases, or liquids will be segregated from the waste stream during characterization and will not be eligible for disposal at WIPP until further characterization and/or processing is conducted. Therefore, this waste stream does not exhibit the characteristic of ignitability (D001).

Corrosivity

The waste does not meet the definition of corrosivity as defined in 40 CFR 261.22. The debris is not liquid and VE is performed to ensure liquids were not added to containers.

Chemicals such as acetic, citric, hydrofluoric, hydrochloric, oxalic and sulfuric acid; hydrazine and lithium hydroxide were used during dissolution, extraction, and titration processes or were identified on chemical inventories. Prohibited quantities of liquids identified during VE will be removed and/or immobilized using concrete grout, Nochar and vermiculite. Therefore the characteristic of corrosivity (D002) does not apply to this waste stream. (References P161, U011 and U046)

Reactivity

The waste does not meet the definition of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The waste does not contain reactive cyanide or sulfide compounds. The materials are not capable of detonation or explosive reaction if subjected to a strong initiating source if heated under confinement. The materials are not readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

Hazardous chemical reagents may contaminate this waste stream. Preventative measures have been taken to ensure that nitrated ion-exchange resins are treated prior to disposal as follows. Anion-exchange resins used with nitric acid are flushed from the column, rinsed with ammonium hydroxide to convert the resin to the hydroxide form, air dried, and grouted in metal cans. Spent cation-exchange resins are calcined to an oxysulfate ash, and the ash is leached with nitric acid and dried prior to assimilation (and fixing) into melted polyethylene waste in a metal bucket. Prohibited quantities of liquids identified during VE are removed and/or immobilized during repackaging. Waste Stream OR-REDC-RH-HET is therefore not reactive (HWN D003) (References P161 and U011).

Toxicity Characteristic Metals

This waste stream exhibits the characteristic of toxicity per 40 CFR 261.24. The toxicity characteristic contaminants fall into two categories; metals and organics. The debris may contain toxicity characteristic metals based on the following identified uses/sources and is toxicity characteristic for organics. Where a constituent has been identified and there is no quantitative data available to demonstrate that the concentration of a constituent is below regulatory threshold levels, the applicable EPA HWN is conservatively applied to the waste stream in accordance with the CCP AK procedure CCP-TP-005.

Arsenic (D004) was used in actinide and lanthanide hydride and metallide studies. Barium (D005), cadmium (D006), chromium (D007), and lead (D008) have been attributed to fission product contaminants, product solution impurities (e.g. Berkelium-Californium separation, fission product contaminants) and target cladding. Cadmium is also attributed to flashlight batteries and electronic equipment. The presence of lead (D008) in this waste stream is attributed to lead shielding, gloves, batteries, electronic equipment and is a fission product contaminant of the HFIR targets. The presence of mercury (D009) in this waste stream is attributed to vapor lamps, electronic equipment, thermostats and solder. Selenium (D010) metal was identified on an REDC inorganic chemical inventory. Silver (D011) is assigned due to photographic development solutions and circuit boards in the waste. Based on AK, EPA HWNs D004, D005, D006, D007, D008, D009, D010, D011 are assigned to waste stream OR-REDC-CH-HET (Reference DR005 and DR602).

Toxicity Characteristic Organics

Waste stream OR-REDC-RH-HET does meet the definition of toxicity for organic compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24). Toxicity characteristic organic compounds were identified in the REDC processes. Where a constituent has been identified and there is no quantitative data available to demonstrate that the concentration is below regulatory threshold, the applicable EPA HWN is conservatively applied to the waste stream.

The AK identified the use of organic toxicity characteristic compounds including benzene (D018), carbon tetrachloride (HWN D019), and trichloroethylene (D040). EPA HWNs F005 and F002 are assigned to the waste stream for F-listed solvents benzene (F005) and trichloroethylene (F002). Because the more specific F-listed EPA HWNs have been assigned for these compounds, assignment of the corresponding toxicity characteristic HWNs D018 and D040 is not necessary. Therefore only D019 is conservatively assigned to waste stream OR-REDC-RH-HET for carbon tetrachloride (identified in the REDC inorganic chemical inventory). (Reference DR005 and DR602).

F-Listed Waste

Waste stream OR-REDC-RH-HET is an F-listed hazardous waste because the debris was mixed with or contains hazardous wastes from non-specific sources listed in 40 CFR Part 261, Subpart D (40 CFR 261.31).

F002 and F005-listed solvents were identified on REDC chemical inventories. Toluene (F005) was identified as a constituent in the liquid scintillation reagent Ultima Gold that was used in the laboratory. F003 constituents, including acetone, methanol, methyl isobutyl ketone, and xylene are listed solely because these solvents are ignitable. The waste stream will not exhibit the characteristic of ignitability because it is not liquid; therefore, F003 is not assigned. Although F001-listed solvents were identified in the AK record (carbon tetrachloride and trichloroethylene), no "large-scale" degreasing operation such as cold cleaning or vapor degreasing on an industrial scale was performed and F001 is not applied.

The following is a listing of the EPA HWNs and associated constituents assigned to waste stream OR-REDC-RH-HET.

(F002)
1,1,1-Trichloroethane, 1,1,2-trichloroethane, trichloroethylene

(F005)
Benzene and toluene

U, K, and P-Listed Chemicals

Waste stream OR-REDC-RH-HET does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33). No U, K and P- listed chemicals were identified in the AK record for waste stream OR-REDC-RH-HET. The only sources identified for beryllium were small foil targets and source plates electroplated with microgram quantities of transplutonium elements. Review of the container documentation did not identify beryllium as a component of the waste in these containers. Therefore, if present, beryllium is a process contaminant. Since no beryllium powder will be present in the debris waste, P015 is not assigned to the waste stream.

Hydrofluoric acid (U134) was used as a dissolution reagent; however, there is no indication that unused acids or other reagents, or spills of these reagents were disposed of in this waste stream. Therefore, no U-and P-listed EPA HWNs are assigned to waste stream OR-REDC-RH-HET (References M005, M100 and P223).

The material in waste stream OR-REDC-RH-HET is not a hazardous waste from sources specified in 40 CFR 261.32. Waste stream OR-REDC-RH-HET is therefore not assigned a K-listed HWN.

Headspace Gas/Volatile Organic Compound Information

Headspace gas sampling was performed on 11 randomly selected containers. No UCL_{90} values exceeded the PRQLs for VOCs and SVOCs. One TIC (2-methyl-1-propanol) was identified but was not found in greater than 25% of the containers in this lot. These data are consistent with AK. The specifics of this information are included in the attached Characterization Information Summary Report. No EPA hazardous waste numbers were assigned based on headspace gas sampling analysis results.

Conclusion

The following EPA hazardous waste numbers are assigned to this waste stream: D004, D005, D006, D007, D008, D009, D010, D011, D019, F002 and F005.

Polychlorinated Biphenyls (PCBs)

Based on a review of the AK record, incandescent bulbs, mercury-vapor bulbs, vacuum pumps, and lighting fixtures (bases) were identified in the RH container documentation, however items potentially containing polychlorinated biphenyl (PCB) compounds were not specifically identified (capacitors, ballasts, etc.). No other potential sources for PCBs were identified in the AK record for this stream; however the ORNL waste management practices described in the AK record did not historically identify PCB materials as prohibited items or special management of these materials in the REDC. Additionally, interviews with ORNL waste management personnel have identified that vacuum pumps and capacitors containing PCB liquids could potentially be present in ORNL waste containers. If the waste is found to contain fluorescent light ballasts or other potential PCB-containing items during repackaging, these items will be managed in accordance with the PCB disposal requirements in the WIPP-WAC. (References C307, C308, M024, M100, P240, and P263).

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and characterization activities. Visual examination is performed on each container in this waste stream as a confirmation activity. The following items have been determined as not present in the waste:

- Liquids
- Non-radioactive pyrophoric materials
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, or other wastes
- Explosives or compressed gases
- Waste with PCBs not authorized under an EPA PCB waste disposal authorization
- Waste exhibiting the characteristics of ignitability, corrosivity, or reactivity
- Non-mixed hazardous wastes
- Waste that has ever been managed as high-level waste and waste from tanks specified in Table B-8 of the WIPP Hazardous Waste Facility Permit, unless specifically approved through a Class 3 permit modification.
- Any waste container from a waste stream (or waste stream lot) which has not undergone either radiographic or visual examination of a statistically representative subpopulation of the waste stream in each shipment, as described in the WIPP Hazardous Waste Facility Permit, Attachment B7.

Each container of waste is certified and shipped only after visual examination:

- Did not identify any prohibited items in the waste container, or
- All prohibited items found in a waste container by visual examination are identified and corrected (i.e., eliminated or removed) through the site non-conformance reporting system.

Method for Determining Waste Material Parameter Weights per Unit of Waste

The waste material parameter weight estimates for waste stream OR-REDC-RH-HET were derived from data located on site-specific waste disposal, transportation, and storage forms from 45 casks generated from 1991 through 2007. These containers are considered representative of the waste stream because the production operations that generated this waste

were consistent through the generation timeline. An analysis of the site-specific and VE data were performed, the results of which are presented in Table 2.

Table 2. Waste Stream OR-REDC-RH-HET Waste Material Parameters

Waste Material Parameter	Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	59.13%	30.23% – 95.51%
Aluminum based Metals/Alloys	0.01%	0.0% – 0.64%
Other Metals	5.91%	0.0% – 52.38%
Other Inorganic Materials	16.78%	0.0% – 47.51%
Cellulosics	6.68%	0.0% – 18.03%
Plastics (waste materials)	8.62%	1.44% – 30.97%
Rubber	1.66%	0.0% – 11.9%
Organic Matrix	0.00%	0.0% – 0.0%
Inorganic Matrix	1.21%	0.0% – 7.93%
Soils/Gravel	0.00%	0.0% – 0.0%

List of AK Sufficiency Determinations

No AK Sufficiency Determinations apply to this waste stream.

Transportation

This waste stream and its chemical constituents have been reviewed for consistency with listed TRUCON codes and they are consistent. The waste stream and chemical constituents will be reviewed for consistency with the applicable TRUCON Content Number prior to shipment.

Radionuclide Information

The two most prevalent radionuclides by mass in this waste stream are Pu-239 and Cm-246. The isotopes expected to be present in the waste stream are listed in Table 3.

Table 3. Radionuclides in Waste Stream OR-REDC-RH-HET

WIPP Tracked Radionuclides	Additional Reported Radionuclides		
Am-241	Am-243	Cm-242	Ru-103
Pu-238	Ba-137m	Cm-244	Ru-106
Pu-239	Cf-249	Cm-246	Ag-110m
Pu-240	Cf-250	Cm-248	Sb-125
Pu-242	Cf-251	Eu-152	U-235
U-233 (Not expected)	Cf-252	Eu-154	U-236
U-234	Ce-141	Eu-155	Y-90
U-238	Ce-144	Nb-95	Zr-95
Cs-137	Cs-134	Np-239	
Sr-90	Co-60	Pu-241	

Payload management will not be employed for Oak Ridge National Laboratory.

Attachment 1

AK SOURCE DOCUMENTS, SUPPLEMENTAL DOCUMENTATION

Source Document Tracking Number	AK #	Title	Document Number	Date
C046	S5	Memo to J. A. Lenhard, DOE OR re: Materials Management Plan-ORNL	NA	06/13/1984
C307	NA	Interview of Walt Bond. Subject: Processes and Waste in Building 3508 at ORNL	NA	2/21/2008
C308	NA	Interview of Jason Taylor. Subject: PCB Management at ORNL.	NA	4/8/2008
DR005	NA	EPA Hazardous Waste Number Discrepancies	NA	06/24/08
DR602	NA	Discrepancy Resolution Follow-up on DR005 for EPA Hazardous Waste Number Discrepancy	NA	07/02/08
M005	NA	UCN-2109 Forms and Related Container Paperwork.	NA	Various
M024	S6, S9	RH EM Waste Database Query	NA	10/04/2007
P146	S9	C-Tank Transfers; Transuranic Sludge Removal From the C-1, C-2, and W-23 Waste Storage Tanks at Oak Ridge National Laboratory. Oak Ridge, Tennessee	BJC/OR-279	05/1999
P161	NA	Safety Analysis Report Radiochemical Engineering Development Center Building 7920	SAR/7920-CTD/0	3/14/2001
P223	NA	Chemical Technology Division Annual Progress Report for Period Ending 5/31/1969	ORNL-4422	Oct-69
P240	NA	Packaging and Disposition of Contact-Handled Transuranic Waste At the Radiochemical Engineering Development Center	REDC FO/WH 5100, Rev. 1 & 2	1/26/1995;7/15/1998
P241	NA	Oak Ridge National Laboratory Contact-Handled Transuranic Waste Certification Program Plan	ORNL/TM-10322/2, Rev. 2	8/1/1990

Source Document Tracking Number	AK #	Title	Document Number	Date
P242	NA	Oak Ridge National Laboratory Contact-Handled Transuranic Waste Certification Program Plan	ORNL/TM-10322/R3, Rev. 3	Jun-92
P263	NA	TRU Operating Manual and Supporting Documentation	NA	10/10/1980
P282	NA	Building 7920 Analytical Chemistry Procedures	Various	Various
P324	S3	Technical Safety Requirements Irradiated Fuels Examination Laboratory Building 3525	ORNL/3525/TSR	8/1/2004
P325	S3	Oak Ridge National Laboratory Standardized Safety Analysis Report for Nonreactor Nuclear Facilities	ORNL/NNFD/SSAR	5/12/2004
P330	S3	Safety Analysis Report Irradiated Fuels Examination Laboratory / Building 3525	ORNL/3525/SAR	6/22/2006
P401	S13	Radioactive materials Analysis laboratory Quality Assurance Plan for the Characterization of Radioactive Waste	QAP-X-96-CASD/RML-001	10/1997
P424	S5	Californium-252: A Remarkable Versatile Radioisotope	ORNL/TM-12706	10/10/1995
U011	NA	Safety Analysis: Transuranium Processing Plant, Building 7920	ORNL/TM-7688, Draft	Dec-84
U049	S9	Waste Stream Profile Sheet for 7920-HCAL-005 and Supporting documentation	7920-HCAL-005	08/18/1999
U601	S9	CCP Calculation Package: Sample Radionuclide Information Input Check	ORNL-RH-01	04/19/2008
U602	S9	CCP Calculation Package: Sample Data Decay Correction	ORNL-RH-02	04/19/2008
U603	S9	CCP Calculation Package: Campaigns 69 and M5 Information Input Check	ORNL-RH-03	04/19/2008
U605	S9	CCP Calculation Package: Mark 42 Campaigns Inventory Information Input Check	ORNL-RH-05	04/19/2008
Source Document Tracking	AK #	Title	Document Number	Date

Number				
U606	S9	CCP Calculation Package: Radiological Inventories for SETF Campaigns	ORNL-RH-06	04/19/2008
U607	S9	CCP Calculation Package: Dose-to-Curie Derivation for Cs-137, Eu-152 and Eu-154	ORNL-RH-07	04/19/2008; 05/23/2008
U608	S9	CCP Calculation Package: Determination of Reportable Isotopes-Mark 42 Period	ORNL-RH-08	04/19/2008
U609	S9	CCP Calculation Package: Campaign Inventory Information Input Check	ORNL-RH-09	04/19/2008
U610	S9	CCP Calculation Package: Uncertainty Analysis	ORNL-RH-10	05/13/2008
U611	S9	CCP Calculation Package: DTC Spreadsheet for Mark 42 Time-Mark/HFIR	ORNL-RH-11	05/22/2008
U612	S9	CCP Calculation Package: Development of Cs-137 Partition Factors	ORNL-RH-12	04/19/2008
U613	S9	CCP Calculation Package: MCNP5 Uncertainty Analysis	ORNL-RH-13	04/19/2008
U614	S9	CCP Calculation Package: Determination of Cm-242 Processed in Campaign 69	ORNL-RH-14	04/19/2008
U615	S9	CCP Calculation Package: Development of Campaigns 69 and M5 Inventories	ORNL-RH-15	04/19/2008
U616	S9	CCP Calculation Package: Direct Assay Information Input Check	ORNL-RH-16	05/13/2008
U617	S9	CCP Calculation Package: Direct Assay Data Analysis	ORNL-RH-17	05/13/2008
U618	S9	CCP Calculation Package: Scaling Factor Development for Mark 42 Time Period	ORNL-RH-18	04/19/2008
U620	S9	CCP Calculation Package: Fission Product Contribution to Total Dose Rate	ORNL-RH-20	04/19/2008
U621	S9	CCP Calculation Package: Sample Scaling Factor Development	ORNL-RH-21	04/19/2008
U622	S9	CCP Calculation Package: SR-90/Cs-137 Scaling Factor Development	ORNL-RH-22	05/14/2008
Source Document Tracking	AK #	Title	Document Number	Date

Number				
U623	S9	CCP Calculation Package: DTC Spreadsheet for Mark 42 Time-HFIR/HFIR	ORNL-RH-23	05/22/2008
U626	S9	CCP Calculation Package for: Determination of Neutron Surface to 1-m Dose Ratio	ORNL-RH-26	05/23/2008
U627	S9	CCP Calculation Package for: Ratio Between Contact and One Meter Dose Rates	ORNL-RH-27	05/23/2008

Alphanumeric Designations

C Correspondence
D Documents
DR Discrepancy Resolution
M Miscellaneous
P Procedures and Published Documents
U Unpublished Documents

AK Numbers

S1 Process Design Documents
S2 Standard Operating Procedure
S3 Safety Analysis Reports
S4 Waste Packaging Logs
S5 Test plans/research project reports
S6 Site databases
S7 Information from site personnel
S8 Standard industry documents
S9 Previous analytical data
S10 Material safety data sheets
S11 Laboratory Notebooks
S12 Comparable or surrogate sampling and analysis data
S13 Other

DIVIDER

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URS

Washington TRU Solutions LLC

CP:11:01619
UFC:5900.00

INTER-OFFICE CORRESPONDENCE

DATE: September 19, 2011

FROM: L. M. Nelson LOCATION: Certification

TO: CCP Records Custodian GSA-212 LOCATION: Retrieval, Characterization and Transportation

SUBJECT: TRANSMITTAL OF CHARACTERIZATION INFORMATION SUMMARY FOR REMOTE-HANDLED LOT 28 OR-REDC-RH-HET AT THE OAK RIDGE NATIONAL LABORATORY

Please accept the attached Characterization Information Summary for the Remote-Handled Oak Ridge National Laboratory Lot 28 OR-REDC-RH-HET.

LMN:yhs

Attachment

cc: (without attachment)

I. S. Quintana ED

CCP RECORDS ORIGINAL
DATE REC'D 9/19/11

CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-REDC-RH-HET

Lot 28

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CCP Characterization Information Summary Cover Page

Waste Stream # OR-REDC-RH-HET Lot #: 28

AK Expert Review: Kevin Peters Date: 9/19/2011

SPM Review: Laura Nelson Date: 9/19/2011

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Radiography (RTR/NDE)

NA	NA	NA	NA

Headspace Gas Sampling and Analysis (HSG):

CCP-TP-093	Rev. 15	03/10/11	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 14	12/29/10	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 13	03/19/07	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 7	12/29/10	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-106	Rev. 6	07/12/07	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-106	Rev. 5	11/16/06	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-173	Rev. 1	09/30/09	CCP Analysis of Gas Samples for VOCs by GC/FID
CCP-TP-173	Rev. 0	05/03/07	CCP Analysis of Gas Samples for VOCs by GC/FID
CCP-TP-175	Rev. 3	04/17/11	CCP Analysis of Gas Samples for VOCs by GC/MS
CCP-TP-175	Rev. 2	12/29/10	CCP Analysis of Gas Samples for VOCs by GC/MS
CCP-TP-175	Rev. 1	03/29/10	CCP Analysis of Gas Samples for VOCs by GC/MS
CCP-TP-175	Rev. 0	05/02/07	CCP Analysis of Gas Samples for VOCs by GC/MS

Visual Examination (VE):

CCP-TP-500	Rev. 11	04/21/11	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 10	12/29/10	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 9	06/30/10	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 8	07/24/08	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 7	02/27/08	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 6	10/25/07	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 5	06/01/07	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 4	11/16/06	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 3	10/12/06	CCP Remote-Handled Waste Visual Examination

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 19	12/29/2010	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	8/9/2010	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 16	04/26/07	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 15	11/22/06	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 14	11/16/06	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 13	07/21/06	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	06/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	08/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 20	8/1808	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 19	12/22/06	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 18	11/16/06	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 17	10/10/06	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 18	12/29/10	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 16	10/02/07	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 15	11/16/06	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 14	09/03/03	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 17	06/05/06	CCP Acceptable Knowledge Documentation
CCP-TP-530	Rev. 10	04/25/11	RH TRU Waste Certification and WWIS Data Entry
CCP-TP-530	Rev. 9	12/11/09	RH TRU Waste Certification and WWIS Data Entry

LN
9-19-11

CIS-002

CCP Characterization Information Summary Cover Page

CCP-TP-530	Rev. 8	09/09/09	RH TRU Waste Certification and WWIS Data Entry
CCP-TP-530	Rev. 7	07/11/08	RH TRU Waste Certification and WWIS Data Entry

WAP Certification:

CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 15	08/10/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 14	03/28/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 13	11/16/06	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 12	03/22/06	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-027	Rev. 3	04/17/11	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 2	04/22/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 1	02/17/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 0	10/02/07	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document

WAC Certification:

CCP-PO-002	Rev.26	7/14/2011	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/2010	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	6/30/2010	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	4/7/2010	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 22	1/12/2010	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 21	1/26/2009	CCP Transuranic Waste Certification Plan

QS-003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 28

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00646	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00647	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00648	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00649	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00650	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00019	N/A	ORRHDTC09007	N/A	RHORVE090011	N/A	N/A		N/A	N/A	N/A	OR11FG4008

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

9/19/2011
Date

CIS-004

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-REDC-RH-HET **Waste Stream Lot Number** 1 through 9

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	Log	10	23	1.62	-2.13	2.40	1.13	10	2.30		
Bromoform	Log	0	23	0.66	-4.11	0.98	-2.25	10	2.30		
Carbon tetrachlonde	Log	0	23	0.63	-3.97	0.94	-2.12	10	2.30		
Chlorobenzene	Log	0	23	0.59	-3.68	0.88	-1.97	10	2.30		
Chloroform	Log	1	23	0.54	-3.79	0.81	-2.30	10	2.30		
Cyclohexane [a]	Log	0	23	0.61	-3.07	0.91	-1.29	10	2.30		
1,1-Dichloroethane	Log	0	23	0.60	-3.40	0.89	-1.77	10	2.30		
1,2-Dichloroethane	Log	0	23	0.56	-3.51	0.83	-1.97	10	2.30		
1,1-Dichloroethylene	Log	0	23	0.66	-3.26	0.98	-1.43	10	2.30		
cis-1,2-Dichloroethylene	Log	0	23	0.59	-3.50	0.87	-1.83	10	2.30		
trans-1,2-Dichloroethylene	Log	1	23	0.61	-3.07	0.90	-1.49	10	2.30		
Ethyl benzene	Log	4	23	0.95	-3.00	1.41	-0.82	10	2.30		
Ethyl ether	Log	0	23	0.63	-3.07	0.94	-1.43	10	2.30		
Methylene chloride	Log	3	23	0.66	-2.97	0.97	-1.31	10	2.30		
Tetrachloroethylene	Log	0	23	0.58	-3.81	0.85	-2.16	10	2.30		
Toluene	Log	9	23	1.11	-2.36	1.64	0.18	10	2.30		
1,1,1-Trichloroethane	Log	0	23	0.70	-3.96	1.04	-1.97	10	2.30		
Trichloroethylene	Log	0	23	0.58	-3.80	0.85	-2.25	10	2.30		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	0	23	0.63	-4.01	0.93	-2.21	10	2.30		
1,2,4-Trimethylbenzene [a]	Log	3	23	0.74	-3.16	1.10	-1.35	10	2.30		
1,3,5-Trimethylbenzene [a]	Log	1	23	0.65	-3.35	0.96	-1.77	10	2.30		
m-Xylene [b]	Log	3	23	0.99	-3.16	1.46	-0.42	10	2.30		
p-Xylene [b]	Log	3	23	0.99	-3.16	1.46	-0.42	10	2.30		
o-Xylene	Log	3	23	0.76	-3.35	1.13	-1.61	10	2.30		
Acetone	Log	14	23	2.28	0.70	3.37	4.87	100	4.61	Yes	
1-Butanol	Log	10	23	1.52	-1.59	2.25	2.25	100	4.61		
Methanol	Log	0	23	0.73	1.84	1.08	5.44	100	4.61	Yes	
Methyl ethyl ketone	Log	13	23	1.88	-0.80	2.78	2.71	100	4.61		
Methyl isobutyl ketone	Log	9	23	1.61	-2.40	2.39	0.83	100	4.61		
Chloromethane [c]	Log	12	23	1.89	-1.45	2.80	2.19	10	2.30		
Carbon Disulfide [a]	Log	3	23	0.95	-2.91	1.41	-0.45	10	2.30		
1,2-Dichloropropane [a]	Log	0	23	0.60	-3.53	0.90	-1.77	10	2.30		

[a] These compounds are from the TRAMPAC and or CH TRUCON Appendix B and are flammable VOCs that do not appear in the QAPjP or the WIPP WAP. These are not part of the target analyte list, but samples may be analyzed for these compounds.

[b] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

[c] Noted analytes are not required but are reported by the Environmental Chemistry Laboratory at Idaho and are included on the UCL90 for completeness.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP. 1/2 of the MDL value is used in calculating the mean concentration.)

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

9/19/2011
Date

CIS-005

CCP Headspace Gas Summary Data

Waste Stream Number OR-REDC-RH-HET Lot Number (s) 28

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
2-Methyl-1-propanol	3.10	1	4.35%

Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature Laura Nelson Date 9/19/2011

CIS-0016

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-REDC-RH-HET Lot #: 28

Container Number	RTR Prohibited Items [a]	Visual Examination Prohibited Items [a]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	RTR was not used to certify any containers in this lot.	None of the containers in this Lot had prohibited items identified during Visual Examination technique.

a. See Batch Data Reports

b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Justification for the selection of RTR and/or VE: VE was selected as the characterization method for this lot because the containers were newly generated and met all the Data Quality Objectives for NDE for the waste.

Laura Nelson
Site Project Manager Signature

Laura M. Nelson
Printed Name

9/19/2011
Date

CIS-007

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 28

Sampling Completeness

VE

Number of Valid Samples: 6 Number of Total Samples Analyzed: 6

Percent Complete: 100 (QAO is 100%)

RTR

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is 100%)

HSG

Number of Valid Samples: 23 Number of Total Samples collected: 23

Percent Complete: 100 (QAO is ≥90%)

Total VOC

Number of Valid Samples: NA Number of Total Samples collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total SVOC

Number of Valid Samples: NA Number of Total Samples collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total Metals

Number of Valid Samples: NA Number of Total Samples collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples analyzed: NA

Percent Complete: NA (QAO is ≥90%)

CIS-008

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 28

	Y/N/NA	Reconcilliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	NA	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	Y	Mean concentrations, UCL90 values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP TP 003, Attachment 3, and additional Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	NA	Mean concentrations, UCL90 values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003-Attachment 4, and additional EPA Hazardous Waste Numbers were assigned as required. Samples were randomly collected.
7b	NA	Mean concentrations, UCL90 values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP TP 003 Attachment 5, and additional EPA Hazardous Waste Numbers were assigned as required. Samples were randomly collected.
7c	NA	Mean concentrations, (UCL90) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP TP 003 Attachment 6, and additional EPA Hazardous Waste Numbers were assigned as required. Samples were randomly collected.

C15-009

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 28

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	Y	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the QAPjP.
13	Y	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in CCP-PO-001 Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	NA	NA	NA
VE	Y	Y	Y
Headspace Gas Analysis	Y	Y	Y
Solids Sampling	NA	NA	NA
Solids VOCs	NA	NA	NA
Solids SVOCs	NA	NA	NA
Solids Metals	NA	NA	NA

Comments: N/A

Signature of Site Project Manager | Laura M. Nelson, Printed Name | 9/19/2011, Date

CS-010

DIVIDER

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CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-REDC-RH-HET

Lot 29

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CCP Characterization Information Summary Cover Page

Waste Stream # OR-REDC-RH-HET Lot #: 29

AK Expert Review: Kevin Peters Date:

SPM Review: Laura M. Nelson Date:

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Visual Examination (VE):

CCP-TP-500	Rev. 7	02/27/08	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 8	07/24/08	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 9	06/30/10	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 10	12/29/10	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 11	04/21/11	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 12	07/18/13	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 13	09/23/13	CCP Remote-Handled Waste Visual Examination

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	08/09/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 20	09/27/12	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 21	06/06/13	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 20	08/18/08	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	08/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	06/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 24	12/28/11	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 25	02/11/13	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 26	06/19/13	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 24	11/28/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 25	06/19/13	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 26	08/12/13	CCP Acceptable Knowledge Documentation
CCP-TP-530	Rev. 7	07/11/08	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-530	Rev. 8	09/09/09	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-530	Rev. 9	12/11/09	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-530	Rev. 10	04/25/11	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-530	Rev. 11	06/19/13	CCP RH TRU Waste Certification and WWIS/WDS Data Entry

WAP Certification:

CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 21	05/31/13	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-027	Rev. 0	10/02/07	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 1	02/17/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 2	04/22/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 3	12/29/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 4	10/01/12	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 5	10/02/13	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document

WAC Certification:

CCP-PO-002	Rev. 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 22	01/12/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 27	05/31/13	CCP Transuranic Waste Certification Plan

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 29

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR	RTR BDR	VE BDR	Load Management/ Overpack Yes	Transportation BDR
ORRH00678	N/A	ORRHDTC13001	N/A	ORNLRHVE13001		
ORRH00679	N/A	ORRHDTC13001	N/A	ORNLRHVE13002		
ORRH00680	N/A	ORRHDTC13001	N/A	ORNLRHVE13003		
ORRH00681	N/A	ORRHDTC13001	N/A	ORNLRHVE13004		
ORRH00682	N/A	ORRHDTC13001	N/A	ORNLRHVE13004		
ORRH00683	N/A	ORRHDTC13001	N/A	ORNLRHVE13005		
ORRH00684	N/A	ORRHDTC13001	N/A	ORNLRHVE13006		

Signature of Site Project Manager

Laura M. Nelson
Printed Name

Date

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-REDC-RH-HET Lot #: 29

Container Number	RTR Prohibited Items [a]	Visual Examination Prohibited Items [a]	Does the Physical Form of the Waste
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	RTR was not used to certify any containers in this lot.	None of the containers in this Lot had prohibited items identified during Visual Examination technique.	The physical form of the waste found in all the containers in this lot match the Waste Stream Description as Determined by AK.

a. See Batch Data Reports
b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Justification for the selection of RTR and/or VE: VE was selected as the characterization method for this lot because the containers were newly generated and meet all the Data Quality Objectives for VE for the waste stream OR-REDC-RH-HET.

Site Project Manager Signature | Laura M. Nelson Printed Name | Date

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 29

Sampling Completeness

VE
Number of Valid Samples: 7 Number of Total Samples Analyzed: 7
Percent Complete: 100 (QAO is 100%)

RTR
Number of Valid Samples: NA Number of Total Samples Analyzed: NA
Percent Complete: NA (QAO is 100%)

NDA
Number of Valid Samples: 7 Number of Total Samples Analyzed: 7

	Y/N/NA	Reconcilliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
7	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
8	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
9		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in CCP-PO-001 Sections C3-1 through C3-2 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	NA	NA	NA
VE	Y	Y	Y

N/A

Laura M. Nelson
Printed Name

Date

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 29

Washington
TRU Solutions LLC

CP:09:01507
UFC:5900.00

INTER-OFFICE CORRESPONDENCE

DATE: December 10, 2009

FROM: R. P. Kantrowitz R.P.K. LOCATION: Certification

TO: CCP Records Custodian GSA-212 LOCATION: Retrieval, Characterization & Transportation

SUBJECT: TRANSMITTAL OF OAK RIDGE NATIONAL LABORATORY WASTE STREAM PROFILE FORM FOR WASTE STREAM #OR-NFS-CH-HET-A

Please accept the attached Oak Ridge National Laboratory Waste Stream Profile Form to be placed in Records for Waste Stream #OR-NFS-CH-HET-A.

RPK:jmc

Attachment

cc: (without attachment)

M. Pearcy ED
W. Weyerman ED

ORI

3Attachment 2 –CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: OR-NFS-CH-HET-A					
(2) Generator site name: Oak Ridge National Laboratory			(4)Technical contact: Richard Kantrowitz		
(3) Generator site EPA ID: TN1890090003			(6) Technical contact phone number: 575-234-7511		
(5) Date of audit report approval by New Mexico Environment Department (NMED): 04/24/2008, 04/23/2009					
(7) Title, version number, and date of documents used for WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 17, June 23, 2009 CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 21, January 26, 2009 CCP-PO-027 CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document, Revision 0, October 2, 2007					
(8) Did your facility generate this waste? YES			NO	X	
(9) If no, provide the name and EPA ID of the original generator: Nuclear Fuel Services, Inc., TND003095635					
Waste Stream Information[1]					
(10) WIPP ID: OR-NFS-CH-HET			(11) Summary Category Group: S5000		
(12) Waste Matrix Code Group: Heterogeneous Debris Waste			(13) Waste Stream Name: Heterogeneous Debris from Nuclear Fuel Services, Inc., number 2		
(14) Description from the TWBIR: Waste consists of non-mixed CH-TRU debris from NFS.[3]					
(15) Defense TRU Waste: YES	X	NO			
(16) Check One: CH	X	RH			
(17) Number of SWBs: N/A	(18) Number of Drums: 258 55-gallon		(19) Number of Canisters: N/A		
(20) Batch Data report numbers supporting this waste stream characterization: See Characterization Information Summary (CIS) Correlation of Container Identification Numbers to Batch Data Report Numbers					
(21) List applicable EPA Hazardous Waste Numbers:[2] D006, D008, D009, D011, and F002					
(22) Applicable TRUCON Content Numbers: OR 125, OR 225, SQ 154					
(23)**Acceptable Knowledge Information**[1]					
[For the following, enter the supporting documentation used (i.e., references and dates)]					
Required Program Information					
(23A) Map of site: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Figures 1, 2a, 2b, 3, & 4					
(23B) Facility mission description: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 4.2					
(23C) Description of operations that generate waste: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Sections 4.4 and 5.3					
(23D) Waste identification/categorization schemes. CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 4.5					
(23E) Types and quantities of waste generated: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Sections 4.6.1 and 5.4					
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 4.6.2					
(24) Waste certification procedures: CCP-TP-030, Rev. 26, CCP CH TRU Waste Certification and WWIS Data Entry, May 27, 2009					

(25)Required Waste Stream Information			
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 5.1			
(25B) Waste stream volume and time period of generation: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 5.2			
(25C) Waste generating process description for each building: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Sections 4.4 and 5.3			
(25D) Waste Process flow diagrams: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Figure 5			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Sections 5.4 and 5.5			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See Table 2 of the Summation of Aspects of AK Summary Report: OR-NFS-CH-HET-A			
(26) Which Defense Activity generated the waste: (check one)			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management	X	Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations		
(27)Supplemental Documentation			
(27A) Process design documents: See S1 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27B) Standard operating procedures: See S2 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27C) Safety Analysis Reports: See S3 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27D) Waste packaging logs: See S4 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(28E) Test plans/research project reports: See S5 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27F) Site databases: See S6 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27G) Information from site personnel: See S7 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27H) Standard industry documents: See S8 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27I) Previous analytical data: See S9 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27J) Material safety data sheets: See S10 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27K) Sampling and analysis data from comparable/surrogate Waste: See S12 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27L) Laboratory notebooks: See S11 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
Confirmation Information[2]			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: CCP-TP-053, Rev. 6, 3/04/2008		
(29)	Visual Examination: NA		

(30)Comments:
For a list of the waste characterization procedures used and date of the respective procedures see the list of procedures on the attached CIS.

Reviewed by AK Expert: YES [X] **Date:** 08/31/2009

Reviewed by STR (if necessary): YES [X] NA [ ] **Date:** 09/03/2009

Waste Stream Profile Form Certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

(31)	(32)	(33)
Signature of Site Project Manager	Richard Kantrowitz Printed Name	9/24/09 Date

NOTE:
(1) Use back of sheet or continuation sheets, if required.
(2) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.
(3) The debris waste was characterized by NFS as non-mixed waste with the exception of one drum. However, review of waste item descriptions for the non-mixed drums identified batteries and electronic equipment containing circuit boards. Also, RCRA-regulated metals and organics were identified in analytical data relevant to waste stream OR-NFS-CH-HET-A. Therefore, the debris waste is conservatively characterized as RCRA hazardous waste.

CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-NFS-CH-HET-A

Lot 1

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CCP Characterization Information Summary Cover Page

Waste Stream # OR-NFS-CH-HET-A Lot #: 1

AK Expert Review: N/A Date: N/A

SPM Review: Richard Kantrowitz Date: 9/17/2009

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Radiography (RTR/NDE)

CCP-TP-053	Rev. 6	03/04/08	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Non Destructive Assay (NDA):

CCP-TP-166	Rev. 2	12/05/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 1	06/19/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 0	10/12/07	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-168	Rev. 2	12/02/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 1	11/17/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 0	10/18/07	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-169	Rev. 1	06/19/08	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-169	Rev. 0	10/12/07	CCP Operating the Mobile Segmented Gamma Scanner

Headspace Gas Sampling and Analysis (HSG):

CCP-TP-093	Rev. 13	03/19/07	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 6	07/12/07	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-173	Rev. 0	05/03/07	CCP Analysis of Gas Samples for VOCs by GC/FID
CCP-TP-175	Rev. 0	05/02/07	CCP Analysis of Gas Samples for VOCs by GC/MS

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 21	08/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 20	08/18/08	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 16	10/02/07	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 26	05/27/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 25	01/22/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 24	08/20/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/07	CCP CH TRU Waste Certification and WWIS Data Entry

WAP Certification:

CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev 20	11/02/07	CCP Transuranic Waste Certification Plan
CCP-PO-027	Rev 0	10/02/07	CCP/TWPC/ORNL Interface Document

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-NFS-CH-HET-A

Lot # 1

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR			
							Sample	Analysis		
X10C0501236	OR-DWAS-0006	OR-RTR6-0004	NA	NA	NA		ORHSGS090003	ECL09013M	ECL09013G	OR08FG4032
X10C0501280	OR-DWAS-0016	OR-RTR6-0019	NA	NA	NA		ORHSGS090003	ECL09013M	ECL09013G	OR08FG4032
X10C0501287	OR-DWAS-0016	OR-RTR6-0019	NA	NA	NA		ORHSGS090003	ECL09013M	ECL09013G	OR08FG4032
X10C0505962	OR-DWAS-0015	OR-RTR6-0006	NA	NA	NA		ORHSGS090003	ECL09013M	ECL09013G	OR08FG4032
X10C0505970	OR-DWAS-0017	OR-RTR6-0004	NA	NA	NA		ORHSGS090003	ECL09013M	ECL09013G	OR08FG4032
X10C0506143G	OR-DWAS-0078	OR-RTR6-0052	NA	NA	NA		ORHSGS090003	ECL09013M	ECL09013G	OR08FG4046
X10C0506143H	OR-DWAS-0079	OR-RTR6-0052	NA	NA	NA		ORHSGS090003	ECL09013M	ECL09013G	OR08FG4037
X10C0506143L	OR-DWAS-0078	OR-RTR6-0053	NA	NA	NA		ORHSGS090003	ECL09013M	ECL09013G	OR08FG4046
X10C0506153B	OR-DWAS-0078	OR-RTR6-0053	NA	NA	NA		ORHSGS090003	ECL09013M	ECL09013G	OR08FG4046
X10C0506154S	OR-DWAS-0166	OR-RTR6-0120	NA	NA	NA		ORHSGS090003	ECL09013M	ECL09013G	OR09FG4005

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

9/17/2009
Date

CIS003

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-HET-A

Waste Stream Headspace Gas Lot Number 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Hazardous Waste Number
Benzene	Log	2	10	-1.66	-3.20	0.70	-2.89	10	2.30		
Bromoform	Log	0	10	-4.10	-4.77	0.42	-4.59	10	2.30		
Carbon Tetrachloride	Log	0	10	-3.26	-3.92	0.42	-3.74	10	2.30		
Chlorobenzene	Log	0	10	-3.06	-3.72	0.41	-3.54	10	2.30		
Chloroform	Log	1	10	-1.90	-3.31	0.65	-3.03	10	2.30		
Cyclohexane[a]	Log	0	10	-2.73	-3.38	0.41	-3.20	10	2.30		
1,1-Dichloroethane	Log	0	10	-2.30	-2.96	0.42	-2.78	10	2.30		
1,2-Dichloroethane	Log	3	10	0.18	-2.81	1.57	-2.12	10	2.30		
1,1-Dichloroethylene	Log	0	10	-2.73	-3.38	0.41	-3.20	10	2.30		
cis-1,2-Dichloroethylene	Log	0	10	-3.22	-3.88	0.42	-3.70	10	2.30		
trans 1,2-Dichloroethylene	Log	0	10	-3.13	-3.80	0.42	-3.62	10	2.30		
Ethyl benzene	No	0	10	0.05	0.03	0.01	0.03	10	N/A		
Ethyl Ether	No	0	10	0.09	0.05	0.02	0.06	10	N/A		
Methylene chloride	Log	3	10	2.77	-2.47	2.02	-1.58	10	2.30		
1,1,2,2-Tetrachloroethane	Log	0	10	-3.32	-3.99	0.42	-3.81	10	2.30		
Tetrachloroethylene	Log	0	10	-3.27	-3.94	0.42	-3.76	10	2.30		
Toluene	Log	10	10	2.94	1.06	1.47	1.70	10	2.30		
1,1,1-Trichloroethane	Log	0	10	-3.51	-4.17	0.41	-3.99	10	2.30		
Trichloroethylene	No	0	10	0.03	0.02	0.01	0.02	10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	1	10	-2.58	-3.92	0.59	-3.66	10	2.30		
1,2,4-Trimethylbenzene[a]	Log	1	10	-2.53	-3.64	0.56	-3.39	10	2.30		
1,3,5-Trimethylbenzene[a]	No	1	10	0.05	0.03	0.01	0.03	10	N/A		
m,p-Xylenes[b]	Log	3	10	-2.12	-3.46	0.91	-3.06	10	2.30		
o-Xylene	Log	0	10	-2.90	-3.57	0.42	-3.38	10	2.30		
Acetone	Log	10	10	2.48	0.98	0.91	1.38	100	4.61		
Butanol	Log	10	10	0.26	-1.14	0.77	-0.80	100	4.61		
Methanol	No	0	10	6.00	5.80	0.26	5.91	100	N/A		
Methyl ethyl ketone	Log	9	10	1.13	-1.04	1.39	-0.43	100	4.61		
Methyl isobutyl ketone	Log	3	10	-2.04	-3.09	0.62	-2.82	100	4.61		

CS004

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-HET-A

Waste Stream Headspace Gas Lot Number 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Hazardous Waste Number
Chloromethane[e]	Log	2	10	-1.11	-2.85	0.91	-2.46	10	2.30		
Carbon Disulfide[e]	Log	5	10	-0.80	-2.49	1.10	-2.01	10	2.30		
1,2-Dichloropropane[e]	No	0	10	0.02	0.01	0.01	0.02	10	N/A		
Trichlorofluoromethane[e]	Log	1	10	0.18	-3.23	1.26	-2.68	10	2.30		
Formaldehyde[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hydrazine[d]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[a] These compounds are from the TRAMPAC and are flammable VOCs that do not appear in the QAPjP or the WIPP WAP. These are not part of the target analyte list, but samples may be analyzed for these compounds.

[b] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

[c] Required only for homogenous solids and soil/gravel waste from Savannah River Site.

[d] Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

[e] These compounds are reported by the Laboratory and are included for completeness.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

9/17/2009
Date

CTS005

CCP Headspace Gas Summary Data

Waste Stream Number OR-NFS-CH-HET-A Lot Number (s) 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
2-Methyl-methylester-2-propenoic acid	0.44	2	20%

Data Supports EPA Hazardous Waste Numbers Assigned by AK? ☑ Yes ☐ No

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature [signature] Date 9/17/2009

CIS006

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-NFS-CH-HET-A Lot(s)#: 1

Container Number	RTR Prohibited Items [a]	Visual Examination Prohibited Items [a]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	RTR Data confirm that none of the containers in this lot contain any prohibited items.	None of the containers in this lot were processed through VE.

a. See Batch Data Reports

Site Project Manager Signature Richard Kantrowitz (Printed Name) 9/17/2009 (Date)

CCP Reconciliation with Data Quality Objectives

Waste Stream#: OR-NFS-CH-HET-A Lot # 1

Sampling Completeness

RTR:

Number of Valid Samples: 10 Number of Total Samples Analyzed: 10

Percent Complete: 100 (QAO is 100%)

NDA

Number of Valid Samples: 10 Number of Total Samples Analyzed: 10

Percent Complete: 100 (QAO is 100%)

HSG

Number of Valid Samples: 10 Number of Total Samples Collected: 10

Percent Complete: 100 (QAO is ≥90%)

Number of Valid Samples: 10 Number of Total Samples Analyzed: 10

Percent Complete: 100 (QAO is ≥90%)

Total VOC

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total SVOC

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total Metals

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

CCP Reconciliation with Data Quality Objectives

Waste Stream#: OR-NFS-CH-HET-A Lot # 1

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	Y	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP-TP-003 Attachment 3, and additional U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	NA	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 4, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7b	NA	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 5, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7c	NA	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 6, and additional EPA HWNs were assigned as required. Samples were randomly collected.

CCP Reconciliation with Data Quality Objectives

Waste Stream#: OR-NFS-CH-HET-A Lot # 1

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	Y	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the QAPjP.
13	Y	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	NA	NA	NA
Headspace Gas Analysis	Y	Y	Y
Solids Sampling	NA	NA	NA
Solids VOCs	NA	NA	NA
Solids SVOCs	NA	NA	NA
Solids Metals	NA	NA	NA

Comments: NONE

Signature of Site Project Manager | Richard Kantrowitz (Printed Name) | 9/17/2009 (Date)

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: OR-NFS-CH-HET-A

Overview:

Waste Stream OR-NFS-CH-HET-A is Contact-Handled (CH) transuranic (TRU) mixed heterogeneous debris generated at Nuclear Fuel Services, Inc. (NFS) in Erwin, Tennessee and stored at the Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee. The waste was generated from 1993 through 2003 by the decommissioning of Buildings 110 and 234 at NFS.

Building 234 was used to perform defense related plutonium/uranium mixed oxide (MOX) fuel fabrication work that included dissolution, precipitation, blending of MOX powders, pellet and rod production, rod loading, and scrap recovery. A Decontamination and Volume Reduction Facility (DVRF) was incorporated into Building 234 to support decommissioning operations and was activated in 1990. Building 110 housed chemistry and spectrographic laboratories that provided analytical support to Building 234.

The majority of the plutonium processed by NFS resulted from U.S. Government contracts. The government contracts involved the manufacture of fuel rods for the Southwest Experimental Fast Oxide Reactor (SEFOR), a test facility for liquid metal breeder reactor fuel. In addition, the government contacts included the manufacture of fuel for the Department of Energy-Savannah River Site that was used in experiments as part of a cooperative research and development program between the U.S. Atomic Energy Commission and Atomic Energy of Canada Limited on deuterium oxide (D2O)-moderated power reactors. The other plutonium processed at NFS supported commercial contracts for the Halden reactor and Consumers Power Company. The two larger contracts were national defense related orders and waste from all of the contracts was co-mingled. Therefore, the TRU waste generated from the decommissioning of Building 234 and Building 110 at NFS, waste stream OR-NFS-CH-HET-A, is defense related waste generated from nuclear material production.

This Summation of Aspects of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) number OR-NFS-CH-HET-A for Contact Handled (CH) TRU heterogeneous debris. The primary source of information for this Summation is CCP-AK-ORNL-001, CCP Acceptable Knowledge Summary Report For Nuclear Fuel Services Contact-Handled Transuranic Waste Stored at Oak Ridge National Laboratory, Waste Streams: OR-NFS-CH-HET-A and OR-NFS-CH-SOIL, Revision 4, May 26, 2009. CCP-AK-ORNL-001 includes information obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, program/processing documentation, and interviews with knowledgeable personnel.

A population of drums, originally identified as belonging to waste stream OR-NFS-CH-HET, were determined to not match the waste stream characterization for that waste stream. These drums were redefined to a separate waste stream in accordance with the provision in Section B-1d of the WIPP WSFP and are included in this waste stream.

Waste Stream Identification Summary:

Site Where TRU Waste Was Generated:	Nuclear Fuel Services, Inc., Erwin, TN.
Waste Stream Name:	Heterogeneous Debris from Nuclear Fuel Services, Inc., number 2
Waste Stream Number:	OR-NFS-CH-HET-A
Dates of Waste Generation:	1993 to 2003
Summary Category Group:	S5000 – Debris Waste
Waste Matrix Code Group:	Heterogeneous Debris Waste
Waste Matrix Code:	S5400 – Heterogeneous Debris

Waste Stream TWBIR Identification:	OR-NFS-CH-HET
Waste Stream Volume:	258 55-gallon drums (current) 0 55-gallon drums (projected)
RCRA EPA Hazardous Waste Numbers:	D006, D008, D009, D011, and F002
TRUCON Content Numbers:	OR 125, OR 225, SQ 154

Waste Stream Description and Physical Form:

Waste stream OR-NFS-CH-HET-A is comprised primarily of organic and inorganic debris and consists of cellulosics, plastic, rubber, concrete, glass, and metal. Examples of waste items include aluminum sheeting and tubing, angle iron, steel framing, metal fittings, hardware (e.g., bolts, nuts, screws), pipe, saw blades, sheet metal, copper tubing, circuit boards, gauges, inorganic absorbent (e.g., Waste Lock® 770, a sodium polyacrylate absorbent}) concrete, glassware, Raschig rings, rags, paper suits, tape, wipes, wood, plastic bags and sheeting, bottles, flex hose, hoods, strippable coating (e.g. Instacoat CC Strippable Decon Media {a vinyl acrylic media}), plastic tubing, rubber gaskets, rubber gloves, shoe covers, electric motors, electrical equipment (e.g., drills, saws, and vacuums), batteries, and High Efficiency Particulate Air (HEPA) filters. Small quantities of soil, floor sweepings, absorbed oil (utilizing Waste Lock® 770 {a non-hazardous sodium polyacrylate absorbent} or NoChar {a proprietary polymer absorbent}), and cemented aqueous solutions (e.g., neutralized nitric acid, oxalic acid) may also be present.

This waste stream is assigned Waste Matrix Code S5400, Heterogeneous Debris. This category includes waste that is at least 50 percent, by volume, debris materials that do not meet the criteria for assignment as either an Inorganic Debris (S5100) or Organic Debris (S5300). The debris that comprises waste stream OR-NFS-CH-HET-A was generated from a single process or from an activity that is similar in material, physical form, and hazardous constituents and is therefore, a single waste stream.

Point of Generation - Area and Building of Generation

This TRU mixed heterogeneous debris waste stream was generated from Buildings 110 and 234 at Nuclear Fuel Services, Inc., in Erwin, TN.

Generating Process

Waste stream OR-NFS-CH-HET-A originated primarily from decommissioning of the Building 234 MOX fuel fabrication facility at NFS. Raschig rings from an underground tank that serviced Building 110 also contributed to this waste stream. Building 110 housed wet chemistry and spectrographic laboratories that provided analytical support to Building 234. Piping connected the laboratory drains to a small underground storage tank that was included in the decommissioning of the facility.

The process capabilities of the Building 234 facility, which ceased operations in 1973, included the dissolution, precipitation and blending of MOX powders in preparation for pellet and rod production, rod loading, and scrap recovery.

Pellet Production

Solutions containing a mixture of plutonium nitrate and uranyl nitrate hexahydrate were transferred to precipitation units. Plutonium and uranium were precipitated as ammonium diuranate and plutonium hydroxide, and ammonium hydroxide was used as a precipitant. During the Consumer Powers project, the feed solution contained plutonium nitrate only, and the plutonium was precipitated using oxalic acid, nitric acid, and hydrogen peroxide.

Supernate was decanted from the ammonium diuranate or oxalate slurry and the remaining precipitate was filtered to remove liquids. Supernate/filtrate from the ammonium diuranate or oxalate slurry was polished and stored. Filtrate was evaporated producing ammonium nitrate concentrate and ammonium

hydroxide condensate. During Southwest Experimental Fast Oxide Reactor (SEFOR) production, ammonium hydroxide condensate was used to wash ammonium diuranate cake. Wet ammonium diuranate or oxalate cake was dried and then heated in a nitrogen and hydrogen gas atmosphere. The resultant oxide solids (MOX or plutonium oxide) were passed through a blender. Sub-blended oxide was ball-milled, screened, and weighed.

Once cross-blend was performed; each cross-blend was subdivided into five sub-blends. The plutonium oxide cross-blending was followed by the addition of uranium oxide solids. The mixture of plutonium oxide and uranium oxide was sub-blended and cross-blended. Blended oxide was granulated and screened. Binders such as Sterotax (hydrogenated vegetable oil); Carbowax (polyethylene glycol): polyvinyl alcohol; and Oxylene (a methylene chloride and trichlorofluoroethane based binder) were added to cross-blends during granulation. Granulated oxide was transferred to a pellet press. Pellets were then loaded into a furnace, heated and allowed to off-gas. The resulting sintered pellets were machined to finished size. Recycled water from the pellet wash was used as coolant. Grinder sludge and damaged pellets were sent to scrap recovery. Machined pellets were cleaned with isopropyl alcohol or in an ultrasonic wash using distilled water and then dried. A percentage of pellets were sampled using destructive analyses and measured for density and dimensional attributes. Sample residues were sent to scrap recovery. Finished pellets were loaded in tubes that were capped and sent to rod assembly and fabrication stations where they were configured into rods.

Scrap Dissolution and Recovery

During scrap dissolution and recovery, oxide scrap was ball-milled to reduce particle size. Ball-milled oxide scrap was heated with nitric acid, dissolved and pumped to an evaporator.

Non-combustible items containing recoverable material (e.g., bottles, plastics, screens, and gloves.) were sent to the scrap preparation station for manual cutting and shredding. Shredded materials were leached in a nitric acid bath to recover plutonium. Leachate was pumped to the evaporator, and solids were removed and packaged for disposal.

Plutonium nitrate solutions were transferred from the evaporator to storage columns. Solutions were circulated, sampled, and pumped to the load-out station. Plastic cylinders were placed in a rack and filled with solutions from the columns. Loaded cylinders were packaged for shipment and are not part of this waste stream.

Decommissioning Activities

TRU waste stored at ORNL is not from production operations but from the decommissioning operations described below. A portion of the NFS waste required size reduction and repackaging at the Transuranic Waste Processing Center (TWPC) at Oak Ridge. Processing of CH-TRU waste is limited to characterization, sorting, segregation, size reduction and repackaging as required to produce waste suitable for disposal at WIPP.

The initial decommissioning of the Building 234 MOX facility and the Building 110 lab occurred in the early-1990s. Some materials were packaged directly for shipment to ORNL and not processed through the DVRF. The bulk of the material removed during decommissioning was processed through the DVRF. Gloveboxes and equipment were loaded into a shear/baler where they were cut and compacted into blocks and placed into 40-gallon drums. The 40-gallon drums were sent to Scientific Ecology Group, Inc. (SEG) in Oak Ridge where they were further compacted. Three compacted 40-gallon drums were placed into a 55-gallon drum. The compacted waste is not included in this waste stream and the only waste included in this waste stream from Building 110 lab decommissioning is Raschig rings. The activities that generated this debris waste included:

- Removal of contaminated concrete floor and footers from the Building 234 Wet Chemistry Cell. Prior to removal, an aqueous-based fixative may have been applied to the floor.

- Removal of Raschig rings from process tanks in Building 234 and the underground tank that serviced the Building 110 laboratory. The Building 234 Raschig rings were visually clean, but the Building 110 rings were visibly contaminated with sludge and were cleaned with water in the DVRF.

- Removal and packaging of metal press parts and waste contaminated with asbestos.

The final decommissioning of Building 234 began in 2000. Processing equipment and furnishings were dispositioned in the early 1990s with the exception of the DVRF. Plutonium remaining in the facility was due to contamination in block walls and concrete floors. Final decommissioning also included the following activities:

- Size reduction of contaminated piping, vacuum lines, and ductwork
- Cleaning of the DVRF shear baler with Pipe X-Metal X cleaner (a proprietary formulation non-hazardous cleaner)
- Cleanout of DVRF gloveboxes, including neutralization of acid solutions and cementation of neutralized solution, and sweepings for placement into poly bottles
- Removal and dismantlement of the DVRF gloveboxes. The glovebox surfaces were sprayed with a non-hazardous fixative (e.g., Aqualac III and Crystalac CL-90). Saws were lubricated with Nozzle Dip (non-hazardous) and Aqua Cut (ethylene glycol, phosphate ester salt, isopropyl alcohol) cutting fluids.
- Cleanout, removal, and dismantlement of the DVRF Decon Cell Perma-Con Structure, including wiping down interior surfaces and spraying the surfaces with a fixative.
- Excavation of the NFS burial ground during the final phase of decommissioning whereby one box containing TRU soil and debris was generated. This waste was contaminated with plutonium originating from Building 110 or 234.

Waste from these activities is part of this waste stream.

Transuranic Waste Processing Center (TWPC)

The waste generated from the final phase of decommissioning was generated until 2003 and subsequently shipped to the ORNL in 2005. A portion of the NFS waste population from the final decommissioning phase has subsequently been processed at the TWPC. Drums containing CH-TRU waste were moved to the TWPC where the drum contents were emptied into sorting trays. The waste was sorted and segregated to remove prohibited items and repackaged at one of the four load-out stations along the glovebox. Prohibited items identified during repackaging of drums and boxes are removed from the waste stream or are remediated. Secondary wastes created during waste processing, such as rubber glovebox gloves and tools, were placed into the same TRU waste drums. Boxes containing CH-TRU waste were moved into the box breakdown area (BBA). Within the BBA, the box lid was removed. The waste was inspected, removed, size reduced, and sorted manually, and either packaged into new drums directly from the BBA or processed through the glovebox.

Table 1 identifies the RCRA toxicity characteristic and listed constituents identified in this waste stream.

Table 1 – TC and F-Listed Contaminants for Waste Stream OR-NFS-CH-HET-A

Chemical	CAS Number	EPA Hazardous Waste Numbers
Cadmium	7440-43-9	D006
Lead	7439-92-1	D008
Mercury	7439-97-6	D009
Silver	7440-22-4	D011
Tetrachloroethylene	127-18-4	F002

RCRA Determinations - Hazardous Waste Determinations

Waste generated in this waste stream does not qualify for any of the exclusions outlined in 40 CFR 260 or 261. Real-time radiography (RTR) or visual examination is used to verify that the waste stream is not a liquid waste and does not contain explosives, non-radioactive pyrophoric material, compressed gases or reactive waste. Therefore, this waste stream does not exhibit the characteristic for ignitability (D001), corrosivity (D002), or reactivity (D003).

Ignitability

The waste does not meet the definition of ignitability as defined in 40 CFR 261.21. The material is not a liquid, an ignitable compressed gas, or an oxidizer, and is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. TRU waste generated at NFS was packaged in accordance with NFS waste certification plans to meet ORNL waste acceptance criteria for TRU waste. Liquids encountered were immobilized (e.g., Waste Lock® 770 or NoChar) (References C125, C126, I059, M003, M011, P268, P269, P273, P317, and P1116).

Radiography and/or visual examination are performed to ensure the absence of compressed gases (e.g., un-punctured aerosol cans) and non-residual liquids. Any container identified with compressed gases, or non-residual liquid will be segregated from the waste stream during characterization and will not be eligible for disposal at WIPP until further characterization and/or remediation is conducted. Therefore, this waste stream does not exhibit the characteristic of ignitability (D001).

Corrosivity

The waste does not meet the definition of corrosivity as defined in 40 CFR 261.22. The waste is not a liquid waste. Corrosive materials were neutralized and absorbed prior to packaging using Waste Lock® 770 and NoChar to ensure the absence of liquid (References C125, C126, I059, M003, M011, P268, P269, P273, P317, and P1116). TRU waste generated at NFS was packaged in accordance with NFS waste certification plans to meet ORNL waste acceptance criteria for TRU waste.

Containers identified with non-residual liquids will be segregated from the waste stream and will not be eligible for disposal at WIPP until further characterization and/or remediation is conducted. Therefore the characteristic of corrosivity (D002) does not apply to this waste stream.

Reactivity

The waste does not meet the definition of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The waste does not contain reactive cyanide or sulfide compounds. The materials are not capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement. The materials are not readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure (References M003, P268, P269, P273, and P317). Waste stream OR-NFS-CH-HET-A is therefore not reactive (D003).

Toxicity Characteristic Metals

This waste stream exhibits the characteristic of toxicity per 40 CFR 261.24. The toxicity characteristic contaminants fall into two categories; metals and organics. The debris may contain toxicity characteristic metals based on the following identified uses/sources but is not toxicity characteristic for organics.

Review of physical form descriptions provided by NFS, as well as RTR and VE data, identified equipment containing circuit boards and batteries. The manufacturing of printed circuit boards involves dipping the boards in molten tin/lead solder as well as using silver and lead solder in the construction of the circuit boards. Household dry-cell batteries and glovebox gauges contain mercury (Reference C204, C210 and U043). Cadmium-coated hand tools may also be present in the waste (References C210 and U043). Since data are not available that demonstrate the concentrations of cadmium (D006), lead (D008), mercury (D009) and silver (D011) are less than the toxicity characteristic regulatory threshold, EPA

hazardous waste numbers D006, D008, D009 and D011 are conservatively assigned to this waste stream.

Toxicity Characteristic Organics

Waste stream OR-NFS-CH-HET-A does not meet the definition of toxicity for organic compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24). Tetrachloroethylene was detected in soil samples from beneath Building 234, and small amounts of soil are present in this waste stream. Because the more specific F-listed EPA HWN has been assigned for this compound, the EPA HWN D039 is not assigned to the waste stream.

F-Listed Waste

Waste stream OR-NFS-CH-HET-A is an F-listed hazardous waste because the debris was mixed with hazardous wastes from non-specific sources as listed in 40 CFR Part 261, Subpart D (40 CFR 261.31).

As part of MOX fuel production, blended oxide was granulated. Binder was added to cross-blends during granulation. One of the binders used was Oxylene M-6 which contained 81 percent methylene chloride and 19 percent trichlorotrifluoroethane, both of which are F002-listed solvents. Use of this binder does not constitute a listed hazardous waste because these constituents were used as reactants or ingredients in the formulation of a commercial product. The State of Tennessee concurred with this determination (References C142 and P273). Therefore, waste stream OR-NFS-CH-HET-A is not an F002-listed waste for methylene chloride and trichlorofluoromethane. This waste stream includes debris mixed with small amounts of soil. The F-listed solvent tetrachloroethylene was detected in soil samples from beneath Building 234 (Reference C122). Because small amounts of soil are present in this waste stream, EPA HWN F002 is applied for tetrachloroethylene. (Reference DR010).

Methanol and toluene were detected in pre-certification headspace gas samples obtained by Oak Ridge. Several samples contained methanol above the PRQL, but only one sample contained toluene above the PRQL at 20 parts-per-million (ppm). CCP headspace gas sampling also identified methanol with a UCL_{90} value above PRQL. Methanol, an F003-listed solvent, was not identified in the AK as being used by NFS. F003-listed solvents are listed solely for ignitability, and this waste stream does not exhibit the characteristic of ignitability because this waste is not liquid. Therefore F003 does not apply to this waste stream. Toluene, an F005-listed solvent, was not identified in the AK as being used by NFS. Oak Ridge headspace gas sampling identified one container that exceeded the PRQL for toluene. The single sample containing toluene did not exceed the PRQL. The CCP UCL_{90} value for toluene was also below the PRQL. The absence of ignitable liquids is verified through RTR or VE. Therefore, waste stream OR-NFS-CH-HET-A is not an F003-or F005-listed waste.

Following is a listing of the F-listed EPA HWNs and associated constituents.

(F002)
Tetrachloroethylene

U, K, and P-Listed Chemicals

Waste stream OR-NFS-CH-HET-A does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33). Based on the AK documentation reviewed, U- and P listed compounds were not used during fuel fabrication or facility decommissioning. Therefore, U-and P-listed EPA hazardous waste numbers, including U134, are not assigned to this waste stream.

Based on the AK documentation reviewed, beryllium powder was not used by NFS (Reference C210). Therefore, this waste stream is not a P-listed waste.

The material in waste stream OR-NFS-CH-HET-A is not a hazardous waste from any of the sources specified in 40 CFR 261.32. Waste stream OR-NFS-CH-HET-A is therefore not assigned a K-listed HWN.

Headspace Gas/Volatile Organic Compound Information

Headspace gas sampling was performed on 10 randomly selected containers. No new EPA HWNs were assigned as a consequence of headspace gas sampling and analysis. No UCL_{90} values exceeded respective target analyte PRQLs. The specifics of this information are included in the attached Characterization Information Summary report.

Conclusion

The following EPA hazardous waste numbers are assigned to this waste stream: D006, D008, D009, D011 and F002.

Polychlorinated Biphenyls (PCBs)

This waste stream does not contain polychlorinated biphenyls (PCBs) greater than 50 ppm, and therefore, is not regulated as a Toxic Substance Control Act (TSCA) waste under 40 CFR 761. Four concrete, three cinder block, and one floor tile composite samples were collected from Building 234 and analyzed for total PCBs (Reference C122). One composite paint sample was collected from the exterior of the shear/baler and analyzed for total PCBs (Reference I052). Two samples of the Building 110 tank contents were collected and analyzed for PCBs (Reference M062). Gasket material from typical glovebox applications was also analyzed for PCBs (References C205, M062, M063, M064, P273, and U043). PCB compounds were not detected above 50 ppm in any of the samples.

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and confirmation activities. Radiography or visual examination is performed on each container in this waste stream as a confirmation activity. The following items have been determined as not present in the waste:

- Liquids
- Non-radioactive pyrophoric materials
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, or other wastes
- Explosives or compressed gases
- Waste with PCBs not authorized under an EPA PCB waste disposal authorization
- Waste exhibiting the characteristics of ignitability, corrosivity, or reactivity
- Non-mixed hazardous wastes
- Waste that has ever been managed as high-level waste and waste from tanks specified in Table B-8 of the WIPP Hazardous Waste Permit, unless specifically approved through a Class 3 permit modification.
- Any waste container from a waste stream (or waste stream lot) which has not undergone either radiographic or visual examination of a statistically representative subpopulation of the waste stream in each shipment, as described in the WIPP Hazardous Waste Permit, Attachment B7.

Each container of waste is certified and shipped only after visual examination or RTR:

- Did not identify any prohibited items in the waste container, or
- All prohibited items found in a waste container by visual examination or RTR are identified and corrected (i.e., eliminated or removed) through the site non-conformance reporting system.

Method for Determining Waste Material Parameter Weights per Unit of Waste

The waste material parameter weight estimates for waste stream OR-NFS-CH-HET-A were derived from RTR and VE, waste disposal forms from waste stream OR-NFS-CH-HET, and Discrepancy Resolution 015 (Reference DR015), which addresses the soils/gravel component of this waste stream. These waste material parameter estimates are derived from 131 drums from initial decommissioning, 82 drums from the final phase of decommissioning (57 of which have been repackaged), 62 drums produced from

repackaging of boxed waste and 2 drums containing soil. Based on the containers evaluated, the waste material parameter weight estimates are representative of the waste stream. An analysis of the RTR and VE data was performed, the results of which are presented in Table 2.

Table 2. Waste Stream OR-NFS-CH-HET-A Waste Material Parameters

Waste Material Parameter	Weight Percent	Weight Percent Range
Aluminum-based Metals/Alloys	1.2%	0.0% – 96.6%
Iron-based Metals/Alloys	13.6%	0.0% – 99.0%
Other Metals	1.1%	0.0% – 97.9%
Other Inorganic Materials	72.9%	0.0% – 99.9%
Cellulosics	2.8%	0.0% – 99.1%
Plastics (waste materials)	7.7%	0.0% – 100%
Rubber	0.6%	0.0% – 84.6%
Soils/gravel	<0.1%	0.0% - 14.6%
Organic Matrix	<0.1%	0.0% – 4.3%
Inorganic Matrix	<0.1%	0.0% – 62.0%
Total Inorganic Waste Average	88.8%	
Total Organic Waste Average	11.1%	

List of AK Sufficiency Determinations

No AK Sufficiency Determinations apply to this waste stream.

Transportation

This waste stream and its chemical constituents have been reviewed for consistency with listed TRUCON codes and they are consistent.

Beryllium

The level of beryllium contamination in individual drums is expected to be less than one weight percent. Payload containers are expected to contain less than 18.14 kg of beryllium.

Radionuclide Information

The two most prevalent radionuclides by mass in this waste stream are U-238 and Pu-239. The isotopes expected to be present in the waste stream are listed in Table 3.

Table 3. Radionuclides in Waste Stream OR-NFS-CH-HET-A

WIPP Tracked Radionuclides	Additional Reported Radionuclides
Am-241	Am-243
Pu-238	Np-237
Pu-239	Pu-241
Pu-240	U-235
Pu-242	
U-233	
U-234	
U-238	
Cs-137	
Sr-90	

Payload management will not be employed for this waste stream by Oak Ridge National Laboratory.

Attachment 1

AK SOURCE DOCUMENTS, SUPPLEMENTAL DOCUMENTATION

Tracking Number	AK #	Title	Document Number	Date
C100	S7	Interview With Richard Booth And Faxed Defense And Waste Information For NFS, Erwin, TN TRU Waste	NA	2/24/2005
C119	S2	Removal of Contaminated Pipe, Building 234 Area B, Memo to Ron Mitchell, Letter of Authorization	LOA-7000-018	3/20/2000
C120	S2	Removal of Contaminated Piping, Building 234, Memo to Larry Burleson, Letter of Authorization	LOA-7000-011	3/2/2000
C121	S2	DVRF Bale Packaging Glovebox Removal, Memo to Ron Mitchell	LOA-7000-034	2/15/2001
C122	S5, S9,	Building 234 Characterization Results, Memo to Heather Little	DCM-03-18, 44T-99-0436, GPC-99-013	9/30/1999
C125	NA	Cleaning and Surveying the DVRF Shear Baler for PCBs, Memo to Building 234 Supervision	SWI-02-035	10/3/2002
C126	NA	Waste Packaging of the DVRF Decon Cell Perma-Con Structure, Memo to Richard A. Moore	SWI-02-001	2/18/2002
C129	S2	Size Reduction Process Ductwork Within the Decontamination Cell, DVRF, Memo to Ron Mitchell and Rick Leitner	SWI-01-015	3/15/2001
C130	S2	Cleanout of DVRF Bale Packaging Glovebox, Memo to Ron Mitchell and Rick Leitner	SWI-01-013	3/7/2001
C142	S13	Legal Analysis regarding Solvent Binder Used to Make Fuel	NA	11/28/1990
C146	S8	Waste Minimization Assessment for a Manufacturer Producing Printed Circuit Boards	NA	2/6/1996
C147	S8	Environmental Protection Agency Consumer Product Links for Mercury	NA	8/7/2007
C204	NA	Letter from Michael L. West, Nuclear Fuel Services, Inc., to Martin W. Tull, Martin Marietta Energy Systems.	NA	9/3/1992
C205	S9	Internal Correspondence from Martin W. Tull. Minutes of November 5, 1991 Meeting with NFS Regarding Process- Line Samples	NA	11/11/1991

Tracking Number	AK #	Title	Document Number	Date
I052	S9, S12	Memorandum; Building 234 Shear Baler Characterization Samples	DC-03-18, 44T-02-0633, GPC-02-013	9/11/2002
I056	S2	Removal of Building 234 Wet Cell Permacon Containment Enclosure	DC-SWI-03-041	6/20/2003
I057	S2	NFS Building 234 Removal of Asbestos Transite Panels	DC-SWI-03-046	07/23/2003
I058	S2	Dismantlement of the West Wet Cell Wall in Building 234	DC-SWI-02-030	9/30/2002
I059	S2	Waste Packaging of Wet Cell Wall in Building 234	WST-SWI-02-002, Rev. 1	9/19/2002
I060	S2	Packaging Soil and Debris Waste Stored in Building 234	DC-SWI-00-028	NA
I061	S2	Size Reduction of the DVRS Glovebox	DC-SWI-01-020	5/24/2001
I062	S2	Sorting and Repackaging Radioactively Contaminated Drummed Waste	DC-SWI-01-072-1	08/03/2001
I063	S2	Item Control of Special Nuclear Material	NFS-ACC-26	02/04/2005
I064	S2	Building 310 Storage Procedure	NFS-ACC-32	04/07/2003
I065	S2	General Requirements for Class C Waste Handling and Packaging	SOP 335 Sec 1	04/25/2002
I066	S2	Data Validation Procedure	NFS-DC-008	05/10/1999
I067	S2	Procedure for the Operation of the Versatile Automated Gamma Assay System (VAGAS)	NFS-ACC-104, Rev.0	5/8/2000
I068	S2	Size Reduction of 4-inch Diameter Duct Section in Area C	DC-SWI-02-004,Rev. 0	1/25/2002
M003	S4	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork	NA	Various
M007	NA	Finding of No Significant Impact, Receipt and Storage at Oak Ridge National Laboratory of Transuranic Waste, Mixed Transuranic Waste, and Mixed Oxide Waste from Nuclear Fuel Services, Inc.	Ltr.# ER-NEPA/92-05	11/9/1996
M011	S8, S10	Material Safety Data Sheets for Products Used at NFS	NA	Various
M012	S6	EM Waste Database Query	NA	8/9/2007
M013	S6, S9	EM Waste Database Query - NFS Box Daughter and Repack Drums	NA	8/23/2007, 8/29/2007
M016	NA	Incoming Container Travelers for NFS Waste	Various	Various
M017	S9	Foster Wheeler Nondestructive Assay (NDA) Data for NFS TRU	Various	Various

Tracking Number	AK #	Title	Document Number	Date
		Waste		
M019	S9	Foster Wheeler Visual Examination (VE) Data for NFS TRU Waste	Various	Various
M020	S9	Foster Wheeler Headspace Gas (HSG) Data for NFS TRU Waste	Various	Various
M062	S9	NFS Data Set No. 2, PCB Reanalysis of Gasket and K1 Samples. Analytical Chemistry Division, Oak Ridge National Laboratory.	NA	12/30/1991
M063	S9	NFS Data Set No. 3, PCB Analysis of Fresh Gasket and Pall Filter Samples and Cadmium in Pall Filter TCLP Leachate. Analytical Chemistry Division, Oak Ridge National Laboratory.	NA	1/22/1992
M064	S9	Analytical Chemistry Data Package for NFS Sample Set No. 3.	NA	10/9/1991
P212	S5	Lattice Experiments with Simulated Burned-Up Fuel for D_2O Power Reactors	DP-1122	2/196
P248	S2, S3	Structural Assessment of Building 234	DCM-03-18, 44T-99-0450, SS-99-002	11/1999
P251	S2	Box Breakdown Area Operations	CH-P-OP-003, Revs. 7, 9, 12	3/13/2007 10/11/2007 7/29/2008
P252	S2	Glove Box Operations	CH-P-OP-004, Revs. 8, 10, 14	3/13/2007 10/11/2007 7/29/2008
P253	S2	Drum Bag In/Bag Out and Glove Ports	CH-P-OP-011, Revs. 10, 12, 13	5/2/2007 1/15/2008 2/19/2008
P254	S2	Contact Handled Waste Repackaging	CH-P-OP-013, Revs. 6, 7, 8	4/30/2007 10/3/2007 2/22/2008
P256	S1, S3	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis	T-CM-FW-R-AD-001, Rev. 13	3/1/2007
P268	NA	ORNL WAC for Contact Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services, Inc.	WMRA-WMPC-106	10/16/1992
P269	NA	ORNL WAC for Contact Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services, Inc.	WM-WMCO-202, Revs. 0 and 1	3/20/1991 4/7/1992
P273	S2	Nuclear Fuel Services, Inc., Waste Certification Plan for Transuranic Waste	28G-91-001, Rev. 0 DCM-03-05, Revs. 0, 1	7/1991 2/1992 11/1992
P276	NA	Determination of H_2 Diffusion Rates through Various Closures on TRU Waste Bag-Out Bags	LA-13616-MS	6/1999

Tracking Number	AK #	Title	Document Number	Date
P317	NA	Packaging for Shipment to Processing, Storage, or Burial	DCM-03, Rev. 6	DCM-03, Rev. 6
P432	NA	TRU Waste Processing Center Documented Safety Analysis	CM-R-AD-001, Revs. 15, 16	10/31/2007 12/20/2007
P1116	NA	EnergX TRU Waste Processing Center Procedure: Absorbing Liquids	CH-I-OP-013, Revs. 4, 6	6/27/2008 11/17/2008
U016	S11	A Graphical Workbook for Estimating Important Quantities of NFS Radioactive Waste Constituents	NA	3/1/1992
U040	NA	NFS Response to "Transuranic Waste Baseline Inventory Report Questionnaire"	NA	1/1996
U043	S5, S9	Final Report - Waste Characterization of Wastes Generated from D&D Activity; Buildings 110 and 234 on the NFS Site in Erwin, Tennessee	NA	1/31/1992

Alphanumeric Designations

C Correspondence
D Documents
DR Discrepancy Resolution
M Miscellaneous
P Procedures and Published Documents
U Unpublished Documents

AK Numbers

S1 Process Design Documents
S2 Standard Operating Procedure
S3 Safety Analysis Reports
S4 Waste Packaging Logs
S5 Test plans/research project reports
S6 Site databases
S7 Information from site personnel
S8 Standard industry documents
S9 Previous analytical data
S10 Material safety data sheets
S11 Laboratory Notebooks
S12 Comparable or surrogate sampling and analysis data
S13 Other

DIVIDER

PAGE

URS

CP:11:01615
UFC:5900.00

Washington TRU Solutions LLC

INTER-OFFICE CORRESPONDENCE

DATE: September 15, 2011

FROM: R. P. Kantrowitz RPK

LOCATION: Certification

TO: CCP Records Custodian GSA-212

LOCATION: Retrieval, Characterization and Transportation

SUBJECT: TRANSMITTAL OF OAK RIDGE NATIONAL LABORATORY CHARACTERIZATION INFORMATION SUMMARY WASTE STREAM #OR-NFS-CH-HET-A, LOT 8

Please accept the attached Oak Ridge National Laboratory Characterization Information Summary to be placed in Records for Waste Stream #OR-NFS-CH-HET-A, Lot 8.

RPK:yhs

Attachment

cc: (without attachment)
M. W. Pearcy ED
B. S. Schrock ED

CCP RECORDS ORIGINAL
DATE REC'D 9/21/11

CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-NFS-CH-HET-A

Lot 8

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CCP Characterization Information Summary Cover Page

Waste Stream # OR-NFS-CH-HET-A Lot #: 8

AK Expert Review: N/A Date: N/A

SPM Review: Jim Eastham Date: 8/30/2011

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Radiography (RTR/NDE)

CCP-TP-053	Rev. 10	03/04/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	06/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 7	10/21/09	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 6	03/04/08	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Visual Examination (VE):

CCP-TP-113	Rev. 16	04/25/11	CCP Standard Contact-Handled Waste Visual Examination
CCP-TP-113	Rev. 15	12/29/10	CCP Standard Contact-Handled Waste Visual Examination
CCP-TP-113	Rev. 14	06/30/10	CCP Standard Contact-Handled Waste Visual Examination
CCP-TP-113	Rev. 13	03/11/09	CCP Standard Contact-Handled Waste Visual Examination

Non Destructive Assay (NDA):

CCP-TP-166	Rev. 3	02/26/10	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 2	12/05/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev 1	06/19/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev 0	10/12/07	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-168	Rev. 3	11/17/09	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev 2	12/02/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 1	11/17/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 0	10/18/07	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-169	Rev. 2	11/18/09	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-169	Rev. 1	06/19/08	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-169	Rev. 0	10/12/07	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-046	Rev. 4	02/09/11	CCP Mobile IQ3 System Calibration Procedure
CCP-TP-046	Rev. 3	09/14/09	CCP Mobile IQ3 System Calibration Procedure
CCP-TP-047	Rev. 11	02/22/11	CCP Mobile IQ3 Gamma Scanner Operation
CCP-TP-047	Rev. 10	10/20/10	CCP Mobile IQ3 Gamma Scanner Operations
CCP-TP-047	Rev. 9	01/22/10	CCP Mobile IQ3 Gamma Scanner Operations
CCP-TP-047	Rev. 8	09/22/09	CCP Mobile IQ3 Gamma Scanner Operations
CCP-TP-048	Rev. 15	3/24/2011	CCP Modile IQ3 System Data Reviewing, Validating and Reporting Procedure
CCP-TP-048	Rev. 14	3/8/2010	CCP Modile IQ3 System Data Reviewing, Validating and Reporting Procedure

Headspace Gas Sampling and Analysis (HSG):

CCP-TP-093	Rev. 15	.3/10/11	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 14	12/29/10	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 13	03/19/07	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 7	12/29/10	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-106	Rev. 6	07/12/07	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-173	Rev. 1	09/30/09	CCP Analysis of Gas Samples for VOCs by GC/FID
CCP-TP-173	Rev. 0	05/03/07	CCP Analysis of Gas Samples for VOCs by GC/FID
CCP-TP-175	Rev. 2	12/29/10	CCP Analysis of Gas Samples for VOCs by GC/MS
CCP-TP-175	Rev. 1	03/29/10	CCP Analysis of Gas Samples for VOCs by GC/MS
CCP-TP-175	Rev. 0	05/02/07	CCP Analysis of Gas Samples for VOCs by GC/MS

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	08/09/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	06/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data

C15-02

CCP-TP-002	Rev. 21	08/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 20	08/18/08	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 18	12/29/10	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 16	10/02/07	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 29	04/26/11	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 28	05/12/10	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 27	12/14/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 26	05/27/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 25	01/22/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 24	08/20/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/07	CCP CH TRU Waste Certification and WWIS Data Entry

WAP Certification:

CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/09/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 22	01/12/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 20	11/02/07	CCP Transuranic Waste Certification Plan
CCP-PO-027	Rev. 3	12/29/10	CCP/TWPC/ORNL Interface Document
CCP-PO-027	Rev. 2	04/22/10	CCP/TWPC/ORNL Interface Document
CCP-PO-027	Rev. 1	12/17/09	CCP/TWPC/ORNL Interface Document

C15-03

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-NFS-CH-HET-A

Lot # 8

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR			
							Sample	Analysis		Transportation
NFS0354A	OR-IQ3-0214	NA	ORVECH0081	NA	NA	NA	NA	NA	NA	OR11FG11031
NFS0354B	OR-IQ3-0214	NA	ORVECH0081	NA	NA	NA	NA	NA	NA	OR11FG11031
NFS0357A	OR-IQ3-0217	NA	ORVECH0076	NA	NA	NA	NA	NA	NA	OR11FG11034
NFS0357B	OR-IQ3-0217	NA	ORVECH0077	NA	NA	NA	NA	NA	NA	OR11FG11034
NFS0369A	OR-IQ3-0195	NA	ORVECH0070	NA	NA	NA	NA	NA	NA	OR11FG11020
NFS0369B	OR-IQ3-0195	NA	ORVECH0070	NA	NA	NA	NA	NA	NA	OR11FG11019
NFS0371A	OR-IQ3-0217	NA	ORVECH0078	NA	NA	NA	NA	NA	NA	OR11FG11034
NFS0371B	OR-IQ3-0219	NA	ORVECH0078	NA	NA	NA	NA	NA	NA	OR11FG11037
NFS0372A	OR-IQ3-0219	NA	ORVECH0078	NA	NA	NA	NA	NA	NA	OR11FG11037
NFS0372B	OR-IQ3-0219	NA	ORVECH0078	NA	NA	NA	NA	NA	NA	OR11FG4006
NFS0373A	OR-IQ3-0214	NA	ORVECH0086	NA	NA	NA	NA	NA	NA	OR11FG11033
NFS0373B	OR-IQ3-0214	NA	ORVECH0086	NA	NA	NA	NA	NA	NA	OR11FG11033
NFS0376A	OR-IQ3-0214	NA	ORVECH0086	NA	NA	NA	NA	NA	NA	OR11FG11033
NFS0376B	OR-IQ3-0214	NA	ORVECH0087	NA	NA	NA	NA	NA	NA	OR11FG11031
NFS0378A	OR-IQ3-0218	NA	ORVECH0090	NA	NA	NA	NA	NA	NA	OR11FG11036
NFS0378B	OR-IQ3-0218	NA	ORVECH0090	NA	NA	NA	NA	NA	NA	OR11FG11036
NFS0379A	OR-IQ3-0219	NA	ORVECH0076	NA	NA	NA	NA	NA	NA	OR11FG11036
NFS0379B	OR-IQ3-0219	NA	ORVECH0076	NA	NA	NA	NA	NA	NA	OR11FG11036
NFS0380b	OR-IQ3-0219	NA	ORVECH0079	NA	NA	NA	NA	NA	NA	OR11FG11037
NFS0387A	OR-IQ3-0220	NA	ORVECH0079	NA	NA	NA	NA	NA	NA	OR11FG11037
NFS0387B	OR-IQ3-0220	NA	ORVECH0079	NA	NA	NA	NA	NA	NA	OR11FG11037
NFS0388A	OR-IQ3-0213	NA	ORVECH0087	NA	NA	NA	NA	NA	NA	OR11FG11033
NFS0388B	OR-IQ3-0214	NA	ORVECH0087	NA	NA	NA	NA	NA	NA	OR11FG11033
NFS0393A	OR-IQ3-0217	NA	ORVECH0089	NA	NA	NA	NA	NA	NA	OR11FG11034
NFS0393B	OR-IQ3-0217	NA	ORVECH0089	NA	NA	NA	NA	NA	NA	OR11FG11034
NFS0399A	OR-IQ3-0220	NA	ORVECH0080	NA	NA	NA	NA	NA	NA	OR11FG11037
NFS0399D	OR-IQ3-0220	NA	ORVECH0080	NA	NA	NA	NA	NA	NA	OR11FG11037
NFS0401A	OR-IQ3-0217	NA	ORVECH0077	NA	NA	NA	NA	NA	NA	OR11FG11034
NFS0401B	OR-IQ3-0217	NA	ORVECH0077	NA	NA	NA	NA	NA	NA	OR11FG11034
NFS0402A	OR-IQ3-0218	NA	ORVECH0083	NA	NA	NA	NA	NA	NA	OR11FG11036
NFS0402B	OR-IQ3-0218	NA	ORVECH0083	NA	NA	NA	NA	NA	NA	OR11FG11036
NFS0418A	OR-IQ3-0195	NA	ORVECH0073	NA	NA	NA	NA	NA	NA	OR11FG11019
NFS0419A	OR-IQ3-0220	NA	ORVECH0080	NA	NA	NA	NA	NA	NA	OR11FG11037
NFS0419B	OR-IQ3-0220	NA	ORVECH0080	NA	NA	NA	NA	NA	NA	OR11FG11037
NFS0421A	OR-IQ3-0220	NA	ORVECH0081	NA	NA	NA	NA	NA	NA	OR11FG4006
NFS0426A	OR-IQ3-0168	NA	ORVECH0054	NA	NA	NA	ORHSG1101	NA	NA	OR11FG11006
NFS0431B	OR-IQ3-0220	NA	ORVECH0092	NA	NA	NA	NA	NA	NA	OR11FG11037
NFS0513	OR-IQ3-0175	OR-RTR6-0088	NA	NA	NA	NA	NA	NA	NA	OR09FG4034
NFS0579	OR-IQ3-0175	OR-RTR6-0046	NA	NA	NA	NA	ORHSGS100012	NA	NA	OR08FG4034
NFS0785A	OR-IQ3-0220	NA	ORVECH0089	NA	NA	NA	NA	NA	NA	OR11FG11037

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-NFS-CH-HET-A

Lot # 8

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR			
							Sample	Analysis		Transportation
NFS0785B	OR-IQ3-0217	NA	ORVECH0089	NA	NA	NA	NA	NA	NA	OR11FG11034
NFS0835A	OR-IQ3-0220	NA	ORVECH0097	NA	NA	NA	NA	NA	NA	OR11FG11037

Signature of Site Project Manager

Jim Eastham
Printed Name

8/30/2011
Date

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-HET-A

Waste Stream Headspace Gas Lot Number 1 through 3

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Hazardous Waste Number
Benzene	Log	3	12	-0.92	-3.03	0.92	-2.66	10	2.30		
Bromoform	Log	0	12	-4.10	-4.73	0.39	-4.58	10	2.30		
Carbon Tetrachloride	Log	0	12	-3.26	-3.98	0.40	-3.82	10	2.30		
Chlorobenzene	Log	0	12	-3.06	-3.73	0.38	-3.58	10	2.30		
Chloroform	Log	1	12	-1.90	-3.39	0.62	-3.15	10	2.30		
Cyclohexane[a]	Log	0	12	-2.73	-3.38	0.40	-3.23	10	2.30		
1,1-Dichloroethane	Log	0	12	-2.30	-3.06	0.45	-2.88	10	2.30		
1,2-Dichloroethane	Log	3	12	0.18	-2.96	1.47	-2.39	10	2.30		
1,1-Dichloroethylene	Log	0	12	-2.73	-3.46	0.41	-3.29	10	2.30		
cis-1,2-Dichloroethylene	Log	0	12	-3.22	-3.80	0.43	-3.64	10	2.30		
trans 1,2-Dichloroethylene	No	0	12	0.04	0.03	0.01	0.03	10	N/A		
Ethyl benzene	Log	0	12	-3.06	-3.72	0.38	-3.57	10	2.30		
Ethyl Ether	Log	0	12	-2.47	-3.13	0.39	-2.97	10	2.30		
Methylene chloride	Log	3	12	2.77	-2.62	1.86	-1.89	10	2.30		
1,1,2,2-Tetrachloroethane	Log	0	12	-3.32	-3.98	0.38	-3.84	10	2.30		
Tetrachloroethylene	Log	0	12	-3.27	-3.95	0.38	-3.80	10	2.30		
Toluene	Log	11	12	2.94	0.36	2.12	1.20	10	2.30		
1,1,1-Trichloroethane	Log	0	12	-3.51	-4.22	0.41	-4.06	10	2.30		
Trichloroethylene	Log	0	12	-3.41	-4.09	0.38	-3.94	10	2.30		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	1	12	-2.58	-4.02	0.58	-3.79	10	2.30		
1,2,4-Trimethylbenzene[a]	Log	2	12	-0.37	-3.35	1.07	-2.93	10	2.30		
1,3,5-Trimethylbenzene[a]	Log	2	12	-1.14	-3.46	0.84	-3.13	10	2.30		
m,p-Xylenes[b]	Log	4	12	-2.12	-3.39	0.91	-3.03	10	2.30		
o-Xylene	Log	1	12	-2.21	-3.47	0.55	-3.25	10	2.30		
Acetone	Log	12	12	2.48	0.90	0.95	1.27	100	4.61		
Butanol	Log	12	12	0.26	-1.19	0.71	-0.91	100	4.61		
Methanol	No	0	12	6.00	5.57	0.58	5.80	100	N/A		
Methyl ethyl ketone	Log	10	12	1.13	-1.12	1.36	-0.59	100	4.61		
Methyl isobutyl ketone	Log	3	12	-2.04	-3.27	0.71	-2.99	100	4.61		

C15-4

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-HET-A

Waste Stream Headspace Gas Lot Number 1 through 3

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Hazardous Waste Number
Chloromethane[e]	Log	3	12	-1.11	-2.74	0.87	-2.40	10	2.30		
Carbon Disulfide[e]	Log	5	12	-0.80	-2.61	1.03	-2.20	10	2.30		
1,2-Dichloropropane[e]	No	0	12	0.03	0.01	0.01	0.02	10	N/A		
Trichlorofluoromethane[e]	Log	1	12	0.18	-3.41	1.22	-2.93	10	2.30		
Formaldehyde[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hydrazine[d]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[a] These compounds are from the TRAMPAC and are flammable VOCs that do not appear in the QAPjP or the WIPP WAP. These are not part of the target analyte list, but samples may be analyzed for these compounds.

[b] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

[c] Required only for homogenous solids and soil/gravel waste from Savannah River Site.

[d] Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

[e] These compounds are reported by the Laboratory and are included for completeness.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Jim Eastham
Printed Name

8/30/2011
Date

C15-07

CCP Headspace Gas Summary Data

Waste Stream Number OR-NFS-CH-HET-A Lot Number (s) 8

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
2-Methyl-methylester-2-propenoic acid	0.44	2	20%

Data Supports EPA Hazardous Waste Numbers Assigned by AK? ☑ Yes ☐ No

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature _____ Date 8/30/2011

615-03

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-NFS-CH-HET-A Lot(s)#: 8

Container Number	RTR Prohibited Items [a,b]	Visual Examination Prohibited Items [a,b]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	None of the containers in this lot had prohibited items identified during RTR.	None of the containers in this Lot had prohibited items identified during Visual Examination technique.

a. See Batch Data Reports

b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Justification for the selection of RTR and/or VE: RTR was selected as the characterization method because RTR meets all the Data Quality Objectives for NDE for the waste, VE was selected as the characterization method because VE meets the Data Quality Objectives for NDE for newly generated waste.

Site Project Manager Signature Jim Eastham (Printed Name) 8/30/2011 (Date)

C-15-09

CCP Reconciliation with Data Quality Objectives

Waste Stream#: OR-NFS-CH-HET-A Lot # 8

Sampling Completeness

RTR/VE:

Number of Valid Samples: 40 Number of Total Samples Analyzed: 40

Percent Complete: 100 (QAO is 100%)

NDA

Number of Valid Samples: 42 Number of Total Samples Analyzed: 42

Percent Complete: 100 (QAO is 100%)

HSG

Number of Valid Samples: 12 Number of Total Samples Collected: 12

Percent Complete: 100 (QAO is ≥90%)

Number of Valid Samples: 12 Number of Total Samples Analyzed: 12

Percent Complete: 100 (QAO is ≥90%)

Total VOC

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total SVOC

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total Metals

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Q-15-10

CCP Reconciliation with Data Quality Objectives

Waste Stream#: OR-NFS-CH-HET-A Lot # 8

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	Y	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP-TP-003 Attachment 3, and additional U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	NA	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 4, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7b	NA	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 5, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7c	NA	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 6, and additional EPA HWNs were assigned as required. Samples were randomly collected.

C19-11

CCP Reconciliation with Data Quality Objectives

Waste Stream#: OR-NFS-CH-HET-A Lot # 8

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	Y	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the QAPjP.
13	Y	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	Y	Y	Y
Headspace Gas Analysis	Y	Y	Y
Solids Sampling	NA	NA	NA
Solids VOCs	NA	NA	NA
Solids SVOCs	NA	NA	NA
Solids Metals	NA	NA	NA

Comments: NONE

Jim Eastham — Signature of Site Project Manager

Jim Eastham — Printed Name

8/30/2011 — Date

C-15-12

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: OR-NFS-CH-HOM-A								
(2) Generator site name: Oak Ridge National Laboratory							(3) Generator site EPA ID: TN1890090003	
(4) Technical contact: Beverly Schrock							(5) Technical contact phone number: 575-234-7444	
(6) Date of audit report approval by New Mexico Environment Department (NMED): July 8, 2013								
(7) Title, version number, and date of documents used for WIPP-WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 21, May 31, 2013; CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 27, May 31, 2013; CCP-PO-027, CCP/TRU Waste Processing Center/Oak Ridge National Laboratory Interface Document, Revision 5, October 2, 2013								
(8) Did your facility generate this waste?	YES		NO	X				
(9) If no, provide the name and EPA ID of the original generator: Nuclear Fuel Services, Inc; TND003095635								
Waste Stream Information								
(10) WIPP ID: OR-NFS-CH-HOM							(11) Summary Category Group: S3000	
(12) Waste Matrix Code Group: Solidified Organics and Inorganics							(13) Waste Stream Name: Immobilized Liquids and Fines from NFS	
(14) Description from the ATWIR: Waste consists of homogeneous waste from NFS.								
(15) Defense TRU Waste:	YES	X	NO					
(16) Check One:	CH	X	RH					
(17) Number of SWBs NA (17a) Number of SLB2 NA		(18) Number of Drums Current - 38 55-gallon drums Projected – 7 55-gallon drums[1]					(19) Number of Canisters NA	
(20) Batch Data Report numbers supporting this waste stream characterization: See Characterization Information Summary for correlation of containers identification numbers to batch data report numbers								
(21) List applicable EPA Hazardous Waste Numbers: D006 and D009								
(22) Applicable TRUCON Content Numbers: OR127/OR227, SQ154								
(23)**Acceptable Knowledge Information**								
(For the following, enter the supporting documentation used [i.e., references and dates])								
Required Program Information								
(23A) Map of site: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Figures 1, 2 3, 6 and 7								
(23B) Facility mission description: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 4.2								
(23C) Description of operations that generate waste: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 4.4								
(23D) Waste identification/categorization schemes: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 4.5								
(23E) Types and quantities of waste generated: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 4.6.1								
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 4.6.2								
(24) Waste certification procedures: CCP-TP-030, Revision 33, November 19, 2013								
(25) Required Waste Stream Information								
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 7.1								
(25B) Waste stream volume and time period of generation: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 7.2								

(25C) Waste generating process description for each building: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 7.3			
(25D) Waste Process flow diagrams: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Figures 9			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 7.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste See table entitled "Waste Material Parameter Estimates for OR-NFS-CH-HOM-A" in Summation of Aspects of AK Summary Report: OR-NFS-CH-HOM-A			
(26) Which Defense Activity generated the waste:			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management	X	Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations		
(27) Supplemental Documentation:			
(27A) Process design documents: NA			
(27B) Standard operating procedures: See C119, C120, C121, C122, C125, C126, C127, C129, C130, I056, I058, I059, I061, I067, I068, M210, P1370, P1371, P1372, P1401, P1403, P1407, P248, P251, P252, P254, P267, P273, P300, P303, P304, P306, P315, P320, P582 and U044 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27C) Safety Analysis Reports: in the Summary Report: See P248, P256 and P432 in OR-NFS-CH-HOM-A, AK Source Documents			
(27D) Waste packaging logs: See M003 and M052 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27E) Test plans/research project reports: See C122, P1372, P1404, P212, U038 and U043 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27F) Site databases: See M012, M013, M198 and M217 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27G) Information from site personnel: See C100, C206, C210, C227, C309 and C321 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27H) Standard industry documents: See C146, C147, M011 and M210 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27I) Previous analytical data: See C122, C205, I052, I053, M013, M017, M019, M020, M061, M062, M063, M064, M065, M068, M198, M211, M217, M235, P1374, P1375, P1402, P1404, U038, U043, U044 and U597 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27J) Material safety data sheets: See C200, C301, M011 and M210 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27K) Sampling and analysis data from comparable/surrogate Waste: See I052 and P1402 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27L) Laboratory notebooks: See M052 and U016 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
Confirmation Information			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: CCP Standard Real-Time Radiography (RTR) Inspection Procedure, CCP-TP-053, Revision 14, September 25, 2013		
	Visual Examination:		

(29) Comments: For a list of the waste characterization procedures used and date of respective procedures see the list of procedures on the attached CIS.
Reviewed by AK Expert: YES ☐ Date:_____ **Reviewed by STR (if necessary):** YES ☐ N/A ☐ Date:_____
Waste Stream Profile Form Certification: I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.
Draft Signature of Site Project Manager — **Draft** Printed Name — **Draft** Date
NOTE: (1) Projected containers due only to repackaging.

DRAFT

CHARACTERIZATION INFORMATION SUMMARY

WSPF# OR-NFS-CH-HOM-A Rev. 0 (CCP-AK-ORNL-001)

Lot 1

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CCP Characterization Information Summary Cover Page

Waste Stream # OR-NFS-CH-HOM-A Lot #: 1

AK Expert Review: N/A Date: N/A

SPM Review: Roger Whiteaker Date: 01/08/2014

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Non Destructive Assay (NDA):

CCP-TP-048	Rev. 16	11/01/2013 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 15	03/24/2011 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 14	03/08/2010 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 13	10/12/2009 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 12	09/09/2009 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 11	02/19/2008 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 10	11/16/2006 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 9	11/03/2005 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 8	09/21/2005 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 7	03/14/2005 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 6	10/18/2004 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 5	06/08/2004 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 4	12/04/2003 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 3	09/03/2003 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 2	04/25/2003 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 1	03/21/2003 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 0	02/05/2003 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 21	06/06/2013 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 20	09/27/2012 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 19	12/29/2010 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	08/09/2010 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 17	09/24/2007 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 16	04/26/2007 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 15	11/22/2006 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 14	11/16/2006 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 13	07/21/2006 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 12	05/25/2006 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 11	03/23/2005 CCP Project Level Data Validation and Verification

CCP-TP-002	Rev. 26	06/19/2013 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 25	02/11/2013 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 24	12/28/2011 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 23	12/29/2010 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	06/30/2010 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	08/04/2009 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 20	08/18/2006 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 19	12/22/2006 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 18	11/16/2006 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 17	10/10/2006 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 16	06/06/2006 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 15	08/16/2005 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 14	03/29/2005 CCP Reconciliation of DQOs and Reporting Characterization Data

CCP-TP-005	Rev. 26	08/12/2013 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 25	06/19/2013 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 24	11/28/2011 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 23	06/30/2011 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/2011 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/2010 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/2010 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/2010 CCP Acceptable Knowledge Documentation

CCP-TP-005	Rev. 18	11/16/2006 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 17	06/05/2006 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev 16	02/27/2006 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev 15	03/31/2005 CCP Acceptable Knowledge Documentation

CCP-TP-030	Rev. 33	11/19/2013 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 32	06/20/2013 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 31	11/19/2012 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 30	05/21/2012 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 29	04/26/2011 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 28	05/12/2010 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 27	12/14/2009 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 26	05/27/2009 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 25	01/22/2009 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 24	08/20/2008 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/2008 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/2007 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 21	05/21/2007 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 20	02/07/2007 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 19	11/16/2006 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 18	05/01/2006 CCP TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 17	12/29/2005 CCP TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 16	04/22/2005 CCP TRU Waste Certification and WWIS Data Entry

Radiography (RTR/NDE):

CCP-TP-053	Rev 14	09/25/2013 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev 13	05/14/2013 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 12	08/22/2012 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev 11	07/20/2011 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 10	03/04/2011 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/2010 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	06/30/2010 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 7	10/21/2009 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 6	03/04/2008 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 5	11/16/2006 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev 4	12/22/2005 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 3	03/21/2005 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 2	07/14/2004 CCP Standard Real-Time Radiography (RTR) Inspection Procedure

WAP Certification:

CCP-PO-001	Rev. 21	05/31/2013 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 20	06/16/2011 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/2010 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/2010 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/2009 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 16	10/31/2007 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 15	08/10/2007 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 14	03/28/2007 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 13	11/16/2006 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 12	03/22/2006 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 11	03/10/2005 CCP Transuranic Waste Characterization Quality Assurance Project Plan

CCP-PO-002	Rev. 27	05/31/2013 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 26	07/14/2011 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/2010 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/2010 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev 23	04/07/2010 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev 22	01/12/2010 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev 21	01/26/2009 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 20	11/02/2007 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev 19	05/22/2007 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 16	11/16/2006 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 17	11/16/2006 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 18	11/16/2006 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 15	03/22/2006 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 14	12/29/2005 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 13	05/09/2005 CCP Transuranic Waste Certification Plan

CCP-PO-003	Rev. 13	07/31/2013	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 12	12/29/2010	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 11	06/04/2009	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 10	11/16/2006	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 9	12/12/2005	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 8	01/25/2005	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 7	11/22/2004	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 6	06/08/2004	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 5	09/19/2003	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 4	02/11/2003	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 3	05/31/2002	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-NFS-CH-HOM-A

Lot # 1

Container ID Number	Historical Container ID	NDA BDR	RTR BDR	VE BDR	Load/Manage Overpack Yes	Transportation Headspace Gas	
						FGA	GGT
NFS0478A	N/A	OR-IQ3-0224	OR-RTR6-0437	N/A	No	OR13FG4003	N/A
NFS0865A	N/A	OR-IQ3-0224	OR-RTR6-0437	N/A	No	OR13FG4003	N/A

Signature of Site Project Manager | Roger Whiteaker (Printed Name) | 01/08/2014 (Date)

DRAFT

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-NFS-CH-HOM-A Lot #: 1

Container Number	RTR Prohibited Items [a,b]	Visual Examination Prohibited Items [a,b]	Does the Physical Form of the Waste Match the Waste Stream Description as Determined by AK
See correlation of container ID numbers for list of remaining drum numbers in this Lot	None of the containers in this lot had prohibited items identified during RTR.	VE was not used to certify any containers in this Lot.	The physical form of the waste match the waste stream description as determined by AK.

a. See Batch Data Reports

b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Justification for the selection of RTR and/or VE: RTR was selected as the characterization method for this lot because the waste was previously packaged and RTR meets all the Data Quality Objectives for NDE for the waste.

Site Project Manager Signature	Roger Whiteaker Printed Name	01/08/2014 Date

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-HOM-A Rev. 0 Lot # 1

Sampling Completeness

RTR/VE:

Number of Valid Samples: 2 Number of Total Samples Analyzed: 2

Percent Complete: 100 (QAO is 100%)

NDA:

Number of Valid Samples: 2 Number of Total Samples Analyzed: 2

Percent Complete: 100 (QAO is 100%)

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
4	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
5	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
6	N	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
7	Y	Waste stream can be classified as hazardous or nonhazardous.
8	Y	The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections C3-2 through C3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	NA	NA	NA

Comments: None

Roger Whiteaker 01/08/2014

Signature of Site Project Manager | Printed Name | Date

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: OR-NFS-CH-HOM-A

Overview

Waste stream OR-NFS-CH-HOM-A is contact-handled (CH) mixed immobilized liquids and fines generated at Nuclear Fuel Services, Inc. (NFS) in Erwin, Tennessee and stored at the Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee. Waste stream OR-NFS-CH-HOM-A was generated in Buildings 110 and 234 at NFS. Building 234 contained a plutonium/uranium mixed oxide (MOX) fuel fabrication facility that performed fuel fabrication work under subcontracts to two U.S. Government contracts administered by the U.S. Atomic Energy Commission (AEC), and two smaller commercial contracts. The largest of the two government sponsored orders was to manufacture fuel rods for the Southwest Experimental Fast Oxide Reactor (SEFOR) in Arkansas. The other government sponsored order was from the U.S. Department of Energy (DOE) Savannah River Site (SRS). The majority of the plutonium processed by NFS resulted from the two U.S. Government contracts. The other plutonium processed at NFS supported commercial contracts for the Halden reactor and Consumers Power Company. Building 110 housed wet chemistry and spectrographic laboratories that provided analytical support to Building 234. The Building 234 MOX facility operated from 1965 to 1973. It remained inactive from the time production operations ceased in 1973 until the initial phase of decommissioning started in the early 1990's. Waste stream OR-NFS-CH-HOM-A is from decommissioning operations, not production operations.

The two larger contracts were placed pursuant to prime contracts with the AEC and were both national defense rated orders which were designated DO-E2 certified for national defense use under Defense Material System (DMS) Regulation 1. The established defense and commercial activities utilized the same process equipment so the source of contamination is indistinguishable. Therefore, waste stream OR-NFS-CH-HOM-A is linked primarily to defense nuclear materials production.

This Summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) number OR-NFS-CH-HOM-A for mixed immobilized liquids and fines. The primary source of information for this Summation is CCP-AK-ORNL-001, *Central Characterization Program Acceptable Knowledge Summary Report For Nuclear Fuel Services Contact-Handled Transuranic Waste Stored at Oak Ridge National Laboratory, Waste Streams OR-NFS-CH-HET-A, OR-NFS-CH-SOIL, OR-NFS-CH-HOM-A, OR-NFS-CH-HOM-B,* Revision 8, December 12, 2013.

Waste Stream Identification Summary

Waste Stream Name:	Immobilized Liquids and Fines from NFS
Waste Stream Number:	OR-NFS-CH-HOM-A
Dates of Waste Generation:	July 1993 to March 1994
Waste Stream Volume – Current:	38 55-gallon drums
Waste Stream Volume – Projected:	7 55-gallon drums (due only to repackaging)
Summary Category Group:	S3000 – Homogeneous Solids

Waste Matrix Code Group:	Solidified Organics and Inorganics
Waste Matrix Code:	S3900
TRUCON Content Numbers:	OR 127 / OR 227, SQ 154
Annual Transuranic Waste Inventory Report Identification Number:	OR-NFS-CH-HOM

Waste Stream Description and Physical Form

Waste stream OR-NFS-CH-HOM-A is comprised of immobilized liquids, fines, and other high activity residual materials. Respirable fines were immobilized with Portland cement and water in 2-liter high-density polyethylene (HDPE) bottles, and dry absorbent was added to the top of the cured waste. Aqueous liquids were immobilized with RADSORB (sodium polyacrylate polymer absorbent) in 2-liter HDPE bottles. Miscellaneous metals (e.g., sweepings, hardware) are contained throughout the RADSORB absorbent matrix. In addition, there are a couple of HDPE bottles containing very small quantities of scrap metal such as nuts and bolts with no absorbent (References C210, M003, M126, M202, P218, P274, P317).

Waste stream OR-NFS-CH-HOM-A meets the Waste Isolation Pilot Plant (WIPP) Waste Analysis Plan (WAP) waste stream definition. The waste stream consists of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. This waste stream consists of TRU-mixed absorbed/solidified waste generated during facility decommissioning operations at NFS.

Point of Generation

Location

Waste stream OR-NFS-CH-HOM-A was generated at NFS in Erwin, Tennessee which is less than 10 miles from the western North Carolina border (References C099, P218, P248, P283, U038, U054).

Area and/or Buildings of Generation

Waste stream OR-NFS-CH-HOM-A was generated in the Building 234 MOX fuel fabrication facility and the Building 110 wet chemistry and spectrographic laboratories at NFS (References C099, M003, M052, M054, P273).

Generating Processes

Production Operations at NFS

Pellet Production

Solutions containing a mixture of plutonium nitrate and uranyl nitrate hexahydrate were transferred from the master mix tank to precipitation units. Plutonium and uranium were precipitated as ammonium diuranate and plutonium hydroxide, and ammonium hydroxide was used as a precipitant. During the Consumer Powers project, the feed solution contained

plutonium nitrate only, and the plutonium was precipitated using oxalic acid, nitric acid, and hydrogen peroxide (References C145, P273).

Supernate was decanted from the ammonium diuranate or oxalate slurry and the remaining precipitate was filtered to remove liquids. Supernate/filtrate from the ammonium diuranate or oxalate slurry was polished and stored in two glass columns. Filtrate from the column box was evaporated producing ammonium nitrate concentrate and ammonium hydroxide condensate. During SEFOR production, ammonium hydroxide condensate was used to wash ammonium diuranate cake. Wet ammonium diuranate or oxalate cake was dried in a furnace and then loaded in another furnace and heated in a nitrogen and hydrogen gas atmosphere. The resultant oxide solids (MOX or plutonium oxide) from the conversion furnace were passed through a twin shell blender. Sub-blended oxide was ball-milled, screened, and weighed. After weighing, oxide was packaged in two liter bottles and placed into storage (References C145, P273).

One cross-blend was performed per five days during SEFOR production; each cross-blend was comprised of five sub-blends. During the Consumer Powers project, plutonium oxide cross-blending was followed by the addition of uranium oxide solids. The mixture of plutonium oxide and uranium oxide was sub-blended and cross-blended. Blended oxide was granulated using an oscillating device and stainless-steel screen. Binder was added to cross-blends during granulation. Granulated oxide was transferred to a pellet press. Pellets were measured for density then loaded into the sintering furnace and heated in an atmosphere of hydrogen gas, nitrogen gas, carbon dioxide, and argon. The sintered pellets were then allowed to off-gas (References C145, P273).

Sintered pellets were machined to finished size using grinders. Recycled water from the pellet wash was used as coolant. Grinder sludge and damaged pellets were sent to scrap recovery. Machined pellets were cleaned with isopropyl alcohol or in an ultrasonic wash using distilled water and then air dried. Pellets were visually inspected and diametrically gauged. A percentage of pellets were sampled for destructive analyses and measured for density and dimensional attributes. Reject pellets and sample residues were sent to scrap recovery. Finished pellets were weighed and loaded in tubes that were capped and sent to rod assembly and fabrication stations (References C145, M008, P273).

Scrap Dissolution and Recovery

Oxide scrap was ball-milled to reduce particle size. Ball-milled oxide scrap was transferred to the dissolution station and heated with nitric acid in one of two dissolvers. Nitrate solutions were pumped from the dissolver to the evaporator (References C145, P273).

Non-combustible items containing recoverable material (e.g., bottles, plastics, screens, gloves, etc.) were unloaded from drums and passed to the scrap preparation station for manual cutting and shredding. Shredded materials were leached in a nitric acid bath to recover plutonium. Leachate was pumped to the evaporator and solids were bagged-out and packaged for disposal (References C145, P273).

Plutonium nitrate solutions were transferred from the evaporator to glass storage columns. Solutions were circulated, sampled, and pumped to the adjacent load-out station. Plastic cylinders were placed in a holding rack and filled with solutions from the columns. Loaded cylinders were packaged for shipment (References C145, P273).

Segregation and Immobilization of Liquids, Fines, and Residual Materials at NFS

Waste stream OR-NFS-CH-HOM-A was generated from the immobilization of liquids, fines, and other high activity residual materials collected and segregated during the decommissioning of Buildings 110 and 234. In the early-1990s when this waste was transferred from NFS to ORNL for storage, the ORNL Waste Acceptance Criteria (WAC) and WIPP WAC required immobilization of respirable fines (References M007, P268, P269). The immobilization process described below was performed in Building 234 (Reference P274).

Gloveboxes, equipment, exhaust systems, and utility and process lines and systems from Buildings 110 and 234 were decontaminated as necessary prior to processing in the Decontamination and Volume Reduction Facility (DVRF) in Building 234 (References P303, P319, P1371). Loose materials were removed from gloveboxes and process equipment and accumulated in polyethylene bottles. The materials included dry powder sweepings, sludge, paint chips, metal chips and shavings, pellets, rust, wet cheesecloth used to wipe down contaminated surfaces, highly contaminated items such as gasket or paper filter media, or other contaminated debris easily gathered into a small container. These bottles were used to concentrate the contamination removed from gloveboxes and equipment so the bulk of the waste could be packaged at lower activity concentrations (no more than 15 Pu-239 fissile gram equivalent [FGE] as described below). Therefore, these bottles contained relatively large amounts of activity (References C206, P218, P274, P317).

If the bottles did not contain MOX pellets or recoverable powder, the particulate waste was processed to remove respirable fines which were defined as those wastes which contain particulates with greater than one weight percent (wt%) of the material less than 10 microns in diameter, or greater than 15 wt% of the material less than 200 microns in diameter. The bottles of material were bagged into the segregation and immobilization station glovebox located in Building 234 Area C. If moisture was present, the contents of the bottles were emptied onto a screen to filter out large pieces. The particulate material that passed through the screen was dried on a hot plate until respirable fines were liberated. This material was emptied onto a 212 micron sieve screen over a collection pan. The sieve was covered and vibrated for about three minutes. The respirable fines that passed through the 212 micron sieve were emptied into 2-liter HDPE bottles. No more than 500 milliliters of fines were collected in a single bottle (References P218, P274, P300).

The bottles of respirable fines were bagged out of the glovebox and assayed. If the assay value was greater than 80 Pu-239 FGE, the contents of the bottles were separated into two bottles. Water and Portland cement were added to the 2-liter bottles of respirable fines and stirred to achieve a homogeneous mixture. The sieving described above was done for most of the bottles but was discontinued near the end of the project and the residual materials collected in bottles were cemented. The bottles were tamped on the glovebox floor to help settle the cement and eliminate void space. The contents were allowed to cure (uncapped) for at least 24 hours. The immobilized waste was visually inspected for signs of residual liquid and set-up. According to procedure, about a half inch of absorbent was placed on top of the cement to absorb any liquid that could evolve and condense due to thermal cycling. However, previous RTR identified several inches of absorbent on top in some cases. The bottles were capped and bagged out of the glovebox in two un-vented plastic bags which were heat-sealed. The immobilized fines are included in waste stream OR-NFS-CH-HOM-A (References C200, C210, M003, M202, P218, P274).

With the loose materials having been removed, gloveboxes, process equipment, piping, and ventilation duct were introduced into the DVRF where an initial assay determined whether further decontamination was needed. If decontamination was required, items were disassembled or sectioned in the decontamination cell. Focusing on areas identified by the initial assay, manual cleaning methods (e.g., wiping with Radiacwash [contains citric acid and tetrasodium ethylenediamine triacetate]) were employed to decontaminate the items to the extent possible. If additional cleaning was needed, a high-pressure water jet was used to remove the etched in and fixed contamination. The decontaminated items were loaded into the shear/baler where they were cut and compacted. The compacted bales were packaged into 40-gallon drums and sent to Scientific Ecology Group, Inc. (SEG) for further compaction (The compacted waste is not included in waste stream OR-NFS-CH-HOM-A)(References C210, P218, P300, P1371).

Water from the high-pressure water jet would not have been disposed of as TRU waste because it was recirculated through a series of filters and ion-exchange columns. However, Radiacwash decontamination solution generated during manual cleaning of gloveboxes and process equipment was solidified with Portland cement or other solidification media, such as RADSORB, which was a common solidification media used by NFS. Liquid waste was packaged in sufficient absorbent material to absorb twice the volume of the liquid. The immobilized decontamination solution is included in waste stream OR-NFS-CH-HOM-A (References C210, M011, P273, P317).

In order to ensure a consistent and uniform geometry that was conducive to assay, 2-liter HDPE bottles of immobilized liquids or fines that exceeded 50 Pu-239 FGE were packaged into a centering sleeve in the middle of a 55-gallon drum. These drums contained only two or three bottles of waste. Bottles containing lower levels of activity were accumulated and packaged directly into a 55-gallon drum without the centering sleeve with less than 50 Pu-239 FGE (References C209, P218). These drums contained between 8 and 28 bottles of immobilized fines (References C203, M003, M051).

The residual materials that did not pass through the initial screening or the sieve described above, and that were sufficiently low in activity, were accumulated in 2-liter HDPE bottles and packaged in 40-gallon drums for subsequent compaction at SEG (the compacted waste is not included in waste stream OR-NFS-CH-HOM-A). Each 40-gallon drum contained no more than 15 Pu-239 FGE. The remainder of the residual materials with more significant radionuclide loading were packaged in separate 55-gallon drums. NFS anticipated only minimal drums of this concentrated material would be generated (References P218, P300). An examination of the NFS inventory at ORNL from the initial phase of decommissioning did not identify any 55-gallon drums containing only bottles of residual material (Reference M198). RTR conducted in the early-1990s at the Waste Examination and Assay Facility (WEAF) at ORNL shows a couple of bottles of residual materials were packaged into 55-gallon drums along with bottles of immobilized fines or absorbent. However, the WEAF RTR identifies many of the 2-liter HDPE bottles in this waste stream contain what appears to be miscellaneous metal (e.g., sweepings, hardware, tools) mixed throughout a transparent resin matrix. The consistency and density of the resin matrix observed in the WEAF RTR is consistent with an organic polymer absorbent, such as RADSORB, which was a common absorbent used by NFS (References M126, M202). Although not specifically identified in NFS procedures, it is believed that RADSORB absorbent was mixed with the high activity residual materials (References P274, P317).

Waste Stream Material and Chemical Inputs

The following table identifies the Resource Conservation and Recovery Act (RCRA) toxicity characteristic constituents identified in this waste stream. This waste stream is not a listed waste. The use/source of these constituents is provided below.

Constituent	EPA Hazardous Waste Number
Cadmium	D006
Mercury	D009

RCRA Determinations

Historical Waste Management

EPA hazardous waste numbers were assigned to waste stream OR-NFS-CH-HOM-A in accordance with RCRA based on a review of available AK documentation identifying chemical usage and potentially hazardous materials that may have been introduced into the waste stream through waste generating operations, MSDS information compiled for commercial products used during decommissioning, and sampling and analysis of glovebox sweeping material by NFS. This waste stream has been historically managed in accordance with ORNL waste management practices in compliance with the requirements imposed by the Tennessee Department of Environment and Conservation (TDEC). Analytical data from process line samples of sweepings material indicate a few samples above the regulatory level for some RCRA-hazardous metals; however, NFS characterized the immobilized liquids and fines waste as nonhazardous waste with the exception of one drum containing cadmium and mercury. The EPA hazardous waste number assignments have been applied on a waste stream basis; individual containers may not contain all of the hazardous materials listed for the waste stream as a whole.

Hazardous Waste Determinations

Ignitability, Corrosivity, Reactivity

The waste material in waste stream OR-NFS-CH-HOM-A does not meet the definition of ignitability as defined in 40 Code of Federal (CFR) 261.21. The waste is not an oxidizer, and it is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. Respirable fines were immobilized with cement and water, and liquids were immobilized with RADSORB, so the possibility exists that liquids have formed in some drums while in storage. Prior to WIPP disposal, prohibited quantities of liquids will be removed or immobilized. TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Efforts were made to prevent the formation of liquids in bottles of immobilized fines by the addition of absorbent to the top of the cement (References C200, M003, P267, P268, P273, P274, P317). This waste will not be pyrophoric, and pyrophorics and compressed gases have not been identified in this waste stream (References M003, M065, P268, P273, P317). The materials in this waste stream are, therefore, not ignitable D001 wastes.

The waste material in waste stream OR-NFS-CH-HOM-A is not liquid and does not contain unreactive corrosive chemicals; therefore, it does not meet the definition of corrosivity as defined in 40 CFR 261.22. Respirable fines were immobilized with cement and water, and

liquids were immobilized with RADSORB, so the possibility exists that liquids have formed in some drums while in storage. Prior to WIPP disposal, prohibited quantities of liquids will be removed or immobilized. TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Efforts were made to prevent the formation of liquids in bottles of immobilized fines by the addition of absorbent to the top of the cement (References C200, M003, P267, P268, P273, P317). The materials in this waste stream are, therefore, not corrosive D002 wastes.

The waste material in waste stream OR-NFS-CH-HOM-A does not meet the definition of reactivity as defined in 40 CFR 261.23. The waste is stable, will not undergo violent chemical change, and will not detonate. The waste will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. There is no indication that the waste contains explosive materials, and it is not capable of detonation or explosive reaction. The waste does not contain reactive cyanide or sulfide compounds. TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Explosives, reactive metals, reactive cyanides, or reactive sulfides were not identified in the AK documentation reviewed for either Building 234 or Building 110 (References M003, P267, P268, P273, P317). *NFS Radwaste Package Certification Records* indicate that the waste is not readily capable of detonation, explosive decomposition, reaction at normal pressures and temperatures, or an explosive reaction with water (Reference M003). The materials in this waste stream are, therefore, not reactive D003 wastes.

The containers in the waste stream will be evaluated in accordance with the WIPP-WAP using RTR and/or VE prior to shipment to ensure the waste is not ignitable, reactive, or corrosive.

Toxicity Characteristic

Based on review of AK relative to chemicals used or present in the facility and operations potentially contaminating the waste, waste stream OR-NFS-CH-HOM-A may be contaminated with toxicity characteristic compounds as defined in 40 CFR 261.24, as summarized in the Chemical Identification and Use Summary table above.

Toxicity characteristic metals constituents were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic metals constituents (Reference M011). Analytical data from six process line samples of sweepings material identified a few samples above the regulatory level for arsenic, barium, and cadmium. Other sources for cadmium and mercury were also identified.

- Arsenic was detected in five of six samples at concentrations of 0.13, 0.51, 0.62, 4.4, and 5.7 mg/L. Only one of these results is above the regulatory level of 5.0 mg/L, and the UCL90 of these six samples is below the regulatory level (References C205, M064, M235, P273, U043).

- Barium was detected in all six samples at 0.57, 1.4, 38, 124, 222, and 301 mg/L. Three of these are above the regulatory level of 100 mg/L, and the UCL90 of these six samples is above the regulatory level. However, the method blank contained 193 mg/L which is also above the regulatory level. The barium may have been introduced from one of the extraction columns used in the analysis which is a problem encountered periodically (References C205, M064, M235, P273, U043).

- Cadmium was reported in all six samples at 0.04, 0.15, 1.2, 1.3, 1.5, and 24 mg/L. Four of these are above the regulatory level of 1.0 mg/L. The 24 mg/L cadmium value was outside the expected distribution from the other sample points, and consequently, this area was re-sampled. A sample composite was made of three parts new sample to one part previous sample. The result of the composite sample was 6.27 mg/L. The UCL90 of these six samples is above the regulatory level (References C205, M064, M235, P273, U043).

- Chromium, lead, and silver were detected in all six samples but below the regulatory level of 5.0 mg/L. Mercury and selenium were not detected in any of the samples (References C205, M064, P273, U043).

- A cadmium-coated wrench is located in one of the 2-liter HDPE bottles containing absorbent (References C210, U043).

- Waste was also generated from the cleanup of mercury from a regulator gauge located inside a glovebox. The liquid mercury was wiped up from the glovebox floor using cheesecloth. The mercury contaminated cleanup material, and other mercury contaminated waste from the floor of the glovebox (e.g., plexiglass and small metal items) were placed into 2-liter bottles and treated with a zinc amalgam (References C204, C210, M052).

Therefore, EPA hazardous waste numbers D006 (cadmium) and D009 (mercury) are assigned to waste stream OR-NFS-CH-HOM-A.

Listed Waste

F-Listed Waste

Based on review of AK relative to chemicals used or present in the facility and operations potentially contaminating the waste, waste stream OR-NFS-CH-HOM-A is not an F-listed hazardous waste from non-specific sources listed in 40 CFR 261.31.

Products used during decommissioning did not contain listed solvents (Reference M011). The only listed solvents identified in the MOX fuel production process were methylene chloride and trichlorotrifluoroethane contained in a binder material. As part of MOX fuel production, blended oxide was granulated using an oscillating device and stainless-steel screen. Binder was added to cross-blends during granulation. One of the binders used was Oxylene M-6 which contained 81 percent methylene chloride and 19 percent trichlorotrifluoroethane, both of which are F002-listed solvents. Use of this binder does not constitute a listed hazardous waste because these constituents were used as reactants or ingredients in the formulation of a commercial product. The TDEC concurred with this determination (References C142, P273).

NFS soil and debris waste containing small amounts of soil have been assigned F002 for tetrachloroethylene contamination in the soil beneath Building 234. This solvent was not used during decommissioning or in the MOX fuel production process, and therefore will not be a contaminant in the immobilized liquids and fines waste. Therefore, F002 is not assigned to waste stream OR-NFS-CH-HOM-A.

K-Listed Waste

The material in this waste stream is not hazardous from specific sources since it was not generated from any of the processes listed in 40 CFR 261.32.

P- and U-Listed Wastes

Waste stream OR-NFS-CH-HOM-A does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof listed in 40 CFR 261.33. Based on the AK documentation reviewed, U- and P-listed compounds were not used during MOX production or facility decommissioning. Therefore, U- and P-listed EPA hazardous waste numbers, including U134 (hydrofluoric acid) and P015 (beryllium), are not assigned to this waste stream (References C210, M011, P273).

Polychlorinated Biphenyls (PCBs)

This waste stream does not contain PCBs greater than 50 ppm, and therefore, is not regulated as a TSCA waste under 40 CFR 761. Analysis of process line samples of sweepings material indicate PCBs are well below 50 ppm (Reference C205, M064, P273, U043). RADSORB organic polymer absorbent was used to immobilize aqueous solutions only. Hydraulic fluids and oils were collected separately and sent to SEG for incineration (References C210, P317).

Prohibited Items

The HDPE 2-liter bottles were removed from the glovebox in two unvented heat-sealed bags (References C203, P218, P274, P320). Based on a review of the WEAF RTR tapes, the heat-sealed bags may be greater than four liters (fully expanded volume), and the surface area may be less than 390 square inches (Reference M126). For this reason, every drum in this waste stream will be repackaged to breach all of the heat-sealed bags.

When the NFS waste was received at ORNL in the early-1990s, the drums underwent RTR which did not identify liquids in the majority of the drums but did discover liquid in one bottle inside drum NFS0480. Absorbent was added to the bottle. The drum number was then changed to NFS0865 (References C200, M003, M053, M065).

Certified RTR is performed by CCP to ensure the waste does not contain prohibited items in accordance with the WIPP-WAC and WIPP-WAP.

Method for Determining Waste Material Parameters (WMPs) Weights per Unit of Waste

The waste material parameter weight estimates for waste stream OR-NFS-CH-HOM-A were derived from NFS container disposal paperwork, procedures, product information, and a review of previous WEAF RTR data.

NFS Form 28-001, TRU Waste Data Package, lists the gross weight and tare weight for each drum. The reported tare weights vary, and based on a review of the WEAF RTR data, it appears the tare weights include some inner packaging materials (e.g., rigid liner, centering sleeve). It is assumed that the 2-liter HDPE bottles and heat-sealed bags are not included in the tare weight (References M003, M126). According to product information, a Nalgene® 2-liter HDPE wide-mouth bottle weighs 200 grams. The weight of a typical bag-out bag provided in RTR procedure CCP-TP-053 is 100 grams. Each HDPE bottle is contained in two plastic bag-

out bags (References 15, C203, P274, P320). The plastic bags and 2-liter HDPE bottles are included in the table as "plastics (waste materials)." For the purpose of estimating waste material parameter weights, other packaging materials are not included in the calculation.

The weight of the immobilized waste was calculated by summing the weights of the HDPE bottles and plastic bags and subtracting this total from the net weight of each drum. The WEAF RTR was reviewed to determine the contents of each bottle and to estimate the volume utilization and the volume percentage of the different materials in each bottle (References M126, M202). These percentages were converted to actual volumes and then to weights based on an assumed density for the different waste materials (i.e., grouted fines, RADSORB organic polymer absorbent, and miscellaneous metals).

According to the NFS procedure for segregation and immobilization of particulate fines, the amount of fines in a 2-liter HDPE bottle varied, and the amount of cement and water mixed with the fines varied depending on the amount of fines (Reference P274). The density of the fines material is unknown so the density of the immobilized fines cannot be calculated. Instead, a density of 2.403 is assumed which is the density of concrete with gravel and of wet mortar.

Review of the WEAF RTR data by CCP identified numerous 2-liter HDPE bottles containing miscellaneous metals throughout a resin matrix. The metals included scrap, sweepings, hardware (e.g., nuts, bolts, washers), and hand tools (e.g., screwdriver, wrench) (Reference M202). To calculate the iron-based metal/alloy weights for AK, a density of 7.85 was used. Based on a comparison of the net weights to the calculated waste material parameter weights, it appears that the volume of metals was overestimated by CCP in the review of the WEAF RTR. The metal volume percentages were adjusted so the net weights and calculated waste material parameter weights were more comparable. It is possible other residual debris materials may be contained in the resin matrix but cannot be identified by RTR due to their lower densities.

The consistency and density of the resin matrix observed in the WEAF RTR is consistent with an organic polymer absorbent, such as RADSORB, which is a solid, granular, cross-linked homopolymer, and was a common absorbent used by NFS. RADSORB has an average density of 0.62 and can absorb up to 250 times its weight in water and up to 30 times its weight in aqueous solutions such as Radiacwash decontamination solution (Reference M011). However, based on the net weights of the waste, it doesn't appear as if the bottles contain anywhere near that amount of liquid.

Waste Material Parameter Estimates for OR-NFS-CH-HOM-A

Waste Material Parameter	Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	6.1%	0% - 57.3%
Aluminum-based Metals/Alloys	0%	0%
Other Metals	0%	0%
Other Inorganic Materials	0%	0%
Cellulosics	0%	0%
Rubber	0%	0%
Plastic (waste materials)	12.2%	10.4% - 32.8%
Organic Matrix	9.8%	2.5% - 50.1%
Inorganic Matrix	71.9%	0% - 85.6%
Soils/Gravel	0%	0%

List of AK Sufficiency Determinations Requested for the Waste Stream

No AK Sufficiency Determinations were requested for this waste stream.

Transportation

This waste stream and its chemical constituents have been reviewed for consistency with the listed TRUCON codes and they are consistent.

Beryllium

Based on the AK documentation reviewed, beryllium was not used by NFS (Reference C210). Therefore, beryllium will not be present in amounts greater than one percent by weight of the waste in any drum.

Radionuclide Information

To determine isotopic ratios for the waste stream as a whole, the total gram value for each individual radionuclide was divided by the total mass of all radioactive constituents in the waste stream and converted to a percentage. This result is listed as "Total Radionuclide Wt%." To determine the radionuclide Wt% range for individual containers, the radiological mass in each container in the waste stream was summed. The mass of each individual radionuclide in a container was divided by the total radiological mass for that container and converted to a percentage. The minimum and maximum results are listed as "Radionuclide Wt% Range for Individual Containers." The same process was applied to determine "Total Radionuclide Ci%" and "Radionuclide Ci% Range for Individual Containers."

As shown in the Waste Stream OR-NFS-CH-HOM-A Radiological Characterization table, U-238 is the most predominant radionuclide by mass, and Pu-239 is the second most predominant radionuclide by mass based on AK. The radionuclide weight percent of individual radionuclides varies on a container-by-container basis. Because of this variability, some containers will not include the waste stream predominant radionuclides but may include other radionuclides expected in this waste stream. Payload management will not be utilized for this waste stream; however, radioassay data indicate that the TRU alpha activity concentration in each of the drums in this waste stream is more than 100 nCi/g (References M003, M012, M198).

Waste Stream OR-NFS-CH-HOM-A Radiological Characterization

Isotope	Total Radionuclide Wt% [1,5]	Radionuclide Wt% Range for Individual Containers [2,5]	Total Radionuclide Ci% [3,5]	Radionuclide Ci% Range for Individual Containers [4,5]	Suspected Present (Yes/No)
WIPP Required Radionuclides					
Am-241	0.10%	0.01% - 2.86% [7]	2.58%	0.58% - 3.78%	Yes [6]
Pu-238	0.01%	Trace - 0.43% [7]	1.59%	0.55% - 22.66%	Yes
Pu-239	12.81%	3.53% - 90.94% [7]	6.20%	1.59% - 16.73%	Yes
Pu-240	1.94%	0.67% - 23.37%	3.44%	1.42% - 7.16%	Yes
Pu-242	0.02%	0.00% - 1.17% [7]	Trace	Trace - Trace	Yes
U-233	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [9]
U-234	3.88%	0.00% - 4.00% [7]	0.19%	0.00% - 0.49%	Yes
U-238	80.74%	0.00% - 99.69% [7]	Trace	0.00% - Trace	Yes
Cs-137	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes
Sr-90	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [8]
Additional Radionuclides					
Pu-241	0.11%	0.04% - 2.91% [7]	86.00%	65.35% - 94.70%	Yes [6]
U-235	0.40%	0.00% - 5.01% [7]	Trace	0.00% - Trace	Yes

1. This listing indicates the total Wt% of each radionuclide over the entire waste stream.
2. This listing is the Wt% range of each radionuclide on a container-by-container basis. Some containers with "0" listed as the lower range, will not contain the specified radionuclide.
3. This listing indicates the total activity Ci% of each radionuclide over the entire waste stream.
4. This listing is the Ci% range of each radionuclide on a container-by-container basis.
5. "Trace" indicates <0.01% for that radionuclide.
6. Am-241 may be present in slightly larger percentages, and Pu-241 in smaller percentages due to the decay of Pu-241.
7. These Wt% ranges were expanded based on plutonium and uranium isotopic distribution data (see AKSR Table 7-3).
8. Sr-90 cannot be quantified by gamma spectroscopy. Its value is calculated based on measured Cs-137 values. A Sr-90/Cs-137 scaling factor of 1.0 is used to calculate Sr-90.
9. U-233 was not reported in NFS waste assay data for any of the grouted fines drums; however, there is a potential for U-233 in this waste because some of the fines originated in the Building 110 laboratory which did handle U-233.

Source Documents

Tracking Number	Title
C099	Letter to Harold Johnson, CBFO DOE re: KAPL-NFS Transuranic Waste Background Information
C100	Interview with Richard Booth and faxed defense and waste information for NFS, Erwin, TN TRU waste
C119	Removal of Contaminated Pipe, Building 234 Area B, Memo to Ron Mitchell, Letter of Authorization (LOA)
C120	Removal of Contaminated Piping, Building 234, Memo to Larry Burleson, Letter of Authorization (LAO)
C121	DVRF Bale Packaging Glovebox Removal, Memo to Ron Mitchell
C122	Building 234 Characterization Results, Memo to Heather Little
C125	Cleaning and Surveying the DVRF Shear Baler for PCBs, Memo to Building 234 Supervision
C126	Waste Packaging of the DVRF Decon Cell Perma-Con Structure, Memo to Richard A. Moore
C127	Size Reduction of the NDA Station 2 Glovebox In the DVRF Decontamination Cell, Memo to Ron Mitchell and Rick Leitner
C129	Size Reduction Process Ductwork within the Decontamination Cell, DVRF, Memo to Ron Mitchell and Rick Leitner
C130	Cleanout of DVRF Bale Packaging Glovebox, Memo to Ron Mitchell and Rick Leitner
C142	Legal Analysis regarding Solvent Binder Used to Make Fuel
C143	Memo to F. J. Schultz re: NFS Project Update from the WEAF
C144	Memo to Distribution re: Experience in Receipt and Inspection of Waste Shipments from Nuclear Fuel Services, Inc.
C145	Memo to Distribution re: Nuclear Fuel Services, In. (NFS) Background Information
C146	Paper from EPA website: Waste Minimization Assessment for a Manufacturer Producing Printed Circuit Boards
C147	Retrieved from EPA website: Consumer Product links for Mercury
C200	Internal Correspondence to M.W. Tull subject: On the Use of Rad-Sorb in NFS TRU-Waste Drums
C201	Letter to Mr. Bill Reynolds, EcoTek from Terry Wickland, Product Engineer regarding Seal for 16 gauge DOT 17H stainless steel drum lid
C202	Letter from Scott A. Toler to L.C.M. Roddeye regarding formal request for variance from Section 4.5.5 of the ORNL/NFS: NFS Waste Parameter Verification Program
C203	Letter to Martin Tull from Robert A. Hunt regarding a picture of the proposed method to "lab pack" bottles of immobilized respirable fines and residual materials
C204	Letter to Martin W. Tull, Martin Marietta Energy Systems, from Michael L. West, Nuclear Fuel Services, Inc. regarding response to his request for information relating to the discovery of mercury during the decommissioning of Station #15 in Building 234.
C205	Internal Correspondence to Distribution regarding Minutes of November 5, 1991 Meeting with NFS Regarding Process-Line Samples

Tracking Number	Title
C206	Numerous Faxes containing handwritten notes (oversight reports) from Paul O. Emerson re: such items as sampling the top of the underground tank, Pu Crew activities, equipment issues, processing of gloveboxes, and information on drums that were packaged.
C209	Internal Correspondence to F.J. Shultz from J.A. Chapman regarding NFS Project Accomplishments for Month of April 1992
C210	Interview re: NFS TRU Waste Shipped to Oak Ridge National Laboratory. Interviewees: Richard Booth, Richard Moore, Bob Hunt, Scott Toller, Marie Moore
C227	Interview with Scott Morie from NFS
C230	E-mail from Brian Oakley to Jeff Harrison, RE: NFS Schedule
C309	Record of Communication Subject: NFS Soil Sampling/Analysis Data Tetrachloroethylene Use
C321	Record of Communication. Subject: Soil and Groundwater Treatment Sludge to be Generated in 2011.
C622	Email from Don Coffey to Jeff Harrison RE: NFS BBA REPACKS NFS0385 A-H
DR001	Discrepancy Resolution re: OR-NFS-CH-HET EPA Hazardous Waste Numbers
DR002	Discrepancy Resolution for OR-NFS-CH-HET re: Radionuclides
DR006	Discrepancy Resolution re: Physical Form of NFS-0116 & NFS-0929
DR010	Discrepancy Resolution re: Incorrect Waste Stream Assignment of Soil Waste Containers
DR013	Discrepancy Resolution re: NFS Soil and Debris EPA Hazardous Waste Numbers
DR015	Discrepancy Resolution re: OR-NFS-CH-HET-A Heterogeneous Debris from NFS
DR022	Discrepancy Resolution re: OR-NFS-CH-SOIL and OR-NFS-CH-HET-A Waste Stream Designation
DR023	Discrepancy Resolution re: NFS0815 and X10C0506069
DR026	Discrepancy Resolution re: Reassignment of NFS815 to OR-NFS-CH-SOIL
DR030	Discrepancy Resolution re: Drum NFS0929
DR031	Discrepancy Resolution re: OR-NFS-CH-HOM-A EPA Hazardous Waste Number Assignment
I022	DOE Order 435.1, Radioactive Waste Management
I023	Radioactive Waste Management Manual
I043	Implementation Guide for Use with DOE M 435.1-1
I052	Memorandum; Building 234 Shear Baler Characterization Samples
I053	KAPL-TN Waste Profile for NFS Building 234 Soil
I056	Removal of Building 234 Wet Cell Permacon Containment Enclosure
I058	Dismantlement of the West Wet Cell Wall in Building 234
I059	Waste Packaging of Wet Cell Wall in Building 234
I061	Size Reduction of the DVRS Glovebox
I067	Procedure for the Operation of the Versatile Automated Gamma Assay System (VAGAS)

Tracking Number	Title
I068	Size Reduction of 4-inch Diameter Duct Section in Area C
M003	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork for Waste Stored at ORNL (container paperwork)
M007	Internal Correspondence and the Environmental Assessment for the Receipt and Storage at ORNL, of Transuranic Waste, Mixed Transuranic Waste, and Mixed Oxide Waste from Nuclear Fuels and the Environmental Assessment for Disposition of Transuranic Waste
M008	Fax from John E. Kirkpatrick to Robert C. Mason on 01/16/1991 and the PuO2 + UO2 (mixed oxide) fuel production flow chart for Pellet Production, Rod/Assembly Fabrication, Scrap Dissolution/Recovery
M011	MSDS (Material Safety Data Sheets) for Products used at NFS
M012	EM Waste Database Query - Container Information; Waste Description; Isotopes
M013	EM Waste Database Query - NFS Box Daughter and Repack Drums: Container; Waste Description; Isotopes
M016	Incoming Container Travelers for NFS Waste - VE Data
M017	NFS NDA Data from Foster Wheeler (by container)
M018	NFS Radiography (NDE) Data from Foster Wheeler (by container)
M019	NFS VE Data from Foster Wheeler (by container)
M020	NFS HSG Data from Foster Wheeler (by container)
M021	Defense Determination Approval for ORNL/NFS-HD-001, Heterogeneous Debris - NFS
M050	Photos of the Site
M051	Fax from Bob Hunt from Martin Tull transmitting drawing for EcoTek - The Hunt 55 Gallon Poly. Insert
M052	Account Book No. S149 - DVRF Decommissioning and Volume Reduction Facility
M053	Letter from L.C.M. Roddye to R.L. Booth regarding Nuclear Fuel Services, Inc. - Contract DE-SCOT-86ID12630 - Closure of Nonconformance Reports NCR-X-94-WMRAD-0011, NCR-X-94-WMRAD-0012, NCR-X-94-WMRAD-0013, NCR-X-94-WMRAD-0014 AND NCR-X-94-WMRAD-0015
M054	Internal Correspondence to Distribution from D.W. Turner regarding Information Concerning NFS D&D Operations
M058	(Handwritten Document) Methods for: Measuring Activity in Baled Waste; Flowsheet for Immobilizing Fines; Assigning Values to Soil; Flowsheet for Packaging and Measuring Raschig Rings
M059	Memo transmitting NCR-X-WMRAD-0015 for Liquid in Liners
M060	Correction Actions to Prevent Recurrence of NCR-X-94-WMRAD-0011
M061	Internal Correspondence to Distribution from J.A. Chapman regarding An Evaluation of NFS Isotopic Estimates by Gamma-ray and Alpha-particle Spectroscopy
M062	NFS Data Set No. 2 PCB Reanalysis of Gasket and K1 Samples
M063	NFS Data Sheet No. 3 PCB Analysis of Fresh Gasket and Pall Filter Samples and Cadmium in Pall Filter TCLP Leachate
M064	Analysis Results for Process Line Samples from Nuclear Fuel Services, Inc. and NFS Sample Set No. 3

Tracking Number	Title
M065	WEAF Data for NFS Drums (by container); WEAF Waste Acceptance Report; NFS Storage Project (by container)
M066	Surveillance: Source Surveillance at Scientific Ecology Group, Oak Ridge, TN
M067	Surveillance: Source surveillance for Contact-Handled Transuranic and Mixed Oxide Wastes
M068	Review of WEAF RTR Video Tapes
M075	TWPC Contact Handled Waste Repackaging Data Forms for NFS Waste. (container paperwork)
M076	Evaluations of Additional Containers for Waste Stream OR-NFS-CH-HET-A (drum additions)
M126	RTR Video Tapes and DVDs from the WEAF Facility for Oak Ridge Waste
M128	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL dated September 5, 2008
M129	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET, dated 9/8/2008
M130	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 09/15/2008
M131	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 11/30/2007
M132	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL dated 9/24/2008
M133	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 09/24/2008
M198	eMWaste Query from ORNL Dated 08/30/2010
M202	Review of WEAF RTR Videos for NFS Immobilized Liquids and Fines
M206	Wet Cell Excavation TRU Waste Shipping Schedule
M207	NFS Waste Container Packaging Forms
M208	Evaluation of Drums for Waste Stream OR-NFS-CH-SOIL from NFS Final Decommissioning Phase
M209	Evaluation of Drums for Waste Stream OR-NFS-CH-HOM-B from NFS Final Decommissioning Phase
M210	TRU Project Waste Processing Facility Job Recipe. Subject: Soil-like Waste Remediation
M211	Evaluation of NFS Groundwater Data
M213	Duratek buys waste processing company
M214	EnergySolutions OKs deal to buy Duratek
M215	EnergySolutions Locations
M216	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET-A
M217	eMWaste Database Query from ORNL Dated 01/03/2013
M235	Evaluation of Data from Source Document M064

Tracking Number	Title
P014	Inventory of ORNL Remedial Action Sites: 11. Research Laboratories
P212	Lattice Experiments with Simulated Burned-Up Fuel for D2O Power Reactors
P218	Oak Ridge National Laboratory/Nuclear Fuel Services, Inc. NFS Waste Parameter Verification Program
P248	Structural Assessment of Building 234 Prepared for NFS, 1205 Banner Hill Road, Erwin, TN 37650
P251	Box Breakdown Area Operations
P252	Glove Box Operations
P253	Drum Bag In/Bag Out and Glove Ports
P254	Contact Handled Waste Repackaging
P255	Contact handled Waste Acceptance Criteria
P256	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis
P267	Nuclear Fuel Services Waste Acceptance and Storage Procedure
P268	ORNL WAC for Contact Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services INC.
P269	ORNL Waste Acceptance Criteria for Transuranic Waste from the Nuclear Fuel Services, Inc.; ORNL WAC for Contact-Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services, Inc.
P272	Oak Ridge National Laboratory Waste Management Plan
P273	Nuclear Fuel Services, Inc., Waste Certification Plan for Transuranic Waste
P274	Segregation and Immobilization of Particulate Fines
P276	Determination of H2 Diffusion Rates through Various Closures on TRU Waste Bag-Out Bags
P283	Plutonium Facilities Decommissioning Project Plan Condition Addendum
P300	Operation of the Decontamination and Volume Reduction Facility
P301	Wet Cell
P303	Removal of Exhaust Systems
P304	Removal of Asbestos-Bearing Materials
P306	Excavation of 110 Lab Tank
P312	Maintenance for Plutonium Decommissioning
P315	Wet Cell Soil Excavation and Mixing
P316	Investigation of DOE-ORNL Nonconformance Reports for Building 234 Plutonium Shipments (Surface Contamination, Free Standing Liquids, Missing Liner Lid)
P317	Packaging for Shipment to Processing, Storage, or Burial
P319	Preparation of Gloveboxes for Decontamination in the DVRF
P320	Bag-Out and Glove Change
P321	Determination of Plutonium Isotopics for Building 110 and 234
P323	Status of Former Mixed Oxide Fuel Fabrication Facility
P432	TRU Waste Processing Center Document Safety Analysis
P582	PCB Decontamination
P1116	EnergX TRU Waste Processing Center Procedure: Absorbing Liquids
P1370	Evaluation of Techniques for Conditioning and Packaging Plutonium Contaminated Soil
P1371	Procedure for Removal and Decontamination of Utility and Process Lines and Systems

Tracking Number	Title
P1372	Building 234 Soil, Groundwater, and Groundwater Sludge Sampling and Analysis Plan (NFS)
P1373	Project Management Plan for Wet Cell Soil Excavation (NFS)
P1374	Characterization of Building 234 Waste (NFS)
P1375	North Site Characterization Report for Nuclear Fuel Services, Erwin, Tennessee
P1398	TRU Waste Processing Center, High Density Waste Item Repackaging
P1399	Operating Procedure for the 234 Excavation Facility Groundwater Pretreatment System
P1400	Operating Procedure for Soil Excavation, Processing and Packaging for the 234 Excavation Facility
P1401	Waste Packaging for WIPP Disposal
P1402	234 Wet Cell Characterization Summary
P1403	Operation of the ORTEC Mobile Counting System
P1404	Final Report: Solidification Testing for 234 Excavation Facility Decommissioning Project
P1405	Geochemical Survey of the Unaka Mountain Roadless Area, Unicoi County, Tennessee
P1407	TWPC Procedure - Pipe Overpack Container Operations
P1409	Attachment K: Compacted Drum Puck Standing Recipe, Job Recipe Number: OPSJR-STANDING-09
P1413	TRU Waste Compactor Operation
P1414	Radioactive Material Receipt
P1415	Radioactive Material Shipment to CNSI Barnwell, US Ecology Richland, and to Customer
P1416	TRU Waste Receipt and Shipment
U016	A Graphical Workbook for Estimating Important Quantities of NFS Radioactive Waste Constituents
U017	The Intercomparison of NDA Measurements on CH-TRU Waste Between Nuclear Fuel Services, Inc. and Oak Ridge National Laboratory
U038	ORNL TRU Waste Historical Survey; Volumes 1, 2, and 3—Origins and Characteristics of Remote-Handled Transuranic Wastes (Trabalka report) Plus Appendices
U040	NFS response to "Transuranic Waste Baseline Inventory Report Questionnaire"
U043	Final Report - Waste Characterization of Wastes Generated from D&D Activity; Buildings 110 and 234 on the NFS Site in Erwin, Tennessee
U044	Weston Report: Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations
U050	Action Description Memorandum for Disposition of Transuranic Waste and Plutonium Scrap from Nuclear Fuel Services, Inc.
U051	Return of 55-Gallon Stainless Steel Drums for Addition of Radsorb
U052	Decommissioning Strategy in Today's Environments
U054	Decontamination and Decommissioning of a Plutonium Fabrication Facility
U055	Abstract, Calibration Schemes and Measurement Techniques
U057	An Interim Report on A Time-Series Analysis of the Events Leading up to the Detection of Free-Liquid in NFS Supercompacted Drums
U058	Oak Ridge National Laboratory/Nuclear Fuel Services Inc. NFS Waste Parameter Verification Program
U597	Building 234 Groundwater Design of Experiment (Groundwater Monitoring Data) (NFS)

Washington
TRU Solutions LLC

CP:10:01046
UFC:5900.00

INTER-OFFICE CORRESPONDENCE

DATE: January 25, 2010

FROM: R. P. Kantrowitz R.P.K. LOCATION: Certification

TO: CCP Records Custodian GSA-212 LOCATION: Retrieval, Characterization & Transportation

SUBJECT: TRANSMITTAL OF OAK RIDGE NATIONAL LABORATORY WASTE STREAM PROFILE FORM FOR WASTE STREAM #OR-NFS-CH-SOIL

Please accept the attached Oak Ridge National Laboratory Waste Stream Profile Form to be placed in Records for Waste Stream #OR-NFS-CH-SOIL.

RPK:jmc

Attachment

cc: (without attachment)

M. Pearcy ED
W. Weyerman ED

ORIGINAL

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

DEC 15 2009

Mr. D. K. Ploetz, Manager
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Washington TRU Solutions LLC
P. O. Box 2078
Carlsbad, NM 88221-2078

Subject: Review of CCP-INL Waste Stream Profile Form Number OR-NFS-CH-SOIL, Soil from Nuclear Fuel Service, Inc.

Dear Mr. Ploetz:

The Carlsbad Field Office (CBFO) has reviewed the subject Waste Stream Profile Form (WSPF) OR-NFS-CH-SOIL, Soil from Nuclear Fuel Service, Inc. and has concluded that the WSPF is complete and that the waste stream determinations were made in accordance with applicable procedures and guidance.

The CBFO therefore approves the WSPF as submitted. Using the methods approved for CCP-ORNL, CCP-ORNL may enter the data into the certification and shipping modules of the WIPP Waste Information System.

If you have questions on this matter, please contact me at (575) 234-7313.

Sincerely,

J. R. Stroble

J. R. Stroble, Acting Director
Office of the National TRU Program

cc:
G. Basabilvazo, CBFO *ED
C. Gadbury, CBFO ED
S. McCauslin, CBFO ED
D. Miehls, CBFO ED
M. Navarrete, CBFO ED
K. Watson, CBFO ED
P. Gilbert, LANL ED
S. Lott, LANL ED
G. Lyshik, LANL ED
CBFO, M&RC
*ED denotes electronic distribution

CBFO:NTP:JRS:GS:09-2054:UFC 5900.00

Attachment 2 –CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: OR-NFS-CH-SOIL						
(2) Generator site name: Oak Ridge National Laboratory					(4)Technical contact: Richard Kantrowitz	
(3) Generator site EPA ID: TN1890090003					(6) Technical contact phone number: 575-234-7511	
(5) Date of audit report approval by New Mexico Environment Department (NMED): October 14, 2009						
(7) Title, version number, and date of documents used for WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 17, June 23, 2009. CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 21, January 26, 2009 CCP-PO-027 CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document, Revision 0, October 2, 2007.						
(8) Did your facility generate this waste?	YES		NO	X		
(9) If no, provide the name and EPA ID of the original generator: Nuclear Fuel Services, Inc., TND003095635						
Waste Stream Information[1]						
(10) WIPP ID: OR-NFS-CH-SOIL					(11) Summary Category Group: S4000	
(12) Waste Matrix Code Group: Soils					(13) Waste Stream Name: Soil from Nuclear Fuel Services, Inc.	
(14) Description from the TWBIR: Waste consists of soils from NFS.						
(15) Defense TRU Waste:	YES	X	NO			
(16) Check One:	CH	X	RH			
(17) Number of SWBs: N/A	(18) Number of Drums: 545 55-gallon				(19) Number of Canisters: N/A	
(20) Batch Data report numbers supporting this waste stream characterization: See Characterization Information Summary (CIS) Correlation of Container Identification Numbers to Batch Data Report Numbers						
(21) List applicable EPA Hazardous Waste Numbers: F002						
(22) Applicable TRUCON Content Numbers: OR 111, OR 211						
(23)**Acceptable Knowledge Information**[1]						
[For the following, enter the supporting documentation used (i.e., references and dates)]						
Required Program Information						
(23A) Map of site: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Figures 1, 2a, 2b, and 3						
(23B) Facility mission description: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 4.2						
(23C) Description of operations that generate waste: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Sections 4.4 and 6.4						
(23D) Waste identification/categorization schemes: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 4.5						
(23E) Types and quantities of waste generated: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Sections 4.6.1 and 6.2						
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 4.6.2						
(24) Waste certification procedures: CCP-TP-030, Rev. 26, CCP TRU Waste Certification and WWIS Data Entry, May 27, 2009						
(25)Required Waste Stream Information						
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 6.1						

(25B) Waste stream volume and time period of generation: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 6.2			
(25C) Waste generating process description for each building: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 6.3			
(25D) Waste Process flow diagrams: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Figures 4 and 5			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Sections 6.4.1, 6.4.2 & 6.4.3			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See Table 2 of the Summation of Aspects of AK Summary Report: OR-NFS-CH-SOIL			
(26) Which Defense Activity generated the waste: (check one)			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management	X	Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations		
(27)Supplemental Documentation			
(27A) Process design documents: See S1 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27B) Standard operating procedures: See S2 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27C) Safety Analysis Reports: See S3 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27D) Waste packaging logs: See S4 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27E) Test plans/research project reports: See S5 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27F) Site databases: See S6 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27G) Information from site personnel: See S7 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27H) Standard industry documents: See S8 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27I) Previous analytical data: See S9 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27J) Material safety data sheets: See S10 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27K) Sampling and analysis data from comparable/surrogate Waste: See S12 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27L) Laboratory notebooks: See S11 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
Confirmation Information[2]			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: CCP-TP-053, Revision 7, October 21, 2009		
(29)	Visual Examination: NA		

(30)Comments:
For a list of the waste characterization procedures used and date of the respective procedures see the list of procedures on the attached CIS.

Reviewed by AK Expert:	**YES** [X]		**Date:** 10/28/09
Reviewed by STR (if necessary):	**YES** [X]	**NA** [ ]	**Date:** 11/11/09

Waste Stream Profile Form Certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

(31)	(32) Richard Kantrowitz	(33) 12/8/09
Signature of Site Project Manager	Printed Name	Date

NOTE: (1) Use back of sheet or continuation sheets, if required.
(2) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.

CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-NFS-CH-SOIL

Lot 1

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CCP Characterization Information Summary Cover Page

Waste Stream # OR-NFS-CH-SOIL Lot #: 1

AK Expert Review: N/A Date: N/A

SPM Review: Richard Kantrowitz Date: 12/8/2009

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Radiography (RTR/NDE):

CCP-TP-053	Rev. 7	10/21/09	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 6	03/04/08	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 5	11/16/06	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Non Destructive Assay (NDA):

CCP-TP-166	Rev. 2	12/05/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 1	06/19/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 0	10/12/07	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-168	Rev. 3	11/17/09	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 2	12/02/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 1	11/17/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 0	10/18/07	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-169	Rev. 2	11/18/09	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-169	Rev. 1	06/19/08	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-169	Rev. 0	10/12/07	CCP Operating the Mobile Segmented Gamma Scanner

Solids Sampling:

INST-OI-73	Rev. 4	04/07/09	Manual Drum Coring Operations
INST-OI-73	Rev. 3	07/24/08	Manual Drum Coring Operations
INST-OI-16	Rev. 30	04/07/09	Drum Coring Operations
INST-OI-16	Rev. 29	07/03/08	Drum Coring Operations

Solids Analysis:

CCP-TP-180	Rev. 1	08/24/09	CCP Analytical Sample Management
CCP-TP-180	Rev. 0	05/02/07	CCP Analytical Sample Management
CCP-TP-181	Rev. 0	05/02/07	CCP Determination of Mercury by CVAA for TRU Waste Characterization
CCP-TP-182	Rev. 1	01/26/09	CCP Determination of Metals by ICP-AES for TRU Waste Characterization
CCP-TP-182	Rev. 0	05/02/07	CCP Determination of Metals by ICP-AES for TRU Waste Characterization
CCP-TP-183	Rev. 0	05/02/07	CCP Microwave Assisted Digestion of Homogeneous Solids and Soil/Gravel
CCP-TP-184	Rev. 0	05/02/07	CCP Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-185	Rev. 1	11/18/08	CCP Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-186	Rev. 1	08/22/07	CCP Determination of Nonhalogenated Volatile Organic Compunds by Gas Chromatography
CCP-TP-187	Rev. 1	11/18/08	CCP Sample Preparation for Semivolatile Organic Compounds
CCP-TP-188	Rev. 1	06/19/09	CCP Analytical Data Recording, Review, and Reporting
CCP-TP-188	Rev. 0	05/02/07	CCP Analytical Data Recording, Review, and Reporting

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 21	08/24/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 20	08/18/08	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 19	12/22/06	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 16	10/02/07	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 26	05/27/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 25	01/22/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 24	08/20/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/07	CCP CH TRU Waste Certification and WWIS Data Entry

CIS002

CCP Characterization Information Summary Cover Page

WAP Certification:

CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 20	11/02/07	CCP Transuranic Waste Certification Plan
CCP-PO-027	Rev. 0	10/02/07	CCP/TWPC/ORNL Interface Document

CIS003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-NFS-CH-SOIL Lot # 1

Container ID Number	Historical Container ID Number	NDA BDR	NDE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes
NFS0118	10265664	OR-DWAS-0082	OR-RTR6-0070	SSC09-00002	ALD09003M ALD09004V ALD09004S ALD09004N	
NFS0476	10265663	OR-DWAS-0082	OR-RTR6-0070	SSC09-00002	ALD09003M ALD09004V ALD09004S ALD09004N	
NFS0486	10265668	OR-DWAS-0082	OR-RTR6-0070	SSC09-00002	ALD09003M ALD09004V ALD09004S ALD09004N	
NFS0347	10265665	OR-DWAS-0082	OR-RTR6-0070	SSC09-00002	ALD09003M ALD09004V ALD09004S ALD09004N	
X10C0506055	10265666	OR-DWAS-0082	OR-RTR6-0070	SSC09-00002	ALD09003M ALD09004V ALD09004S ALD09004N	

*Containers in waste stream OR-NFS-CH-SOIL are not expected to exceed a total flammable volatile organic compound concentration of greater than or equal to 500 ppm.

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/8/2009
Date

CIS004

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Bromoform	No	0	5	0.09	0.09	0.00	0.09	10	N/A		
Carbon Disulfide	No	0	5	0.27	0.26	0.01	0.27	10	N/A		
Carbon Tetrachloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Chlorobenzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Chloroform	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,2-Dichloroethane	Log	0	5	-1.71	-1.75	0.03	-1.72	10	2.30		
1,1-Dichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
trans-1,2-Dichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Ethyl benzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Methylene chloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2,2-Tetrachloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Tetrachloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Toluene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,1-Trichloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2-Trichloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Trichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Trichlorofluoromethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Vinyl chloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
m,p-Xylene[d]	No	0	5	0.27	0.26	0.01	0.27	10	N/A		
o-Xylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Acetone	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Butanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Ethyl ether	No	0	2	1.05	1.05	0.00	1.05	100	N/A		
Isobutanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Methanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Methyl ethyl ketone	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Pyradine	No	0	2	1.05	1.05	0.00	1.05	100	N/A		
1,2-Dichlorobenzene[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Formaldehyde[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Hydrazine[b]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

[a] Required only for homogenous solids and soil/gravel waste from the Savannah River Site.

[b] Required only for homogenous solids and soil/gravel waste generated at Oak Ridge National Laboratory and Savannah River Site. OR-NFS-CH-SOIL was generated at the NFS site, located in Erwin Tennessee, and only stored and characterized at ORNL.

[c] Can also be analyzed as an SVOC. If analyzed as an SVOC, the QAO's of CCP-TP-001, Table B3-6 apply.

[d] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site/Project Manager

Richard Kantrowitz
Printed Name

12/8/2009
Date

CR500

CCP Solids Analysis SVOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL

Waste Stream Lot Number 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
2-Methylphenol (cresols)	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
3&4 -Methylphenol (cresols)	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
1,4-Dichlorobenzene [a]	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
1,2-Dichlorobenzene [a]	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
2,4-Dinitrophenol	No	0	5	0.20	0.12	0.04	0.15	40	N/A		
2,4-Dinitrotoluene	No	0	5	0.30	0.18	0.07	0.23	2.6	N/A		
Hexachlorobenzene	No	0	5	0.30	0.18	0.07	0.23	2.6	N/A		
Hexachloroethane	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
Nitrobenzene	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
Pentachlorophenol	No	0	5	0.40	0.24	0.09	0.30	40	N/A		

[a] Can also be analyzed as a VOC. If analyzed as a VOC, the QAO's of CCP-TP-001, Table B3-4 apply.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/8/2009
Date

CIS007

CCP Solids Analysis Metals UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Antimony	No	2	5	1.40	0.86	0.49	1.20	100	N/A		
Arsenic	SQRT	5	5	2.17	1.75	0.32	1.97	100	10.00		
Barium	No	5	5	170.00	132.00	31.14	153.36	2000	N/A		
Beryllium	No	5	5	0.76	0.69	0.09	0.76	100	N/A		
Cadmium	Log	2	5	-1.02	-2.38	0.90	-1.77	20	3.00		
Chromium	No	5	5	39.00	37.20	2.39	38.84	100	N/A		
Lead	Log	5	5	2.83	2.42	0.27	2.61	100	4.61		
Mercury	Log	5	5	-2.30	-2.48	0.12	-2.40	4	1.39		
Nickel	No	5	5	19.00	17.40	1.67	18.55	100	N/A		
Selenium	No	0	5	0.35	0.35	0.00	0.35	20	N/A		
Silver	No	0	5	0.30	0.30	0.00	N/A[2]	100	N/A		
Thallium	No	3	5	1.10	0.70	0.35	0.93	100	N/A		
Vanadium	No	5	5	60.00	53.40	6.27	57.70	100	N/A		
Zinc	Log	5	5	4.23	3.91	0.20	4.05	100	4.61		

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) Due to all five sample results being the same numeric value, the statistic package is unable to calculate a UCL_{90}.

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/8/2009
Date

CRS008

CCP Solid VOCs Summary Data

Waste Stream Number OR-NFS-CH-SOIL Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	NA	NA	NA

Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature _____ Date 12/8/2009

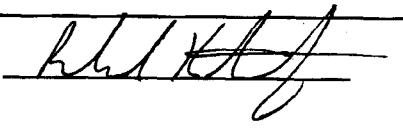
CCP Solid SVOCs Summary Data

Waste Stream Number OR-NFS-CH-SOIL Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	NA	NA	NA

Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature  Date 12/8/2009

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-NFS-CH-SOIL Lot #: 1

Container Number	RTR Prohibited Items [a]	Visual Examination Prohibited Items [a]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	None of the containers in this lot had prohibited items identified during RTR.	None of the containers in this lot were processed using Visual Examination technique.

a. See Batch Data Reports

Site Project Manager Signature Richard Kantrowitz (Printed Name) 12/8/2009 (Date)

CRSOII

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 1

Sampling Completeness

RTR:

Number of Valid Samples: 5 Number of Total Samples Analyzed: 5

Percent Complete: 100 (QAO is 100%)

NDA

Number of Valid Samples: 5 Number of Total Samples Analyzed: 5

Percent Complete: 100 (QAO is 100%)

HSG

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total VOC

Number of Valid Samples: 5 Number of Total Samples Collected: 5

Percent Complete: 100 (QAO is ≥90%)

Number of Valid Samples: 5 Number of Total Samples Analyzed: 5

Percent Complete: 100 (QAO is ≥90%)

Total SVOC

Number of Valid Samples: 5 Number of Total Samples Collected: 5

Percent Complete: 100 (QAO is ≥90%)

Number of Valid Samples: 5 Number of Total Samples Analyzed: 5

Percent Complete: 100 (QAO is ≥90%)

Total Metals

Number of Valid Samples: 5 Number of Total Samples Collected: 5

Percent Complete: 100 (QAO is ≥90%)

Number of Valid Samples: 5 Number of Total Samples Analyzed: 5

Percent Complete: 100 (QAO is ≥90%)

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 1

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	NA	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP-TP-003 Attachment 3, and additional U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	Y	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 4, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7b	Y	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 5, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7c	Y	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 6, and additional EPA HWNs were assigned as required. Samples were randomly collected.

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 1

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	NA	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the QAPjP.
13	NA	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	NA	NA	NA
Headspace Gas Analysis	NA	NA	NA
Solids Sampling	Y	Y	Y
Solids VOCs	Y	Y	Y
Solids SVOCs	Y	Y	Y
Solids Metals	Y	Y	Y

Comments:
None

Signature of Site Project Manager | Richard Kantrowitz (Printed Name) | 12/8/2009 (Date)

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: OR-NFS-CH-SOIL

Overview:

Waste Stream OR-NFS-CH-SOIL is contact handled (CH) transuranic (TRU) mixed soil generated at Nuclear Fuel Services, Inc. (NFS) in Erwin, Tennessee and stored at the Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee. The waste was generated from 1993 through 2005 by the decommissioning of Buildings 110 and 234 at NFS.

Building 234 was used to perform defense related plutonium/uranium mixed oxide (MOX) fuel fabrication work that included dissolution, co-precipitation, blending of MOX powders, pellet and rod fabrication, rod loading, and scrap recovery. Building 110 housed chemistry and spectrographic laboratories that provided analytical support to Building 234.

The majority of the plutonium processed by NFS resulted from U.S. Government contracts. The other plutonium processed at NFS supported commercial contracts for the Halden reactor and Consumers Power Company. The two larger contracts were national defense related orders and waste from all of the contracts was co-mingled. Therefore, the TRU waste generated from the decommissioning of Building 234 and subsequent waste from Building 110 at NFS is defense related waste generated from nuclear materials production.

This Summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) number OR-NFS-CH-SOIL for CH TRU soil. The primary source of information for this Summation is CCP-AK-ORNL-001, *CCP Acceptable Knowledge Summary Report For: Nuclear Fuel Services Contact-Handled Transuranic Waste Stored at Oak Ridge National Laboratory, Waste Streams: OR-NFS-CH-HET-A and OR-NFS-CH-SOIL*, Revision 4, May 26, 2009. CCP-AK-ORNL-001 includes information obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, program/processing documentation, and interviews with knowledgeable personnel.

Waste Stream Identification Summary:

Site Where TRU Waste Was Generated:	Nuclear Fuel Services, Inc., Erwin, TN.
Waste Stream Name:	Soil from Nuclear Fuel Services, Inc.
Waste Stream Number:	OR-NFS-CH-SOIL
Dates of Waste Generation:	1993 to 2005
Summary Category Group:	S4000 – Soil/Gravel
Waste Matrix Code Group:	Soils
Waste Matrix Code:	S4100

Waste Stream TWBIR Identification:	OR-NFS-CH-SOIL
Waste Stream Volume:	545 55-gallon drums (current) 0 55-gallon drums (projected)
RCRA EPA Hazardous Waste Numbers:	F002
TRUCON Content Numbers:	OR 111, OR 211

Waste Stream Description and Physical Form:

Waste stream OR-NFS-CH-SOIL is comprised of soil, rock and gravel mixed with RADSORB absorbent (non-hazardous super polymer absorbent). A RADPAD (absorbent pad containing non-hazardous super absorbent polymer) was placed on top of the soil. Small amounts of concrete pieces and block are also present in this waste stream.

This waste stream is assigned Waste Matrix Code S4100, Soil. The soil that comprises waste stream OR-NFS-CH-SOIL was generated from a single process or from an activity that is similar in material, physical form, and hazardous constituents and is therefore, a single waste stream.

Point of Generation - Area and Building of Generation

Waste stream OR-NFS-CH-SOIL is soil excavated from beneath the Building 234 Wet Chemistry Cell and from an area around the Building 110 laboratory underground waste tank. Building 110 was a support facility to Building 234.

Generating Process

Waste stream OR-NFS-CH-SOIL originated from decommissioning of the Building 234 MOX fuel fabrication facility at NFS and remediation around the Building 110 underground waste tank. Building 110 housed wet chemistry and spectrographic laboratories that provided analytical support to Building 234. Piping connected the laboratory drains to an underground storage tank that was also decommissioned with the facilities.

The soil was generated from excavating under the Building 234 Wet Chemistry Cell which was historically used for nitric acid dissolution and mixing of plutonium and depleted or low-enriched uranium. The floor of the Wet Chemistry Cell was breached along a wall and sump providing a path for contamination to the sub-floor soil. Following removal of the Wet Chemistry Cell floor, contaminated soil was identified.

The excavated soil was placed on a conveyor and transferred from the Wet Chemistry Cell to a mixer. During the mixing process, soil was blended based on plutonium content and RADSORB absorbent was added to the soil. A slide gate was attached to the mixer for dumping the contents to a chute that allowed the material to exit the mixer into a drum. A RADPAD absorbent pad was then placed on top of the drum of soil.

Building 110 Wet Chemistry and Spectrographic Laboratories provided analytical support to Building 234. In early years, Building 110 also supported the Light Water Breeder Reactor program. Soil analysis identified high levels of radioactive contamination two feet to the north of the concrete pad covering the Building 110 underground waste tank which was breached due to tank deterioration. Soil beneath the tank became contaminated with tank contents. The liquid in the tank was sampled and analyzed for metals, organics, and PCBs. No constituents were detected at levels greater than the regulatory threshold. Soil in this area was excavated,

dewatered (using RADSORB), and packaged into 55-gallon drums in accordance with ORNL waste acceptance criteria.

Following is a discussion of the processes conducted in Buildings 234 and 110 that may contaminate the waste.

The process capabilities of the Building 234 facility, which ceased in 1973, included pellet and rod fabrication, rod loading, and scrap recovery.

Pellet Production

Solutions containing a mixture of plutonium nitrate and uranyl nitrate hexahydrate were transferred to precipitation units. Plutonium and uranium were precipitated as ammonium diuranate and plutonium hydroxide, using ammonium hydroxide as a precipitant. When the feed solution was plutonium nitrate, the plutonium was precipitated using oxalic acid, nitric acid, and hydrogen peroxide.

Supernate was decanted from the ammonium diuranate or oxalate slurry and the remaining precipitate was filtered to remove liquids. Supernate/filtrate from the ammonium diuranate or oxalate slurry was polished and stored. Filtrate was evaporated producing ammonium nitrate concentrate and ammonium hydroxide condensate. During Southwest Experimental Fast Oxide Reactor (SEFOR) production, ammonium hydroxide condensate was used to wash ammonium diuranate cake. Wet ammonium diuranate or oxalate cake was dried and then heated in a nitrogen and hydrogen gas atmosphere. The resultant oxide solids (MOX or plutonium oxide) were passed through a blender and cross-blended. Sub-blended oxide was ball-milled, screened, and weighed.

Once cross-blend was performed; each cross-blend was subdivided into five sub-blends. The plutonium oxide cross-blending was followed by the addition of uranium oxide solids. The mixture of plutonium oxide and uranium oxide was cross-blended and sub-blended. Blended oxide was granulated and screened. Binder was added to cross-blends during granulation. Granulated oxide was transferred to a pellet press. Pellets were then loaded into a furnace, heated and allowed to off-gas.

Sintered pellets were machined to finished size. Recycled water from the pellet wash was used as coolant. Grinder sludge and damaged pellets were sent to scrap recovery. Machined pellets were cleaned with isopropyl alcohol or distilled water and then dried. Pellets were sampled using destructive analyses and measured for density and dimensional attributes. Rejected pellets and sample residues were sent to scrap recovery. Finished pellets were loaded in tubes that were capped and sent to rod assembly and fabrication stations.

Scrap Dissolution and Recovery

Oxide scrap was ball-milled to reduce particle size. Ball-milled oxide scrap was heated with nitric acid, dissolved and pumped to the evaporator.

Non-combustible items containing recoverable material (e.g., bottles, plastics, screens, gloves, etc.) were sent to the scrap preparation station for manual cutting and shredding. Shredded materials were leached in a nitric acid bath to recover plutonium. Leachate was pumped to the evaporator, and solids were removed and packaged for disposal.

Plutonium nitrate solutions were transferred from the evaporator to storage columns. Solutions were circulated, sampled, and pumped to the load-out station. Plastic cylinders were placed in

a rack and filled with solutions from the columns. Loaded cylinders were packaged for shipment.

TRU waste stored at ORNL is not from production operations but from the decommissioning operations described above. A portion of the NFS waste required size reduction and repackaging at the Transuranic Waste Processing Center (TWPC) at Oak Ridge. Processing of CH-TRU waste is limited to characterization, sorting, segregation, size reduction and repackaging as required to produce waste suitable for disposal at WIPP.

Table 1 identifies the toxicity characteristic (TC) and F-listed chemicals, as applicable, in waste stream OR-NFS-CH-SOIL.

Table 1 – Metal and organic TC and F-Listed Contaminants for Waste Stream OR-NFS- CH-SOIL

Chemical	CAS Number	EPA Hazardous Waste Numbers
Tetrachloroethylene	127-18-4	F002

RCRA Determinations - Hazardous Waste Determinations

Waste generated in this waste stream does not qualify for any of the exclusions identified in 40 CFR 260 or 261. Real-time radiography (RTR) or visual examination is used to verify that the waste stream is not a liquid waste and does not contain explosives, non-radioactive pyrophoric material, compressed gases or reactive waste. Therefore, this waste stream does not exhibit the characteristic for ignitability (D001), corrosivity (D002), or reactivity (D003).

Ignitability

The waste does not meet the definition of ignitability as defined in 40 CFR 261.21. The material is not a liquid, an ignitable compressed gas, or an oxidizer, and is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. Pyrophoric material and compressed gases are not present in NFS TRU soil waste (References M003, M065, P268, P273, and P317). Radiography and/or visual examination are performed to ensure the absence of compressed gases and liquids.

TRU waste generated at NFS was packaged in accordance with NFS waste certification plans to meet ORNL waste acceptance criteria for TRU waste. Liquids encountered are immobilized with RADSORB (References C125, C126, I059, M003, M011, P268, P269, P273, and P317). Therefore, this waste stream does not exhibit the characteristic of ignitability (D001).

Corrosivity

The waste does not meet the definition of corrosivity as defined in 40 CFR 261.22. The waste is not a liquid waste and absorbent (e.g. RADSORB) was mixed with the soil to ensure the absence of liquids. TRU waste generated at NFS was packaged in accordance with NFS waste certification plans to meet ORNL waste acceptance criteria for TRU waste. Radiography or visual examination is performed to ensure the absence of liquids. Therefore the characteristic of corrosivity (D002) does not apply to this waste stream (References M003, M011, P268, P273, P315, and P317).

Reactivity

The waste does not meet the definition of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The waste does not contain reactive cyanide or sulfide compounds. The materials are not capable of detonation or explosive reaction if subjected to a strong initiating source if heated under confinement. The materials are not readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure (References C122, I053, M003, P268, P273, and P317). Radiography or visual examination is performed to ensure the absence of compressed gases (e.g., un-punctured aerosol cans) and liquids. Waste stream OR-NFS-CH-SOIL is therefore not reactive (D003).

Toxicity Characteristic

This waste stream does not exhibit the characteristic of toxicity for metal or organic compounds per 40 CFR 261.24. Toxicity characteristic constituents were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic constituents (Reference M011).

No metals or organics were detected above the regulatory threshold in soil samples taken from the area around the Building 110 underground waste tank (Reference U043). Barium was detected in trace amounts in soil samples taken from beneath Building 234. These barium concentrations were below the regulatory threshold and the EPA HWN D005 is not applied. No additional toxicity characteristic metals were detected in these samples (References C122 and I053).

No toxicity characteristic organic constituents were detected in soil samples taken from the beneath Building 234 Wet Chemistry Cell (Reference I053) with the exception of tetrachloroethylene and chloroform. Tetrachloroethylene (D039) was detected in trace amounts in one of the two composite soil samples from beneath Building 234; however, this concentration was below the regulatory threshold. The F-listed EPA hazardous waste number for tetrachloroethylene is conservatively assigned to this waste stream. Chloroform (D022) was detected in one of the samples in trace amounts but was also found in the sample blank. Therefore the HWN for chloroform was not applied to this waste stream. No other organic constituents were detected in the two composite soil samples (Reference C122). Based on AK and sampling, no toxicity characteristic EPA HWNs are assigned to this waste stream.

F-Listed Waste

Waste stream OR-NFS-CH-SOIL is an F-listed hazardous waste because the soil was contaminated with hazardous wastes from non-specific sources as listed in 40 CFR Part 261, Subpart D

The soil waste was characterized by NFS as non-hazardous (References M003 and M012). However, analytical data for the soil collected by NFS identified trace amounts of tetrachloroethylene. Tetrachloroethylene was not used in the Building 234 Wet Chemistry Cell but was used for cleaning in Building 234C which is an area in the building where fuel pin welding was conducted. Tetrachloroethylene has also been detected in groundwater samples up-gradient from Building 234. The source of the tetrachloroethylene in the groundwater may be attributed to its use in off-site facilities and may be the source of contamination for the sampled soil (Reference C309). To resolve the discrepancy between the NFS non-hazardous characterization and the presence of tetrachloroethylene in the soil, EPA HWN F002 is conservatively applied to the waste stream.

The following F-listed constituent may contaminate the waste and is conservatively applied.

(F002)
Tetrachloroethylene

U, K, and P-Listed Chemicals

Waste stream OR-NFS-CH-SOIL does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33). Based on the AK documentation, U and P-listed compounds were not used during MOX production or facility decommissioning (References M011, P273). Therefore, U- and P-listed EPA hazardous waste numbers are not assigned to this waste stream.

Based on the AK documentation, neither beryllium powder (P015) nor hydrofluoric acid (U134) were used by NFS (Reference C210). Therefore, this waste stream is not assigned EPA HWNs P015 (beryllium powder) or U134 (hydrofluoric acid).

The material in waste stream OR-NFS-CH-SOIL is not a hazardous waste from any of the sources specified in 40 CFR 261.32. Waste stream OR-NFS-CH-SOIL is therefore not K-listed waste.

Solids Sampling and Analysis Information

Solid sampling and analysis was completed on 5 randomly selected 55-gallon drums from Lot 1. No target analyte UCL_{90} values exceeded their respective Program Required Quantitation Limits (PRQLs). No TICs were identified.

Based on the analytical results, no new HWNs were assigned. The specifics of this information are included in the attached Characterization Information Summary report.

Conclusion

EPA HWN F002 is assigned to this waste stream.

Polychlorinated Biphenyls (PCBs)

This waste stream does not contain polychlorinated biphenyls (PCBs) greater than 50 ppm, and therefore, is not regulated as a Toxic Substance Control Act (TSCA) waste under 40 CFR 761.

Two composite soil samples were collected from beneath Building 234 and analyzed for total PCBs. Arochlor-1254 was detected in trace amounts (0.014 mg/kg) in one of the samples (Reference C122). Eleven surface soil samples were collected from beneath the Building 234 Wet Chemistry Cell and were also analyzed for total PCBs. Arochlor-1254 was detected in trace amounts in 4 of the samples (0.12 – 0.45 mg/kg) (Reference I053). Two samples of the Building 110 tank contents were collected and analyzed for PCBs. PCB compounds were not detected above 50 ppm in any of the above samples (Reference U043).

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and confirmation activities. Radiography (RTR) or visual examination (VE) is performed on each container in this waste stream as a confirmation activity. The following items have been determined as not present in the waste:

- Liquids
- Non-radioactive pyrophoric materials
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, or other wastes
- Explosives or compressed gases
- Waste with PCBs not authorized under an EPA PCB waste disposal authorization
- Waste exhibiting the characteristics of ignitability, corrosivity, or reactivity
- Non-mixed hazardous wastes
- Waste that has ever been managed as high-level waste and waste from tanks specified in Table B-8 of the WIPP Hazardous Waste Permit, unless specifically approved through a Class 3 permit modification
- Any waste container from a waste stream (or waste stream lot) which has not undergone either radiographic or visual examination of a statistically representative subpopulation of the waste stream in each shipment, as described in the WIPP Hazardous Waste Facility Permit, Attachment B7.

Each container of waste is certified and shipped only after VE or RTR:

- Did not identify any prohibited items in the waste container, or
- All prohibited items found in a waste container by VE or RTR are identified and corrected (i.e., eliminated or removed) through the site non-conformance reporting system.

Method for Determining Waste Material Parameter Weights per Unit of Waste

The waste material parameter weight estimates for waste stream OR-NFS-CH-SOIL were derived from information related to the soil excavation and mixing procedure, as well as data from 512 waste disposal forms. Because the RADSORB and RADPADS are organic polymers, they are considered "organic matrix." The soil/absorbent mixture is contained in a plastic drum liner bag that is considered part of the waste. This information combined with the weight of the waste identified on waste disposal forms was used to estimate waste material parameter weight percentages. Table 2 identifies the waste material parameters for waste stream OR-NFS-CH-SOIL.

Table 2. Waste Stream OR-NFS-CH-SOIL Waste Material Parameters

Waste Material Parameter	Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	0%	0%
Aluminum-based Metals/Alloys	0%	0%
Other Metals	0%	0%
Other Inorganic Materials	0%	0%
Cellulosics	0%	0%
Rubber	0%	0%
Plastics (waste materials)	0.2%	0.1 – 1.5%
Organic Matrix	2.0%	1.5 – 13.6%
Inorganic Matrix	0%	0%
Soils/Gravel	97.7%	84.9- 98.3%

List of AK Sufficiency Determinations

No AK Sufficiency Determinations were requested for this waste stream.

Transportation

This waste stream and its chemical constituents have been reviewed for consistency with listed TRUCON codes and they are consistent.

Beryllium

The level of beryllium contamination in individual drums is expected to be less than one weight percent.

Radionuclide Information

The two most prevalent radionuclides by mass in this waste stream are U-238 and Pu-239. The radionuclides anticipated in the waste stream are listed in Table 3.

Table 3. Radionuclides in Waste Stream OR-NFS-CH-SOIL

WIPP Tracked Radionuclides	Additional Reported Radionuclides
Am-241	Pu-241
Pu-238	Tc-99
Pu-239	Th-228
Pu-240	Th-232
Pu-242	U-232
U-233	U-235
U-234	
U-238	
Cs-137	
Sr-90	

Payload management will not be employed for Oak Ridge National Laboratory.

Attachment 1

AK SOURCE DOCUMENTS, SUPPLEMENTAL DOCUMENTATION

Tracking Number	AK #	Title	Document Number	Rev. #	Date
C100	S7	Interview With Richard Booth And Faxed Defense And Waste Information For NFS, Erwin, TN TRU Waste	NA	NA	2/24/2005
C119	S2	Removal of Contaminated Pipe, Building 234 Area B, Memo to Ron Mitchell, Letter of Authorization	LOA-7000-018	NA	3/20/2000
C120	S2	Removal of Contaminated Piping, Building 234, Memo to Larry Burleson, Letter of Authorization	LOA-7000-011	NA	3/2/2000
C121	S2	DVRF Bale Packaging Glovebox Removal, Memo to Ron Mitchell	LOA-7000-034	NA	2/15/2001
C122	S9, S5, S9	Building 234 Characterization Results, Memo to Heather Little	DCM-03-18, 44T-99-0436, GPC-99-013	NA	9/30/1999
C125	NA	Cleaning and Surveying the DVRF Shear Baler for PCBs, Memo to Building 234 Supervision	SWI-02-035	NA	10/3/2002
C126	NA	Waste Packaging of the DVRF Decon Cell Perma-Con Structure, Memo to Richard A. Moore	SWI-02-001	NA	2/18/2002
C129	S2	Size Reduction Process Ductwork Within the Decontamination Cell, DVRF, Memo to Ron Mitchell and Rick Leitner	SWI-01-015	NA	3/15/2001
C130	S2	Cleanout of DVRF Bale Packaging Glovebox, Memo to Ron Mitchell and Rick Leitner	SWI-01-013	NA	3/7/2001
C142	S13	Legal Analysis regarding Solvent Binder Used to Make Fuel	NA	NA	11/28/1990
C146	S8	Waste Minimization Assessment for a Manufacturer Producing Printed Circuit Boards	NA	NA	2/6/1996
C147	S8	Environmental Protection Agency Consumer Product Links for Mercury	NA	NA	8/7/2007

Tracking Number	AK #	Title	Document Number	Rev. #	Date
C210	NA	Record of Communication. Subject: NFS TRU Waste Shipped to Oak Ridge National Laboratory	NA	NA	9/12/2007
C309	NA	Record of Communication. Subject: NFS Soil Sampling/Analysis Data and Tetrachloroethylene Use	NA	NA	6/4/2008
I052	S9, S12	Memorandum; Building 234 Shear Baler Characterization Samples	DC-03-18, 44T-02-0633, GPC-02-013	NA	9/11/2002
I053	NA	KAPL-TN Waste Profile for NFS Building 234 Soil	44G-03-1050, WST-20, JWP-03-009	NA	9/11/2003
I056	S2	Removal of Building 234 Wet Cell Permacon Containment Enclosure	DC-SWI-03-041	NA	6/20/2003
I057	S2	NFS Building 234 Removal of Asbestos Transite Panels	DC-SWI-03-046	NA	07/23/2003
I058	S2	Dismantlement of the West Wet Cell Wall in Building 234	DC-SWI-02-030	NA	9/30/2002
I059	S2	Waste Packaging of Wet Cell Wall in Building 234	WST-SWI-02-002,	1	9/19/2002
I060	S2	Packaging Soil and Debris Waste Stored in Building 234	DC-SWI-00-028	NA	NA
I061	S2	Size Reduction of the DVRS Glovebox	DC-SWI-01-020	NA	5/24/2001
I062	S2	Sorting and Repackaging Radioactively Contaminated Drummed Waste	DC-SWI-01-072-1	NA	08/03/2001
I063	S2	Item Control of Special Nuclear Material	NFS-ACC-26	NA	02/04/2005
I064	S2	Building 310 Storage Procedure	NFS-ACC-32	NA	04/07/2003
I065	S2	General Requirements for Class C Waste Handling and Packaging	SOP 335 Sec 1	NA	04/25/2002
I066	S2	Data Validation Procedure	NFS-DC-008	NA	05/10/1999
I067	S2	Procedure for the Operation of the Versatile Automated Gamma Assay System (VAGAS)	NFS-ACC-104	0	5/8/2000
I068	S2	Size Reduction of 4-inch Diameter Duct Section in Area C	DC-SWI-02-004	0	1/25/2002

Tracking Number	AK #	Title	Document Number	Rev. #	Date
M003	S4	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork	NA	NA	Various
M007	NA	Finding of No Significant Impact, Receipt and Storage at Oak Ridge National Laboratory of Transuranic Waste, Mixed Transuranic Waste, and Mixed Oxide Waste from Nuclear Fuel Services, Inc.	Ltr.# ER-NEPA/92-05	NA	11/9/1996
M011	S8, S10	Material Safety Data Sheets for Products Used at NFS	NA	NA	Various
M012	S6	EM Waste Database Query	NA	NA	8/9/2007
M013	S9	EM Waste Database Query - NFS Box Daughter and Repack Drums	NA	NA	8/23/2007, 8/29/2007
M016	S4	Incoming Container Travelers for NFS Waste	Various	NA	Various
M017	S9	Foster Wheeler Nondestructive Assay (NDA) Data for NFS TRU Waste	Various	NA	Various
M019	S9	Foster Wheeler Visual Examination (VE) Data for NFS TRU Waste	Various	NA	Various
M065	S6	WEAF Waste Acceptance Reports, NFS Waste Storage Project.	NA	NA	Various
M020	S9	Foster Wheeler Headspace Gas (HSG) Data for NFS TRU Waste	Various	NA	Various
P212	S5	Lattice Experiments with Simulated Burned-Up Fuel for D2O Power Reactors	DP-1122	NA	2/1968
P248	S2, S3	Structural Assessment of Building 234	DCM-03-18, 44T-99-0450, SS-99-002	NA	11/1999
P251	S2	Box Breakdown Area Operations	CH-P-OP-003	7	3/13/2007
P252	S2	Glove Box Operations	CH-P-OP-004	8	3/13/2007
P253	S2	Drum Bag In/Bag Out and Glove Ports	CH-P-OP-011	10	5/2/2007
P254	S2	Contact Handled Waste Repackaging	CH-P-OP-013	6	4/30/2007
P256	S1, S3	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis	T-CM-FW-R-AD-001	13	3/1/2007

Tracking Number	AK #	Title	Document Number	Rev. #	Date
P268	NA	ORNL WAC for Contact Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services, Inc.	WMRA-WMPC-106	NA	10/16/1992
P273	S2	Nuclear Fuel Services, Inc., Waste Certification Plan for Transuranic Waste	28G-91-001, Rev. 0 DCM-03-05	0,1	7/1991 2/1992 11/1992
P276	NA	Determination of H2 Diffusion Rates through Various Closures on TRU Waste Bag-Out Bags	LA-13616-MS	NA	6/1999
P315	NA	Wet Cell Soil Excavation and Mixing	DCM-61	NA	7/5/1993
P317	NA	Packaging for Shipment to Processing, Storage, or Burial	DCM-03,	6	7/15/1993
P432	S3	TRU Waste Processing Center Document Safety Analysis	CM-R-AD-001	15, 16	10/31/2007 12/20/2007
U016	S11	A Graphical Workbook for Estimating Important Quantities of NFS Radioactive Waste Constituents	NA	NA	3/1/1992
U040	NA	NFS Response to "Transuranic Waste Baseline Inventory Report Questionnaire"	NA	NA	1/1996
U043	NA	Final Report - Waste Characterization of Wastes Generated from D&D Activity; Buildings 110 and 234 on the NFS Site in Erwin, Tennessee	NA	NA	1/31/1992

Alphanumeric Designations

C Correspondence
D Documents
DR Discrepancy Resolution
I Internal Procedures and Notes*
M Miscellaneous
P Procedures and Published Documents
U Unpublished Documents

AK Numbers

S1	Process Design Documents
S2	Standard Operating Procedure
S3	Safety Analysis Reports
S4	Waste Packaging Logs
S5	Test plans/research project reports
S6	Site databases
S7	Information from site personnel
S8	Standard industry documents
S9	Previous analytical data
S10	Material safety data sheets
S11	Laboratory Notebooks
S12	Comparable or surrogate sampling and analysis data
S13	Other

DIVIDER

PAGE

URS

CP:11:01594
UFC:5900.00

Washington TRU Solutions LLC

INTER-OFFICE CORRESPONDENCE

DATE: September 7, 2011

FROM: C. M. Weston cmw 090711 LOCATION: Certification

TO: CCP Records Custodian GSA-212 LOCATION: Retrieval, Characterization and Transportation

SUBJECT: TRANSMITTAL OF OAK RIDGE NATIONAL LABORATORY CHARACTERIZATION INFORMATION SUMMARY FOR WASTE STREAM OR-NFS-CH-SOIL, LOT 12

Please accept the attached Oak Ridge National Laboratory Characterization Information Summary to be placed in Records for Waste Stream OR-NFS-CH-SOIL, Lot 12.

If further information is needed, I may be contacted at (303) 898-2399.

CMW:yhs

Attachment

cc: (without attachment)
R. P. Kantrowitz ED
M. W. Pearcy ED
B. S. Schrock ED

CCP RECORDS ORIGINAL
DATE REC'D 9/13/11

CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-NFS-CH-SOIL

Lot 12

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CCP Characterization Information Summary Cover Page

Waste Stream # OR-NFS-CH-SOIL Lot #: 12

AK Expert Review: N/A Date: N/A

SPM Review: Candice Weston Date: 9/2/2011

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Radiography (RTR/NDE):

CCP-TP-053	Rev. 11	07/20/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 10	03/04/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	08/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 7	10/21/09	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 6	03/04/08	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 5	11/16/06	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Non Destructive Assay (NDA):

CCP-TP-166	Rev. 3	02/26/10	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 2	12/05/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 1	06/19/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 0	10/12/07	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-168	Rev. 3	11/17/09	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 2	12/02/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 1	11/17/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 0	10/18/07	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-169	Rev. 2	11/18/09	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-169	Rev. 1	06/19/08	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-169	Rev. 0	10/12/07	CCP Operating the Mobile Segmented Gamma Scanner

Solids Sampling:

INST-OI-73	Rev. 4	04/07/09	Manual Drum Coring Operations
INST-OI-73	Rev. 3	07/24/08	Manual Drum Coring Operations
INST-OI-16	Rev. 30	04/07/09	Drum Coring Operations
INST-OI-16	Rev. 29	07/03/08	Drum Coring Operations

Solids Analysis:

CCP-TP-180	Rev. 2	12/29/10	CCP Analytical Sample Management
CCP-TP-180	Rev. 1	06/24/09	CCP Analytical Sample Management
CCP-TP-180	Rev. 0	05/02/07	CCP Analytical Sample Management
CCP-TP-181	Rev. 0	05/02/07	CCP Determination of Mercury by CVAA for TRU Waste Characterization
CCP-TP-182	Rev. 1	01/26/09	CCP Determination of Metals by ICP-AES for TRU Waste Characterization
CCP-TP-182	Rev. 0	05/02/07	CCP Determination of Metals by ICP-AES for TRU Waste Characterization
CCP-TP-183	Rev. 0	05/02/07	CCP Microwave Assisted Digestion of Homogeneous Solids and Soil/Gravel
CCP-TP-184	Rev. 0	05/02/07	CCP Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-185	Rev. 1	11/18/08	CCP Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-186	Rev. 1	08/22/07	CCP Determination of Nonhalogenated Volatile Organic Compunds by Gas Chromatography
CCP-TP-187	Rev. 1	11/18/08	CCP Sample Preparation for Semivolatile Organic Compounds
CCP-TP-188	Rev. 2	12/29/10	CCP Analytical Data Recording, Review, and Reporting
CCP-TP-188	Rev. 1	06/19/09	CCP Analytical Data Recording, Review, and Reporting
CCP-TP-188	Rev. 0	05/02/07	CCP Analytical Data Recording, Review, and Reporting

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	06/09/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 23	06/30/11	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	04/21/11	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	08/24/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 20	06/18/08	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 19	12/22/06	CCP Reconciliation of DQOs and Reporting Characterization Data

CIS-002

CCP Characterization Information Summary Cover Page

CCP-TP-003	Rev. 18	12/29/10	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 16	10/02/07	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 29	04/26/11	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 28	05/12/10	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 27	12/14/09	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 26	05/27/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 25	01/22/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 24	08/20/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/07	CCP CH TRU Waste Certification and WWIS Data Entry

WAP Certification:

CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 22	01/12/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 20	11/02/07	CCP Transuranic Waste Certification Plan
CCP-PO-027	Rev. 3	12/29/10	CCP/TWPC/ORNL Interface Document
CCP-PO-027	Rev. 2	04/22/10	CCP/TWPC/ORNL Interface Document
CCP-PO-027	Rev. 1	02/17/10	CCP/TWPC/ORNL Interface Document
CCP-PO-027	Rev. 0	10/02/07	CCP/TWPC/ORNL Interface Document

CI5-003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: OR-NFS-CH-SOIL Lot # 12

Container ID Number	NDA BDR	NDE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes	Transportation Headspace Gas BDR*
X10C0506047	OR-DWAS-0120	OR-RTR6-0305	N/A	N/A		OR09FG4043

*Containers in waste stream OR-NFS-CH-SOIL are not expected to exceed a total flammable volatile organic compound concentration of greater than or equal to 500 ppm.

Signature of Site Project Manager

Candice Weston
Printed Name

9/2/2011
Date

CIS-004

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Bromoform	No	0	5	0.09	0.09	0.00	0.09	10	N/A		
Carbon Disulfide	No	0	5	0.27	0.26	0.01	0.27	10	N/A		
Carbon Tetrachloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Chlorobenzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Chloroform	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,2-Dichloroethane	Log	0	5	-1.71	-1.75	0.03	-1.72	10	2.30		
1,1-Dichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
trans-1,2-Dichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Ethyl benzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Methylene chloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2,2-Tetrachloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Tetrachloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Toluene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,1-Trichloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2-Trichloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Trichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Trichlorofluoromethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Vinyl chloride	No	0	5	0.18	0.17	0.01	0.18	4	N/A		
m,p-Xylene[d]	No	0	5	0.27	0.26	0.01	0.27	10	N/A		
o-Xylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Acetone	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Butanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Ethyl ether	No	0	2	1.05	1.05	0.00	1.05	100	N/A		
Isobutanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		

(15-005

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Methanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Methyl ethyl ketone	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Pyradine	No	0	2	1.05	1.05	0.00	1.05	100	N/A		
1,2-Dichlorobenzene[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Formaldehyde[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Hydrazine[b]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

[a] Required only for homogenous solids and soil/gravel waste from the Savannah River Site.

[b] Required only for homogenous solids and soil/gravel waste generated at Oak Ridge National Laboratory and Savannah River Site. OR-NFS-CH-SOIL was generated at the NFS site, located in Erwin Tennessee, and only stored and characterized at ORNL.

[c] Can also be analyzed as an SVOC. If analyzed as an SVOC, the QAO's of CCP-TP-001, Table B3-6 apply.

[d] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Candice Weston
Printed Name

9/2/2011
Date

CTS-006

CCP Solids Analysis SVOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
2-Methylphenol (cresols)	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
3&4 -Methylphenol (cresols)	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
1,4-Dichlorobenzene [a]	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
1,2-Dichlorobenzene [a]	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
2,4-Dinitrophenol	No	0	5	0.20	0.12	0.04	0.15	40	N/A		
2,4-Dinitrotoluene	No	0	5	0.30	0.18	0.07	0.23	2.6	N/A		
Hexachlorobenzene	No	0	5	0.30	0.18	0.07	0.23	2.6	N/A		
Hexachloroethane	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
Nitrobenzene	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
Pentachlorophenol	No	0	5	0.40	0.24	0.09	0.30	40	N/A		

[a] Can also be analyzed as a VOC. If analyzed as a VOC, the QAO's of CCP-TP-001, Table B3-4 apply.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Candice Weston
Printed Name

9/2/2011
Date

CTS-007

CCP Solids Analysis Metals UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Antimony	No	2	5	1.40	0.86	0.49	1.20	100	N/A		
Arsenic	SQRT	5	5	2.17	1.75	0.32	1.97	100	10.00		
Barium	No	5	5	170.00	132.00	31.14	153.36	2000	N/A		
Beryllium	No	5	5	0.76	0.69	0.09	0.76	100	N/A		
Cadmium	Log	2	5	-1.02	-2.38	0.90	-1.77	20	3.00		
Chromium	No	5	5	39.00	37.20	2.39	38.84	100	N/A		
Lead	Log	5	5	2.83	2.42	0.27	2.61	100	4.61		
Mercury	Log	5	5	-2.30	-2.48	0.12	-2.40	4	1.39		
Nickel	No	5	5	19.00	17.40	1.67	18.55	100	N/A		
Selenium	No	0	5	0.35	0.35	0.00	0.35	20	N/A		
Silver	No	0	5	0.30	0.30	0.00	N/A[2]	100	N/A		
Thallium	No	3	5	1.10	0.70	0.35	0.93	100	N/A		
Vanadium	No	5	5	60.00	53.40	6.27	57.70	100	N/A		
Zinc	Log	5	5	4.23	3.91	0.20	4.05	100	4.61		

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) Due to all five sample results being the same numeric value, the statistic package is unable to calculate a UCL_{90}.

Signature of Site Project Manager

Candice Weston
Printed Name

9/2/2011
Date

CTS-008

CCP Solid VOCs Summary Data

Waste Stream Number OR-NFS-CH-SOIL Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	NA	NA	NA

Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature [signature] Date 9/2/2011

CIS-009

CCP Solid SVOCs Summary Data

Waste Stream Number OR-NFS-CH-SOIL Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	NA	NA	NA

Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature Date 9/2/2011

CIS-010

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-NFS-CH-SOIL

Lot #: 12

Container Number	RTR Prohibited Items [a,b]	Visual Examination Prohibited Items [a,b]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	None of the containers in this lot had prohibited items identified during RTR.	VE was not used to certify any containers in this Lot.

a. See Batch Data Reports

b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Justification for the selection of RTR and/or VE: RTR was selected as the characterization method for this lot because RTR meets all the Data Quality Objectives for NDE for the waste.

Site Project Manager Signature

Candice Weston
Printed Name

9/2/2011
Date

CD5-011

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 12

Sampling Completeness

RTR:

Number of Valid Samples: 1
Percent Complete: 100 (QAO is 100%)
Number of Total Samples Analyzed: 1

NDA

Number of Valid Samples: 1
Percent Complete: 100 (QAO is 100%)
Number of Total Samples Analyzed: 1

HSG

Number of Valid Samples: NA
Percent Complete: NA (QAO is ≥90%)
Number of Total Samples Collected: NA
Number of Valid Samples: NA
Percent Complete: NA (QAO is ≥90%)
Number of Total Samples Analyzed: NA

Total VOC

Number of Valid Samples: 5
Percent Complete: 100 (QAO is ≥90%)
Number of Total Samples Collected: 5
Number of Valid Samples: 5
Percent Complete: 100 (QAO is ≥90%)
Number of Total Samples Analyzed: 5

Total SVOC

Number of Valid Samples: 5
Percent Complete: 100 (QAO is ≥90%)
Number of Total Samples Collected: 5
Number of Valid Samples: 5
Percent Complete: 100 (QAO is ≥90%)
Number of Total Samples Analyzed: 5

Total Metals

Number of Valid Samples: 5
Percent Complete: 100 (QAO is ≥90%)
Number of Total Samples Collected: 5
Number of Valid Samples: 5
Percent Complete: 100 (QAO is ≥90%)
Number of Total Samples Analyzed: 5

CI5-012

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 12

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	NA	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP-TP003 Attachment 3, and additional U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	Y	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 4, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7b	Y	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 5, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7c	Y	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 6, and additional EPA HWNs were assigned as required. Samples were randomly collected.

CI-5-013

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 12

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	NA	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the QAPjP.
13	NA	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	NA	NA	NA
Headspace Gas Analysis	NA	NA	NA
Solids Sampling	Y	Y	Y
Solids VOCs	Y	Y	Y
Solids SVOCs	Y	Y	Y
Solids Metals	Y	Y	Y

Comments:
None

Signature of Site Project Manager

Candice Weston
Printed Name

9/2/2011
Date

CIS-014

NWP
Nuclear Waste Partnership LLC
A URS-led partnership with B&W and AREVA

GEN7

CP:13:01443
UFC:5900.00

INTER-OFFICE CORRESPONDENCE

DATE: October 4, 2013

FROM: B.S. Schrock BSSchrock LOCATION: CCP Certification

TO: R. W. Lee ED LOCATION: CCP Operations
Oak Ridge National Lab

SUBJECT: RESULTS FIRST QUARTER 2013 (JANUARY 1, 2013 THROUGH MARCH 31, 2013) VISUAL EXAMINATION, HEADSPACE GAS SAMPLING, AND REAL-TIME RADIOGRAPHY QUARTERLY REPEAT OF DATA GENERATION LEVEL DATA REVIEW, VALIDATION, AND VERIFICATION AT THE OAK RIDGE NATIONAL LABORATORY

Procedure CCP-TP-001, CCP Project Level Data Validation and Verification, and the Waste Analysis Plan require that a repeat of Data Generation Level (DGL) review, validation, and verification is performed on a quarterly basis for a minimum of one randomly chosen waste container. CCP-TP-001 further specifies that the repeat DGL data review, validation, and verification are completed for each required characterization methodology that was performed in the last quarter, at each Host site where Central Characterization Program performed characterization. The purpose of this exercise is to document that the DGL data review, validation, and verification are being performed in accordance with applicable procedures.

At this time, there are no batch data reports from the Oak Ridge National Laboratory that have been completed through the DGL level review, validation, and verification processes for Visual Examination, Headspace Gas Sampling or Real-Time Radiography for the first quarter of 2013. Consequently, for this quarter, there will be no randomly selected waste containers for the quarterly review process.

If you have any questions, please call me at Extension 7444.

BSS:jmc

cc: NWP
V. K. Cannon ED
M. W. Pearcy ED
A. O. Stallings ED
NTPC Records Custodian GSA-212

ORNL
L. Harmon ED
S. Kranker ED

NTPC RECORDS ORIGINAL
DATE REC'D 1/10/14

DIVIDER

PAGE

NWP
Nuclear Waste Partnership LLC
A URS-led partnership with B&W and AREVA

CP:13:01444
UFC:5900.00

INTER-OFFICE CORRESPONDENCE

DATE: October 4, 2013

FROM: B.S. Schrock BSSchrock LOCATION: CCP Certification

TO: R. W. Lee ED LOCATION: CCP Operations
Oak Ridge National Lab

SUBJECT: RESULTS SECOND QUARTER 2013 (APRIL 1, 2013 THROUGH JUNE 30, 2013) VISUAL EXAMINATION AND REAL-TIME RADIOGRAPHY QUARTERLY REPEAT OF DATA GENERATION LEVEL DATA REVIEW, VALIDATION, AND VERIFICATION AT THE OAK RIDGE NATIONAL LABORATORY

Procedure CCP-TP-001, CCP Project Level Data Validation and Verification, and the Waste Analysis Plan require that a repeat of Data Generation Level (DGL) review, validation, and verification is performed on a quarterly basis for a minimum of one randomly chosen waste container. CCP-TP-001 further specifies that the repeat DGL data review, validation, and verification are completed for each required characterization methodology that was performed in the last quarter, at each Host site where Central Characterization Program performed characterization. The purpose of this exercise is to document that the DGL data review, validation, and verification are being performed in accordance with applicable procedures.

At this time, there are no batch data reports from the Oak Ridge National Laboratory that have been completed through the DGL level review, validation, and verification processes for Visual Examination or Real-Time Radiography for the second quarter of 2013. Consequently, for this quarter, there will be no randomly selected waste containers for the quarterly review process.

If you have any questions, please call me at Extension 7444.

BSS:jmc

cc: NWP
V. K. Cannon ED
M. W. Pearcy ED
A. O. Stallings ED
NTPC Records Custodian GSA-212

ORNL
L. Harmon ED
S. Kranker ED

NTPC RECORDS ORIGINAL
DATE REC'D 1/10/14

DIVIDER

PAGE

NWP
Nuclear Waste Partnership LLC

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CP:13:01447
UFC:5900.00

INTER-OFFICE CORRESPONDENCE

DATE: October 4, 2013

FROM: B.S. Schrock BSSchrock LOCATION: CCP Certification

TO: R. W. Lee ED LOCATION: CCP Operations
Oak Ridge National Lab

SUBJECT: RESULTS THIRD QUARTER 2013 (JULY 1, 2013 THROUGH SEPTEMBER 30, 2013) VISUAL EXAMINATION AND REAL-TIME RADIOGRAPHY QUARTERLY REPEAT OF DATA GENERATION LEVEL DATA REVIEW, VALIDATION, AND VERIFICATION AT THE OAK RIDGE NATIONAL LABORATORY

Procedure CCP-TP-001, CCP Project Level Data Validation and Verification, and the Waste Analysis Plan require that a repeat of Data Generation Level (DGL) review, validation, and verification is performed on a quarterly basis for a minimum of one randomly chosen waste container. CCP-TP-001 further specifies that the repeat DGL data review, validation, and verification are completed for each required characterization methodology that was performed in the last quarter, at each Host site where Central Characterization Program performed characterization. The purpose of this exercise is to document that the DGL data review, validation, and verification are being performed in accordance with applicable procedures.

At this time, there are no batch data reports from the Oak Ridge National Laboratory that have been completed through the DGL level review, validation, and verification processes for Visual Examination or Real-Time Radiography for the third quarter of 2013. Consequently, for this quarter, there will be no randomly selected waste containers for the quarterly review process.

If you have any questions, please call me at Extension 7444.

BSS:jmc

cc: NWP

V. K. Cannon	ED
M. W. Pearcy	ED
A. O. Stallings	ED
NTPC Records Custodian	GSA-212

ORNL

L. Harmon	ED
S. Kranker	ED

NTPC RECORDS ORIGINAL
DATE REC'D 1/10/14

NWP
Nuclear Waste Partnership LLC
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CP:14:01010
UFC:5900.00

INTER-OFFICE CORRESPONDENCE

DATE: January 9, 2014

FROM: L. M. Nelson — LOCATION: CCP Certification

TO: A. O. Stallings ED — LOCATION: CCP Operations
Oak Ridge National Laboratory

SUBJECT: FOURTH QUARTER 2013 (OCTOBER 1, 2013 THROUGH DECEMBER 31, 2013) VISUAL EXAMINATION QUARTERLY REPEAT OF DATA GENERATION LEVEL REVIEW AT THE OAK RIDGE NATIONAL LABORATORY- REMOTE-HANDLED

Remote-Handled (RH) Visual Examination (VE) at the Oak Ridge National Laboratory has completed 92 days of reporting from October 1, 2013 through December 31, 2013. Container number ORRH00679, Batch Data Report (BDR) ORNLRHVE13002, was randomly selected from among all the drums processed through Site Project Manger Project Level Review during this time frame. This container will be processed through the Quarterly Repeat of Data Generation Level (DGL) Review as described in CCP-TP-001, *CCP Project Level Data Validation and Verification*. The original letter will be retained in the letter correspondence file.

Please forward the mini-drum batch data report provided to a qualified VE operator for the completion of an Independent Technical Review for the quarterly repeat. The mini-drum batch data report has all the pertinent information to complete the review. Not all containers included in the original BDR will be included for this review. Only the selected drum noted above must be reviewed along with any Quality Control Information.

Please perform the VE quarterly repeat of DGL and return the mini-drum BDR with the naming convention "ORNLRHVE13002_QTR0413" by February 10, 2014 to the National TRU Program Certification Records Department.

If you have any questions, please call me at (303) 843-2269.

LMN:jmc

Attachment

cc: (without attachment)
I. S. Joo ED
D. W. Moody ED

(with attachment)
NTPC Records Custodian GSA-212

Attachment 1 – Visual Examination Data Form

Site ID: ORNL	
Examination Date: 12/11/13	Batch Number: ORNLRHVE13002
Procedure #: CCP-TP-500	Revision #: 13 / Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☒N/A	Recording Start: N/A / Recording Stop: N/A
Initial Container ☒ N/A	Final Container ☐ N/A
Container or Package ID Number:	Container or Package ID Number: ORRH00679
Container Type:	Container Type: 55 Gallon Drum
Waste Matrix Code:	Waste Matrix Code: S5400
Waste Stream:	Waste Stream: OR-BEDC-RH-HET
	Rigid Liner: ☐Y ☒N Type: / Rigid Liner Lid: ☐Y ☒N
	Rigid Liner Vented or Hole Size: N/A
Percent Fill: / Percent Organic Waste:	Percent Fill: 100 / Percent Organic Waste: 80
Layers of Confinement: / Closure Method:	Layers of Confinement: 1 CW 12/16/13 / Closure Method: N/A Lock and Lever CW 12/16/13
Comments (e.g., filter information, NCRs): Cask Number X10C9600188 Nucfil-0190S Number FK806	

Waste Description:

Plastic Bags (P)
Tape (P)
Plastic Lids (P)
Broken Glass (OIM)
Nylon Rope (P)
Metal Cans (IM)
Floor Sweepings (C)(P)(R)(IM)
Metal Tools (IM)
Metal Wire (IM)
Plastic Bottle (P)
Nylon Supersack (C)
Fiber board (C)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00679

	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☒	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☒	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☒	
Does the container have observable liquid containing PCBs?	☐	☒	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☒	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☒	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☒	
Is there an indication of wastes containing explosives or compressed gases?	☐	☒	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☒	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☒	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☒	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☒	
Are there sealed containers GREATER than 4 liters or heat sealed bags NOT defined in the applicable TRUCON Code?	☐	☒	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☒	
Is the waste consistent with the TRUCON Code?	☒	☐	

Comments: N/A

Visual Examination Operator 1:
Chuck Wallace (Print Name) — Signature — 12/11/13 (Date)
12/16/13

Visual Examination Operator 2:
Anthony Harley (Print Name) — Signature — 12-11-13 (Date)
12-16-13

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL- 0249 -14 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): N/A Container #(s): X10CSATN02474L, X10CSATN02260C
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☑ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-TP-047, Rev 12, Section 4.6.9 [A]
IF the dead time for any of the SEGe detectors exceeds 90%, or as directed by the EA,THEN abort the assay and initiate an NCR.

7c. Actual Condition:

Drums in box 3 exceeded 90% dead time.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☑ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Maria Steade (printed name) Maria Steade (signature) 1/9/14 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K	11. Responsible Manager: Andrew Stallings
12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

Susan Anderson (printed name) Susan Anderson (signature) 1/9/14 (date)

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0249 -14 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name signature date

16b. QA Engineer or QA Designee:

printed name signature date

Additional Approval:

printed name signature date

Additional Approval:

printed name signature date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name signature date

18. Interim Disposition Verified – QA Engineer:

printed name signature date

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0249 -14 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair
19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

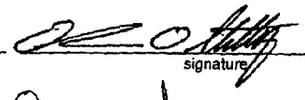
☑ Reject ☐ Rework ☐ Scrap
19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

Drums in box 3 to be assayed on an appropriate NDA system.

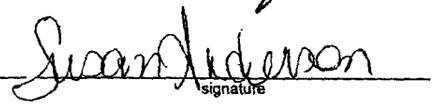
19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Andrew Stallings		1/9/14
printed name	signature	date

21. QA Engineer or QA Designee:

Susan Anderson		1/9/14
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL- 0250 -14 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): OR-IQ3-0230 Container #(s): X10C0403029G, X10C0402829K
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☑ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☐ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-PO-002, Rev 27, Section 3.3.3 [A.1]
TRU waste containers to be disposed of at the WIPP shall contain greater than 100 nCi/g of waste of alpha-emitting TRU isotopes...

7c. Actual Condition:

The drums in Box 3 are less than or equal to 100 nCi/g.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☐ YES ☑ NO If no is checked, explain:
Permanent Reject Labels Applied

8. NCR Originator:

Chad Gerlock (printed name) [signature] 1/13/14 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K	11. Responsible Manager: Ronald Whitson
12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaTravia Harmon (printed name) LaTravia Harmon (signature) 1/13/14 (date)

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0250 -14 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name _____ signature _____ date _____

16b. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name _____ signature _____ date _____

18. Interim Disposition Verified – QA Engineer:

printed name _____ signature _____ date _____

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0250 -14 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

☑ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

1. Containers are not certifiable for shipment to WIPP and are permanently returned to the host site.
2. Remove containers from the AK Tracking Spreadsheet.
3. After containers are removed, close NCR.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Ronald Whitson	Ronald Whitson	1/13/2014
printed name	signature	date

21. QA Engineer or QA Designee:

LaTravia Harmon	LaTravia Harmon	1/13/14
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL- 0251 -14 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): OR-IQ3-0232 Container #(s): X10C0402829I, X10C0402829J
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☑ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☐ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-PO-002, Rev 27, Section 3.3.3 [A.1]
TRU waste containers to be disposed of at the WIPP shall contain greater than 100 nCi/g of waste of alpha-emitting TRU isotopes...

7c. Actual Condition:

The drums in Box 3 are less than or equal to 100 nCi/g.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☐ YES ☑ NO If no is checked, explain:
Permanent Reject Labels Applied

8. NCR Originator:

Chad Gerlock (printed name) Chad Gerlock (signature) 1/13/14 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K	11. Responsible Manager: Ronald Whitson
12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaTravia Harmon (printed name) LaTravia Harmon (signature) 1/13/14 (date)

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0251 -14 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name _____ signature _____ date _____

16b. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name _____ signature _____ date _____

18. Interim Disposition Verified – QA Engineer:

printed name _____ signature _____ date _____

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0251 -14 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

☑ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

1. Containers are not certifiable for shipment to WIPP and are permanently returned to the host site.
2. Remove containers from the AK Tracking Spreadsheet.
3. After containers are removed, close NCR.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Ronald Whitson	[signature]	1/13/2014
printed name	signature	date

21. QA Engineer or QA Designee:

LaTravia Harmon	[signature]	1/13/14
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL- 0252 -14 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): OR-IQ3-0235 Container #(s): X10CSATN02240J1, X10C0402795J
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☑ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☐ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-PO-002, Rev 27, Section 3.3.3 [A.1]
TRU waste containers to be disposed of at the WIPP shall contain greater than 100 nCi/g of waste of alpha-emitting TRU isotopes...

7c. Actual Condition:

The drums in Box 3 are less than or equal to 100 nCi/g.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☐ YES ☑ NO If no is checked, explain: Permanent Reject Labels Applied

8. NCR Originator:

Chad Gerlock (printed name) _____ (signature) 1/13/14 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K	11. Responsible Manager: Ronald Whitson
12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaTravia Harmon (printed name) _____ (signature) 1/13/14 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0252-14 **Revision 0**

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name _____ signature _____ date _____

16b. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name _____ signature _____ date _____

18. Interim Disposition Verified – QA Engineer:

printed name _____ signature _____ date _____

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0252-14 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

☑ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

1. Containers are not certifiable for shipment to WIPP and are permanently returned to the host site.
2. Remove containers from the AK Tracking Spreadsheet.
3. After containers are removed, close NCR.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Ronald Whitson	Ronald Whitson	1/13/2014
printed name	signature	date

21. QA Engineer or QA Designee:

LaTravia Harmon	LaTravia Harmon	1/13/14
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER

PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0253-14 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): OR-IQ3-0237 Container #(s): X10C0402961F
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☑ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☐ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-PO-002, Rev 27, Section 3.3.3 [A.1]
TRU waste containers to be disposed of at the WIPP shall contain greater than 100 nCi/g of waste of alpha-emitting TRU isotopes...

7c. Actual Condition:

The drum in Box 3 is less than or equal to 100 nCi/g.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☐ YES ☑ NO If no is checked, explain:
Permanent Reject Label Applied

8. NCR Originator:
Chad Gerlock (printed name) _____ (signature) 1/13/14 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K	11. Responsible Manager: Ronald Whitson
12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:
LaTravia Harmon (printed name) _____ (signature) 1/13/14 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0253-14 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name _____ signature _____ date _____

16b. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name _____ signature _____ date _____

18. Interim Disposition Verified – QA Engineer:

printed name _____ signature _____ date _____

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0253-14 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

☑ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

1. Container is not certifiable for shipment to WIPP and is permanently returned to the host site.
2. Remove container from the AK Tracking Spreadsheet.
3. After container is removed, close NCR.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Ronald Whitson	[signature]	1/13/2014
printed name	signature	date

21. QA Engineer or QA Designee:

LaTravia Harmon	[signature]	1/13/14
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL- 0254 -14 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): OR-IQ3-0238 Container #(s): X10CSATN02260I, X10CSATN02446L, X10C0402794L, X10C0402967G
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☑ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☐ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-PO-002, Rev 27, Section 3.3.3 [A.1]
TRU waste containers to be disposed of at the WIPP shall contain greater than 100 nCi/g of waste of alpha-emitting TRU isotopes...

7c. Actual Condition:

The drums in Box 3 are less than or equal to 100 nCi/g.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☐ YES ☑ NO If no is checked, explain:
Permanent Reject Labels Applied

8. NCR Originator:
Chad Gerlock (printed name) [signature] 1/13/14 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K	11. Responsible Manager: Ronald Whitson
12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:
LaTravia Harmon (printed name) [signature] 1/13/14 (date)

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0254-14 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name _____ signature _____ date _____

16b. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name _____ signature _____ date _____

18. Interim Disposition Verified – QA Engineer:

printed name _____ signature _____ date _____

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0254-14 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

☑ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

1. Containers are not certifiable for shipment to WIPP and are permanently returned to the host site.
2. Remove containers from the AK Tracking Spreadsheet.
3. After containers are removed, close NCR.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Ronald Whitson	[signature]	1/13/2014
printed name	signature	date

21. QA Engineer or QA Designee:

LaTravia Harmon	[signature]	1/13/14
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL- 0255 -14 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): OR-IQ3-0226 Container #(s): X10C0506153A
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☑ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-TP-047, Rev 12, Section 4.1.2 [D]
Resolve problems flagged by the AITR, and document resolution on the Final AITR...

7c. Actual Condition:

The drum in Box 3 is rejected by the Expert Analyst due to an indeterminate dead time.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☑ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Chad Gerlock (printed name) [signature] (signature) 1/13/14 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K	11. Responsible Manager: Ronald Whitson
12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaTravia Harmon (printed name) [signature] (signature) 1/13/14 (date)

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0255 -14 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name signature date

16b. QA Engineer or QA Designee:

printed name signature date

Additional Approval:

printed name signature date

Additional Approval:

printed name signature date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name signature date

18. Interim Disposition Verified – QA Engineer:

printed name signature date

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0255 -14 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair
19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

☑ Reject ☐ Rework ☐ Scrap
19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

The drum in Box 3 to be assayed on an appropriate NDA system.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Ronald Whitson	[signature]	1/13/2014
printed name	signature	date

21. QA Engineer or QA Designee:

LaTravia Harmon	[signature]	1/13/14
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL- 0256 -14 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): OR-IQ3-0239 Container #(s): X10C0402908F, X10C0402985A
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☑ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☐ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-PO-002, Rev 27, Section 3.3.3 [A.1]
TRU waste containers to be disposed of at the WIPP shall contain greater than 100 nCi/g of waste of alpha-emitting TRU isotopes...

7c. Actual Condition:

The drums in Box 3 are less than or equal to 100 nCi/g.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☐ YES ☑ NO If no is checked, explain: Permanent Reject Labels Applied

8. NCR Originator:

Chad Gerlock (printed name) — signature — 1/13/14 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K	11. Responsible Manager: Ronald Whitson
12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaTravia Harmon (printed name) — signature — 1/13/14 (date)

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0256 -14 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name signature date

16b. QA Engineer or QA Designee:

printed name signature date

Additional Approval:

printed name signature date

Additional Approval:

printed name signature date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name signature date

18. Interim Disposition Verified – QA Engineer:

printed name signature date

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0256 -14 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

☑ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

1. Containers are not certifiable for shipment to WIPP and are permanently returned to the host site.
2. Remove containers from the AK Tracking Spreadsheet.
3. After containers are removed, close NCR.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Ronald Whitson	Ronald Whitson	1/13/2014
printed name	signature	date

21. QA Engineer or QA Designee:

LaTravia Harmon	LaTravia Harmon	1/13/14
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0838-13 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR6-0432
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): NFS0928A
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text): CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [B] states in part "IF a container is identified in the S5000 summary category group that CAN NOT be penetrated by the RTR method because of the presence of lead, or other shielding, THEN initiate a NCR..."

7c. Actual Condition: impenetrable item(s).

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Steve Redmond (printed name) — signature — 11/20/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☒ NO ☐ INDETERMINATE

10. Trend Code: K	11. Responsible Manager: FRED ONEY
12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

Eric Lyles (printed name) — signature — 11/21/13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0838-13 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☒ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name signature date

16b. QA Engineer or QA Designee:

printed name signature date

Additional Approval:

printed name signature date

Additional Approval:

printed name signature date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name signature date

18. Interim Disposition Verified – QA Engineer:

printed name signature date

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0838-13 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☒ N/A for Reject, Rework, or Scrap]

☒ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]
RE-RUN ON RTR 7 AND INCLUDE IN NEW BJR

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☒ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

FRED ONEY		11-21-13
printed name	signature	date

21. QA Engineer or QA Designee:

Eric Lyles		11/21/13
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL- 0843 -13 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): OR-IQ3-0223 Container #(s): X10CSATN02296L, NFS0422H, X10C9400029A
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☑ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☐ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-PO-002, Rev 27, Section 3.3.3 [A.1]
TRU waste containers to be disposed of at the WIPP shall contain greater than 100 nCi/g of waste of alpha-emitting TRU isotopes...

7c. Actual Condition:

The drums listed in Box 3 are less than or equal to 100 nCi/g.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☑ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Chad Gerlock (printed name) Chad Gerlock (signature) 12/10/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K

11. Responsible Manager: Ronald Whitson

12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):

13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

Ronald Whitson (printed name) Ronald Whitson (signature) 12/10/2013 (date)

COPY

NTPC RECORDS ORIGINAL
DATE REC'D 12-16-13 mw

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0843 -13 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name signature date

16b. QA Engineer or QA Designee:

printed name signature date

Additional Approval:

printed name signature date

Additional Approval:

printed name signature date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name signature date

18. Interim Disposition Verified – QA Engineer:

printed name signature date

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0843-13 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

☑ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

1. Containers are not certifiable for shipment to WIPP and are permanently returned to the host site.
2. Remove containers from the AK Tracking Spreadsheet.
3. After containers are removed, close NCR.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Ronald Whitson	[signature]	12/20/2013
printed name	signature	date

21. QA Engineer or QA Designee:

Ronald Whitson	[signature]	12/20/2013
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

BSSchrock	BSSchrock	12/19/13
printed name	signature	date

23. Attachments: 1- Email + SPM Report. 2- Hold tag removal notification.

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☑

24b. If HOLD TAG is not applicable, check: ☐ and explain:

See Attachment 2.

25. Final Disposition Verified – NCR Closed QA Engineer:

Laura R Jones	Laura Ramon Jones	12/26/2013
printed name	signature	date

Schrock, Beverly - NWP

From: Diana McCabe [dkmccabe@hughes.net]
Sent: Thursday, December 19, 2013 3:00 PM
To: Schrock, Beverly - NWP
Subject: Re: ORNL Containers to exclude as LLW

Bev,

These 3 containers have been excluded in the ORNL CH IDC and both spreadsheets published to the sftp site. I noticed that there are now 3 spreadsheets.....do you know what the difference is between the ORNL INACTIVE AKT and the ORNL Exclude? I don't remember both of them being there before!?! When I check the EXCLUDE field **Inactive** automatically populates and I have not changed it to LLW, etc because I assumed it was easier to keep it the same as before 2011 when that feature was added. (For search purposes.) If we need to go back and decide the reason for each exclusion just let me know and I'll be glad to make those changes.

Thank you and I hope you have a VERY MERRY CHRISTMAS!!

Diana

From: "Beverly Schrock - NWP" <Beverly.Schrock@wipp.ws>
To: "Diana McCabe" <dkmccabe@hughes.net>
Cc: "Daniel NWP Wade" <Daniel.Wade@wipp.ws>
Sent: Thursday, December 19, 2013 11:10:29 AM
Subject: ORNL Containers to exclude as LLW

Diana,

Please exclude the following containers as LLW at ORNL:

X10CSATN02296L
NFS0422H
X10C9400029A

Thank you and Merry Christmas!
Bev

Beverly S. Schrock
Site Project Manager
Central Characterization Program
Nuclear Waste Partnership, LLC
Contractor for the U.S. Department of Energy
(575) 234-7444
(575) 706-0809 Cell

A URS-led partnership with BSW and AREVA

NCR ORNL-0843-13-0

Attachment 1 Page 1 of 4

Thursday, December 19, 2013

CONTAINERID: NFS0422H

ORNL

AK DATA

Container ID	Container Type	AKA Matrix	WDS Status	AK Excluded	WSID	LOTID	LOT Excluded
NFS0422H	55G		NO WDS STATUS	YES (Inactive)	OR-NFS-CH-HET-A	NONE	SITE CERT NEEDED

BDR DATA

BDRID	Type	Status	Generation Date
OR-IQ3-0223	NDA	Complete	2013-12-03
OR-RTR6-0436	RTR	Complete	2013-12-02

NCR DATA

Container ID	NCRID	Status	Release Code
NFS0422H	NCR-ORNL0843130	Open	None

REJECT DATA

Container ID	BDRID	NCRID	NCR Status	Release Code	Actual Condition
NFS0422H	OR-IQ3-0223	NCR-ORNL0843130	Open	None	The drums listed in Box 3 are less than or equal to 100 nCi/g.

NCR ORNL-0843-13-0 Attachment 1 Page 2 of 4

Thursday, December 19, 2013

CONTAINERID: X10C9400029A

ORNL

AK DATA

Container ID	Container Type	AKA Matrix	WDS Status	AK Excluded	WSID	LOTID	LOT Excluded
X10C9400029A	55G		NO WDS STATUS	YES (Inactive)	OR-REDC-CH-HET	NONE	SITE CERT NEEDED

BDR DATA

BDRID	Type	Status	Generation Date
OR-IQ3-0214	NDA	Complete	2011-07-07
OR-IQ3-0223	NDA	Complete	2013-12-03
OR-RTR6-0436	RTR	Complete	2013-12-02
OR11FG11033	HSG_TRANS	Complete	2011-05-11
ORVECH0084	VE	Complete	2011-04-12

NCR DATA

Container ID	NCRID	Status	Release Code
X10C9400029A	NCR-ORNL0843130	Open	None

REJECT DATA

Container ID	BDRID	NCRID	NCR Status	Release Code	Actual Condition
X10C9400029A	OR-IQ3-0223	NCR-ORNL0843130	Open	None	The drums listed in Box 3 are less than or equal to 100 nCi/g.

NCR ORNL-0843-13-0 Page 3 of 4
Attachment 1

Thursday, December 19, 2013

CONTAINERID: X10CSATN02296L

ORNL

AK DATA

Container ID	Container Type	AKA Matrix	WDS Status	AK Excluded	WSID	LOTID	LOT Excluded
X10CSATN02296L	55G		NO WDS STATUS	YES (Inactive)	OR-REDC-CH-HET	NONE	SITE CERT NEEDED

BDR DATA

BDRID	Type	Status	Generation Date
OR-IQ3-0223	NDA	Complete	2013-12-03
OR-RTR6-0435	RTR	Complete	2013-11-26

NCR DATA

Container ID	NCRID	Status	Release Code
X10CSATN02296L	NCR-ORNL0843130	Open	None

REJECT DATA

Container ID	BDRID	NCRID	NCR Status	Release Code	Actual Condition
X10CSATN02296L	OR-IQ3-0223	NCR-ORNL0843130	Open	None	The drums listed in Box 3 are less than or equal to 100 nCi/g.

NCR ORNL-0843-130
Attachment 1 Page 4 of 4

Jones, Laura - NWP

From: Harmon, Latravia [Latravia.Harmon@truproject.com]
Sent: Monday, December 23, 2013 8:27 AM
To: Jones, Laura - NWP
Cc: Harmon, Latravia
Subject: RE: Hold tags to be pulled NCR-ORNL-0843-13

12/23/2013

Hold tags have been pulled for the following containers; Please Close NCRs.
X10CSATN02296L
NFS0422H
X10C9400029A

LaTravia N. Harmon
Quality Assurance Engineer
Nuclear Waste Partnership LLC
Contractor to the United States Department of Energy
(865)576-1650 Office
(865)441-2706 Cell
latravia.harmon@truproject.com

From: Jones, Laura - NWP [laura.jones@wipp.ws]
Sent: Friday, December 20, 2013 10:33 AM
To: Harmon, Latravia
Cc: Schrock, Beverly - NWP; Wade, Daniel NWP; Walker, Mak (Maryann) - NWP; Mueller, Terry - NWP
Subject: Hold tags to be pulled NCR-ORNL-0843-13

Latravia - Containers below have a return resolution code please remove hold tags and notify to close NCR.

BDR ID	Container ID	Release Code	Reason	NCR
OR-IQ3-0223	X10CSATN02296L	Returned	Container has been excluded from the AKTSS.	NCR-ORNL-0843-13
OR-IQ3-0223	NFS0422H	Returned	Container has been excluded from the AKTSS.	NCR-ORNL-0843-13
OR-IQ3-0223	X10C9400029A	Returned	Container has been excluded from the AKTSS.	NCR-ORNL-0843-13

Thanks and Best Regards

NCR-ORNL-0843-13 Rev 0
Attachment 2 Page 1 of 1

Laura R. Jones
Quality Assurance NCR Coordinator
Nuclear Waste Partnership LLC
Contractor for the U.S. Department of Energy
Office: (575) 234-7244
Email: laura.jones@wipp.ws<mailto:laura.jones@wipp.ws>
Fax: (575) 234-7071
[cid:image001.png@01CDBBFB.C17506F0][cid:BA4A1BF4C06B1E4399B91B257EB513FE@wipp.ws]

DIVIDER

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Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL- 0845 -13 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): OR-IQ3-0225 Container #(s): X10CSATN02023F
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☑ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☐ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-PO-002, Rev 27, Section 3.3.3 [A.1]
TRU waste containers to be disposed of at the WIPP shall contain greater than 100 nCi/g of waste of alpha-emitting TRU isotopes...

7c. Actual Condition:

The drum in Box 3 is less than or equal to 100 nCi/g.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☐ YES ☑ NO If no is checked, explain: Permanent Reject Label Applied

8. NCR Originator:

Chad Gerlock (printed name) _____ (signature) 12/11/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K	11. Responsible Manager: Ronald Whitson
12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaTravia Harmon (printed name) _____ (signature) 12/12/13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0845-13 **Revision 0**

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name _____ signature _____ date _____

16b. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name _____ signature _____ date _____

18. Interim Disposition Verified – QA Engineer:

printed name _____ signature _____ date _____

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0845 -13 **Revision 0**

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

☑ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

1. Container is not certifiable for shipment to WIPP and is permanently returned to the host site.
2. Remove container from the AK Tracking Spreadsheet.
3. After container is removed, close NCR.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

printed name	signature	date
Ronald Whitson	[signature]	12/12/2013

21. QA Engineer or QA Designee:

printed name	signature	date
LaTravia Harmon	[signature]	12/12/13

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER

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Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL- 0846 -13 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): OR-IQ3-0225 Container #(s): NFS0506A
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☑ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-TP-047, Rev 12, Section 4.1.2 [D]
Resolve problems flagged by the AITR, and document resolution on the Final AITR...

7c. Actual Condition:

The drum in Box 3 is rejected by the Expert Analyst due to a distorted reference peak causing indeterminate dead time.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☑ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Chad Gerlock (printed name) — Chad Gerlock (signature) — 12/11/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K	11. Responsible Manager: Ronald Whitson
12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaTravia Harmon (printed name) — LaTravia Harmon (signature) — 12/12/13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0846 -13 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name signature date

16b. QA Engineer or QA Designee:

printed name signature date

Additional Approval:

printed name signature date

Additional Approval:

printed name signature date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name signature date

18. Interim Disposition Verified – QA Engineer:

printed name signature date

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0846 -13 **Revision 0**

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

☑ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

The drum in Box 3 to be assayed on an appropriate NDA system.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

printed name	signature	date
Ronald Whitson	[signature]	12/12/2013

21. QA Engineer or QA Designee:

printed name	signature	date
LaTravia Harmon	[signature]	12/12/13

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER

PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0872-13 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR6-0438
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): NFS0788A
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text): CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [H.2] states in part IF the waste form DOES NOT match the Waste Stream description and/or the Waste Matrix Code, THEN initiate an NCR in accordance with CCP-QP-005, AND record NCR number in Section 1 and in the comments block of Attachment 2.

7c. Actual Condition: Container(s) currently assigned to Waste Stream OR-NFS-CH-HOM-A. Waste contains a AA battery which is potential hazardous waste not noted in the AK therefore, the waste does not match the waste stream description or the waste matrix code.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Fred Oney (printed name) _____ (signature) 12/10/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☒ YES ☐ NO ☐ INDETERMINATE

10. Trend Code: L	11. Responsible Manager: **Beverly Schrock**
12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaKavia Harmon (printed name) _____ (signature) 12/11/13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0872-13 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☐ N/A (See Final Disposition) ☒ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

1. Responsible Manager send this NCR to the AK Expert for re-evaluation in accordance with CCP-TP-005.
2. AK Expert perform the AK re-evaluation and include a copy of documented results as an attachment to this NCR.
3. SPM determine Final Disposition (block 19) based on the results of the AK Expert for re-evaluation.

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name	signature	date
Beverly Schrock	Andrew Stallings for Beverly Schrock	12/11/13

16b. QA Engineer or QA Designee:

printed name	signature	date
LaTrava Harmon	LaTrava Harmon	12/11/13

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name	signature	date

18. Interim Disposition Verified – QA Engineer:

printed name	signature	date

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0872-13 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☐ N/A for Reject, Rework, or Scrap]

☐ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☐ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

printed name _____ signature _____ date _____

21. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name _____ signature _____ date _____

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name _____ signature _____ date _____

DIVIDER

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Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL- 0898 -13 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDA	3. Batch Data Report #(s): OR-IQ3-0228 Container #(s): X10C0506154G, X10C0506149B, X10C0506149E, X10C0506148C
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☑ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☐ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-PO-002, Rev 27, Section 3.3.3 [A.1]
TRU waste containers to be disposed of at the WIPP shall contain greater than 100 nCi/g of waste of alpha-emitting TRU isotopes...

7c. Actual Condition:

The drums listed in Box 3 are less than or equal to 100 nCi/g.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☐ YES ☑ NO If no is checked, explain:
Permanent Reject Labels Applied

8. NCR Originator:
Ronald Whitson (printed name) _____ (signature) 12/23/2013 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☑ NO ☐ INDETERMINATE

10. Trend Code: K

11. Responsible Manager: Ronald Whitson

12. Significant Condition? ☐ YES ☑ NO (If Yes, enter CAR No.):

13. Recurring Condition? ☐ YES ☑ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:
LaTravia Harmon (printed name) _____ (signature) 12/23/2013 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0898 -13 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☑ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name signature date

16b. QA Engineer or QA Designee:

printed name signature date

Additional Approval:

printed name signature date

Additional Approval:

printed name signature date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name signature date

18. Interim Disposition Verified – QA Engineer:

printed name signature date

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL- 0898 -13 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☑ N/A for Reject, Rework, or Scrap]

☑ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

1. Containers are not certifiable for shipment to WIPP and are permanently returned to the host site.
2. Remove containers from the AK Tracking Spreadsheet.
3. After containers are removed, close NCR.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☑ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Ronald Whitson		12/23/2013
printed name	signature	date

21. QA Engineer or QA Designee:

LaTravia Harmon	LaTravia Harmon	12/23/2013
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

DIVIDER

PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0903-13 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR7-0005
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): NFS0418B
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):
CCP-TP-053, Standard Real-Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [A.9], instructs to "Check "√" yes or no for NCR and if yes is checked record the NCR number."

7c. Actual Condition:
Section 1 of CCP-TP-053 Attachment 2 was first checked "Yes" corresponding to the field, "NCR(s) associated with the container?" Upon further review it was determined that there was not a NCR associated with this container so the "Yes" box was lined out, initialed and dated, and the "No" box was then checked. It was then determined at a later date that a NCR did need to be issued, but the "No" box in section 1 was not lined out, initialed and dated as CCP-QP-008 directs for editorial changes in Section 4.7.1 [A.1], "Correct any errors by drawing a single line through the incorrect information (leaving the original text readable), entering the correct information, AND initialing and dating each correction made."

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain: 12/19/13 WT

8. NCR Originator:
Daniel Wade (printed name) Daniel Wade (signature) 12/17/2013 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☒ NO ☐ INDETERMINATE

10. Trend Code: A

11. Responsible Manager: **Beverly Schrock**

12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):

13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:
Laura R. Jones (printed name) Laura Ramsey Jones (signature) 12/17/2013 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0903-13 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☒ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name signature date

16b. QA Engineer or QA Designee:

printed name signature date

Additional Approval:

printed name signature date

Additional Approval:

printed name signature date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name signature date

18. Interim Disposition Verified – QA Engineer:

printed name signature date

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0903-13 **Revision 0**

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☒ N/A for Reject, Rework, or Scrap]

☐ Reject ☒ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]
1.) RTR-operator, make needed corrections to BDR.
2.) RTR-ITR, re-review.
3.) SPM review.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☒ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Beverly Schrock	BSSchrock	12/17/13
printed name	signature	date

21. QA Engineer or QA Designee:

Laura R. Jones	Laura Romero-Jones	12/18/2013
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

Beverly Schrock		
printed name	signature	date

23. Attachments: 1.- Email Documenting Reportability. 2.- Hold tag application notification.

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

Jones, Laura - NWP

From: Pearcy, Mark - NWP
Sent: Thursday, December 19, 2013 6:30 AM
To: Jones, Laura - NWP
Subject: RE: New NCR-ORNL-0903-13

Not reportable

Mark Pearcy
Central Characterization Program
Nuclear Waste Partnership LLC
Contractor for the U.S. Department of Energy
575-234-7394 (W)
575-499-7339 (C)

Nuclear Waste Partnership LLC

A URS-led partnership with B&W and AREVA

From: Jones, Laura - NWP
Sent: Wednesday, December 18, 2013 8:11 AM
To: Henry, Paulette; Waldrip, Misty - Stoller; Pearcy, Mark - NWP; Pearcy, Sheila - Stoller; Schrock, Beverly - NWP; Stallings, Andrew - NWP; Wade, Daniel NWP; Harmon, Latravia
Cc: Mueller, Terry - NWP; Walker, Mak (Maryann) - NWP; Jones, Laura - NWP
Subject: New NCR-ORNL-0903-13

Latravia / Bev / Andrew – Please apply hold tag and notify.
Mark – Please review for notification purposes
Misty – Please post this open NCR.

Thanks and Best Regards

Laura R. Jones
Quality Assurance NCR Coordinator
Nuclear Waste Partnership LLC
Contractor for the U.S. Department of Energy
Office: (575) 234-7244
Email: laura.jones@wipp.ws
Fax: (575) 234-7071

NCR - ORNL-0903-13 Rev.0
Attachment 1 Page 1 of 2

Jones, Laura - NWP

From:	IDC [SQLMaster@wipp.ws]
Sent:	Thursday, December 19, 2013 6:30 AM
To:	Jones, Laura - NWP; Mueller, Terry - NWP; Walker, Mak (Maryann) - NWP; Morrison, Jim - NWP
Subject:	Project Office NCR [NCR-ORNL0903130] was just reviewed.

Certification Manager/Designee has just reviewed the project office NCR NCR-ORNL0903130 and has indicated that it [should NOT] be reported to CBFO. IDC has already updated the NCR for you.

NCR - ORNL-0903-13 Rev. 0

Attachment 1 Page 2 of 2

Jones, Laura - NWP

From: Harmon, Latravia [Latravia.Harmon@truproject.com]
Sent: Wednesday, December 18, 2013 11:00 AM
To: Waldrip, Misty - Stoller; Jones, Laura - NWP; Henry, Paulette; Pearcy, Mark - NWP; Pearcy, Sheila - Stoller; Schrock, Beverly - NWP; Stallings, Andrew - NWP; Wade, Daniel NWP
Cc: Mueller, Terry - NWP; Walker, Mak (Maryann) - NWP
Subject: RE: New NCR-ORNL-0903-13
Attachments: image001.png

12/18/13

Laura

Hold tag applied on 12/18/13 @ 1300.

LaTravia N. Harmon
Quality Assurance Engineer
Nuclear Waste Partnership LLC
Contractor to the United States Department of Energy
(865)576-1650 Office
(865)441-2706 Cell
latravia.harmon@truproject.com

From: Waldrip, Misty - Stoller [Misty.Waldrip@wipp.ws]
Sent: Wednesday, December 18, 2013 11:26 AM
To: Jones, Laura - NWP; Henry, Paulette; Pearcy, Mark - NWP; Pearcy, Sheila - Stoller; Schrock, Beverly - NWP; Stallings, Andrew - NWP; Wade, Daniel NWP; Harmon, Latravia
Cc: Mueller, Terry - NWP; Walker, Mak (Maryann) - NWP
Subject: RE: New NCR-ORNL-0903-13

Open NCR has been posted.

From: Jones, Laura - NWP
Sent: Wednesday, December 18, 2013 8:11 AM
To: Henry, Paulette; Waldrip, Misty - Stoller; Pearcy, Mark - NWP; Pearcy, Sheila - Stoller; Schrock, Beverly - NWP; Stallings, Andrew - NWP; Wade, Daniel NWP; Harmon, Latravia
Cc: Mueller, Terry - NWP; Walker, Mak (Maryann) - NWP; Jones, Laura - NWP
Subject: New NCR-ORNL-0903-13

Latravia / Bev / Andrew - Please apply hold tag and notify.
Mark - Please review for notification purposes Misty - Please post this open NCR.

Thanks and Best Regards

NCR – ORNL-0903-13 Rev. 0
Attachment 2 Page 1 of 1

Laura R. Jones
Quality Assurance NCR Coordinator
Nuclear Waste Partnership LLC
Contractor for the U.S. Department of Energy
Office: (575) 234-7244
Email: laura.jones@wipp.ws<mailto:laura.jones@wipp.ws>
Fax: (575) 234-7071
[http://bellview/wcomm/logos/New%20NWP%20Logo%20with%20Shadow.png]

DIVIDER

PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0904-13 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR7-0005
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): NFS0418B
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-TP-053, Standard Real-Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [H], instructs "Using Table 1, Prohibited items, as a reference, complete the checklist in Section 5: RTR Summary, of Attachment 2, to confirm there are **NO** prohibited items in the waste container."

7c. Actual Condition:
Section 5 of CCP-TP-053 Attachment 2 had all questions answered prior to the discovery of the container having an impenetrable area. The answers to the questions in Section 5 therefore cannot be answered conclusively.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain: 12/19/2013 LR

8. NCR Originator:

Daniel Wade (printed name) — D. L. Wade (signature) — 12/17/2013 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☒ NO ☐ INDETERMINATE

10. Trend Code: A

11. Responsible Manager: **Beverly Schrock**

12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):

13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

Laura R. Jones (printed name) — Laura Ramsey Jones (signature) — 12/18/2013 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0904-13 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☒ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name signature date

16b. QA Engineer or QA Designee:

printed name signature date

Additional Approval:

printed name signature date

Additional Approval:

printed name signature date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name signature date

18. Interim Disposition Verified – QA Engineer:

printed name signature date

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0904-13 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☒ N/A for Reject, Rework, or Scrap]

☐ Reject ☒ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]
1.) RTR-operator, make needed corrections to BDR.
2.) RTR-ITR, re-review.
3.) SPM review.

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☒ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

printed name	signature	date
Beverly Schrock	BSSchrock	12/18/13

21. QA Engineer or QA Designee:

printed name	signature	date
Laura R. Jones	Laura Ramirez Jones	12/18/2013

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date
Beverly Schrock		

23. Attachments: 1:- Email Documenting Reportability. 2:- Hold tag application notification.

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name	signature	date

Jones, Laura - NWP

From: Pearcy, Mark - NWP
Sent: Thursday, December 19, 2013 6:38 AM
To: Jones, Laura - NWP
Subject: RE: New NCR-ORNL-0904-13

Not reportable

Mark Pearcy
Central Characterization Program
Nuclear Waste Partnership LLC
Contractor for the U.S. Department of Energy
575-234-7394 (W)
575-499-7339 (C)

Nuclear Waste Partnership LLC

A URS-led partnership with B&W and AREVA

From: Jones, Laura - NWP
Sent: Wednesday, December 18, 2013 3:00 PM
To: Henry, Paulette; Waldrip, Misty - Stoller; Pearcy, Mark - NWP; Pearcy, Sheila - Stoller; Schrock, Beverly - NWP; Stallings, Andrew - NWP; Wade, Daniel NWP; Harmon, Latravia
Cc: Mueller, Terry - NWP; Walker, Mak (Maryann) - NWP; Jones, Laura - NWP
Subject: New NCR-ORNL-0904-13

Latravia/Beverly/Andrew – Please apply hold tag and notify.
Mark – Please review for notification purposes
Misty – Please post this open NCR.

Thanks and Best Regards

Laura R. Jones
Quality Assurance NCR Coordinator
Nuclear Waste Partnership LLC
Contractor for the U.S. Department of Energy
Office: (575) 234-7244
Email: laura.jones@wipp.ws
Fax: (575) 234-7071

NWP

NCR -ORNL-0904-13 Rev. 0
Attachment 1 Page 1 of 2

Jones, Laura - NWP

From: IDC [SQLMaster@wipp.ws]
Sent: Thursday, December 19, 2013 6:39 AM
To: Jones, Laura - NWP; Mueller, Terry - NWP; Walker, Mak (Maryann) - NWP; Morrison, Jim - NWP
Subject: Project Office NCR [NCR-ORNL0904130] was just reviewed.

Certification Manager/Designee has just reviewed the project office NCR NCR-ORNL0904130 and has indicated that it [should NOT] be reported to CBFO. IDC has already updated the NCR for you.

NCR - ORNL-0904-13 Rev. 0
Attachment 1 Page 2 of 2

Jones, Laura - NWP

From: Harmon, Latravia [Latravia.Harmon@truproject.com]
Sent: Thursday, December 19, 2013 8:17 AM
To: Jones, Laura - NWP; Henry, Paulette; Waldrip, Misty - Stoller; Pearcy, Mark - NWP; Pearcy, Sheila - Stoller; Schrock, Beverly - NWP; Stallings, Andrew - NWP; Wade, Daniel NWP; Latravia.Harmon@truproject.com
Cc: Mueller, Terry - NWP; Walker, Mak (Maryann) - NWP
Subject: RE: New NCR-ORNL-0904-13
Attachments: image001.png

Hold tag applied 12/19/13 @ 0945.

LaTravia N. Harmon
Quality Assurance Engineer
Nuclear Waste Partnership LLC
Contractor to the United States Department of Energy
(865)576-1650 Office
(865)441-2706 Cell
latravia.harmon@truproject.com

From: Jones, Laura - NWP [laura.jones@wipp.ws]
Sent: Wednesday, December 18, 2013 5:00 PM
To: Henry, Paulette; Waldrip, Misty - Stoller; Pearcy, Mark - NWP; Pearcy, Sheila - Stoller; Schrock, Beverly - NWP; Stallings, Andrew - NWP; Wade, Daniel NWP; Harmon, Latravia
Cc: Mueller, Terry - NWP; Walker, Mak (Maryann) - NWP; Jones, Laura - NWP
Subject: New NCR-ORNL-0904-13

Latravia/Beverly/Andrew - Please apply hold tag and notify.
Mark - Please review for notification purposes Misty - Please post this open NCR.

Thanks and Best Regards

Laura R. Jones
Quality Assurance NCR Coordinator
Nuclear Waste Partnership LLC
Contractor for the U.S. Department of Energy
Office: (575) 234-7244
Email: laura.jones@wipp.ws<mailto:laura.jones@wipp.ws>
Fax: (575) 234-7071
[http://bellview/wcomm/logos/New%20NWP%20Logo%20with%20Shadow.png]

Non-conformance Reports (NCRs):

CH Non-conformance Report Logs for Project Level (PL) and Data Generation Level (DGL); both dated 01/14/2014;

NOTE: The CH Non-conformance Report Logs were printed from the CCP Integrated Data Center (IDC) database.

NOTE: The RH NON-conformance Report Logs, for DGL and PL, were not printed because there have been no RH NCRs written since the previous recertification audit.

CH NonConformance Report Log
DGL

NCR ID	NCR Originator	Init Date	Used?
NCR-ORNL0230140	Fred Oney	1/8/2014 0:00	Checked
NCR-ORNL0231140			Unchecked
NCR-ORNL0232140			Unchecked
NCR-ORNL0233140			Unchecked
NCR-ORNL0234140			Unchecked
NCR-ORNL0235140			Unchecked
NCR-ORNL0236140			Unchecked
NCR-ORNL0237140			Unchecked
NCR-ORNL0238140			Unchecked
NCR-ORNL0239140			Unchecked
NCR-ORNL0240140			Unchecked
NCR-ORNL0241140			Unchecked
NCR-ORNL0242140			Unchecked
NCR-ORNL0243140			Unchecked
NCR-ORNL0244140			Unchecked
NCR-ORNL0245140			Unchecked
NCR-ORNL0246140			Unchecked
NCR-ORNL0247140			Unchecked
NCR-ORNL0248140			Unchecked
NCR-ORNL0249140	Maria Steade	1/9/2014 0:00	Checked
NCR-ORNL0250140	Chad Gerlock	1/13/2014 0:00	Checked
NCR-ORNL0251140	Chad Gerlock	1/13/2014 0:00	Checked
NCR-ORNL0252140	Chad Gerlock	1/13/2014 0:00	Checked
NCR-ORNL0253140	Chad Gerlock	1/13/2014 0:00	Checked
NCR-ORNL0254140	Chad Gerlock	1/13/2014 0:00	Checked
NCR-ORNL0255140	Chad Gerlock	1/13/2014 0:00	Checked
NCR-ORNL0256140	Chad Gerlock	1/13/2014 0:00	Checked
NCR-ORNL0257140			Unchecked
NCR-ORNL0258140			Unchecked
NCR-ORNL0259140			Unchecked
NCR-ORNL0260140			Unchecked
NCR-ORNL0261140			Unchecked
NCR-ORNL0262140			Unchecked
NCR-ORNL0263140			Unchecked
NCR-ORNL0264140			Unchecked
NCR-ORNL0265140			Unchecked
NCR-ORNL0266140			Unchecked
NCR-ORNL0267140			Unchecked
NCR-ORNL0268140			Unchecked
NCR-ORNL0269140			Unchecked
NCR-ORNL0270140			Unchecked
NCR-ORNL0271140			Unchecked
NCR-ORNL0272140			Unchecked
NCR-ORNL0273140			Unchecked
NCR-ORNL0274140			Unchecked

DGL-CH

JRS
1/14/14

COPY

1/3

NCR-ORNL0275140			Unchecked
NCR-ORNL0276140			Unchecked
NCR-ORNL0277140			Unchecked
NCR-ORNL0278140			Unchecked
NCR-ORNL0279140			Unchecked
NCR-ORNL0280140			Unchecked
NCR-ORNL0281140			Unchecked
NCR-ORNL0282140			Unchecked
NCR-ORNL0283140			Unchecked
NCR-ORNL0284140			Unchecked
NCR-ORNL0285140			Unchecked
NCR-ORNL0286140			Unchecked
NCR-ORNL0287140			Unchecked
NCR-ORNL0288140			Unchecked
NCR-ORNL0289140			Unchecked
NCR-ORNL0828130			Unchecked
NCR-ORNL0829130			Unchecked
NCR-ORNL0830130			Unchecked
NCR-ORNL0831130			Unchecked
NCR-ORNL0832130			Unchecked
NCR-ORNL0833130			Unchecked
NCR-ORNL0834130			Unchecked
NCR-ORNL0835130			Unchecked
NCR-ORNL0836130			Unchecked
NCR-ORNL0837130			Unchecked
NCR-ORNL0838130	Steve Redmond	11/20/2013 0:00	Checked
NCR-ORNL0839130	Steve Redmond	11/20/2013 0:00	Checked
NCR-ORNL0840130	Eric Lyles	12/2/2013 0:00	Checked
NCR-ORNL0841130	Steve Redmond	12/4/2013 0:00	Checked
NCR-ORNL0842130	Steve Redmond	12/4/2013 0:00	Checked
NCR-ORNL0843130	Chad Gerlock	12/10/2013 0:00	Checked
NCR-ORNL0844130	Susan Anderson	12/10/2013 0:00	Checked
NCR-ORNL0845130	Chad Gerlock	12/11/2013 0:00	Checked
NCR-ORNL0846130	Chad Gerlock	12/11/2013 0:00	Checked
NCR-ORNL0847130	Susan Anderson	12/19/2013 0:00	Checked
NCR-ORNL0848130			Unchecked
NCR-ORNL0849130			Unchecked
NCR-ORNL0850130			Unchecked
NCR-ORNL0851130			Unchecked
NCR-ORNL0852130			Unchecked
NCR-ORNL0853130			Unchecked
NCR-ORNL0854130			Unchecked
NCR-ORNL0855130			Unchecked
NCR-ORNL0856130			Unchecked
NCR-ORNL0857130			Unchecked
NCR-ORNL0869130	Daphne Brothers	12/4/2013 0:00	Checked

DGL-CH

NCR-ORNL0870130	Eric Lyles	12/11/2013 0:00	Checked
NCR-ORNL0871130	Eric Lyles	12/16/2013 0:00	Checked
NCR-ORNL0872130	Fred Oney	12/10/2013 0:00	Checked
NCR-ORNL0873130	Daphne Brothers	12/11/2013 0:00	Checked
NCR-ORNL0874130	Daphne Brothers	12/12/2013 0:00	Checked
NCR-ORNL0875130			Unchecked
NCR-ORNL0876130			Unchecked
NCR-ORNL0877130			Unchecked
NCR-ORNL0878130			Unchecked
NCR-ORNL0879130			Unchecked
NCR-ORNL0880130			Unchecked
NCR-ORNL0881130			Unchecked
NCR-ORNL0882130			Unchecked
NCR-ORNL0883130			Unchecked
NCR-ORNL0884130			Unchecked
NCR-ORNL0885130			Unchecked
NCR-ORNL0886130			Unchecked
NCR-ORNL0887130			Unchecked
NCR-ORNL0888130			Unchecked
NCR-ORNL0898130	Ron Whitson	12/23/2013 0:00	Checked
NCR-ORNL0899130			Unchecked
NCR-ORNL0900130			Unchecked
NCR-ORNL0901130			Unchecked
NCR-ORNL0902130			Unchecked

DGL-CH

CH NonConformance Report Log

PL

NCR ID	NCR Originator	Init Date	Used?
NCR-ORNL0144140			Unchecked
NCR-ORNL0145140			Unchecked
NCR-ORNL0146140			Unchecked
NCR-ORNL0147140			Unchecked
NCR-ORNL0148140			Unchecked
NCR-ORNL0149140			Unchecked
NCR-ORNL0150140			Unchecked
NCR-ORNL0151140			Unchecked
NCR-ORNL0152140			Unchecked
NCR-ORNL0153140			Unchecked
NCR-ORNL0154140			Unchecked
NCR-ORNL0155140			Unchecked
NCR-ORNL0156140			Unchecked
NCR-ORNL0157140			Unchecked
NCR-ORNL0158140			Unchecked
NCR-ORNL0159140			Unchecked
NCR-ORNL0160140			Unchecked
NCR-ORNL0161140			Unchecked
NCR-ORNL0162140			Unchecked
NCR-ORNL0163140			Unchecked
NCR-ORNL0164140			Unchecked
→ NCR-ORNL0903130	Daniel Wade	12/17/2013 0:00	Checked
→ NCR-ORNL0904130	Daniel Wade	12/17/2013 0:00	Checked
NCR-ORNL0905130			Unchecked
NCR-ORNL0906130			Unchecked

PL-CH

JRS
1/14/14

COPY

WDS WCA/WCO CERTIFICATION PACKAGE

GEN11

CH ORNL - Audit

January 15, 2014

Waste Stream OR-NFS-CH-SOIL

1. Container Information Summary (CIS) – CCP Correlation of Container Identification Numbers to Batch Data Report Numbers
2. NCR/CAR request to QA and QAs response indicating all containers are valid for shipping with no open NCRs/CARs
3. AK Summary Report to obtain vent/closure date

CH Package for X10C0506150B

1. Waste Container Data Report from WDS
2. WDS Spreadsheet
3. RAD Survey
4. RTR Data
5. NDA Data
6. Flam Gas Data

CH Package for X10C0506150C

1. Waste Container Data Report from WDS
2. WDS Spreadsheet
3. RAD Survey Data
4. RTR Data
5. NDA Data
6. Flam Gas Data

WDS WCA/WCO CERTIFICATION PACKAGE

CH ORNL – Audit (continued)

January 14, 2014

Waste Stream OR-ISTP-CH-HET

1. AK Summary Report to obtain vent/closure date

CH Package for X10C9311454A

2. Container Information Summary (CIS) – CCP Correlation of Container Identification Numbers to Batch Data Report Numbers
3. NCR/CAR request to QA and QAs response indicating all containers are valid for shipping with no open NCRs/CARs
4. Waste Container Data Report from WDS
5. WDS Spreadsheet
6. RAD Survey
7. RTR Data
8. NDA Data
9. Flam Gas Data

CH Package for X10C9313063A

1. Container Information Summary (CIS) – CCP Correlation of Container Identification Numbers to Batch Data Report Numbers
2. NCR/CAR request to QA and QAs response indicating all containers are valid for shipping with no open NCRs/CARs
3. Waste Container Data Report from WDS
4. WDS Spreadsheet
5. RAD Survey Data
6. RTR Data
7. NDA Data
8. Flam Gas Data

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Waste Characterization Case File:

including Container Information Summary (CIS) excerpts, Waste Certification Data Entry Form (WCDEF) spreadsheet signed copies, supporting forms and data, and WWIS/WDS Waste Container Data Report for the container

X10C0506150B

(a 55 gal soils container)

ORNL CH/RH AUDIT - January 14-17 - WWIS Data Entry

CONTAINER ID	CONTAINER TYPE	WASTE STREAM	AK REPORT	CLOSURE DATE	VENT DATE
X10C0506150B	55G	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	7/30/2008	7/30/2008
X10C0506150C	55G	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	7/30/2008	7/30/2008

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CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: : OR-NFS-CH-SOIL Lot # 11

Container ID Number	NDA BDR	NDE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes	Transportation Headspace Gas BDR*
NFS0544	OR-DWAS-0098	OR-RTR6-0080	N/A	N/A		OR08FG4056
NFS0668	OR-DWAS-0129	OR-RTR6-0094	N/A	N/A		OR08FG4047
NFS0691	OR-DWAS-0106	OR-RTR6-0091	N/A	N/A		OR09FG4034
NFS0824	OR-DWAS-0092	OR-RTR6-0077	N/A	N/A		OR09FG4038
NFS0847	OR-IQ3-0076	OR-RTR6-0104	N/A	N/A		OR09FG4011
X10C0506047	OR-DWAS-0120	OR-RTR6-0305	N/A	N/A		OR09FG4043
X10C0506148A	OR-DWAS-0130	OR-RTR6-0110	N/A	N/A		OR08FG4051
X10C0506148C	OR-DWAS-0131	OR-RTR6-0110	N/A	N/A		OR08FG4039
X10C0506149B	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4051
X10C0506149D	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4048
X10C0506149E	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4051
X10C0506150A	OR-IQ3-0065	OR-RTR6-0317	N/A	N/A		OR08FG4051
X10C0506150B	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR09FG4023
X10C0506150C	OR-DWAS-0130	OR-RTR6-0110	N/A	N/A		OR08FG4051
X10C0506151B	OR-DWAS-0131	OR-RTR6-0111	N/A	N/A		OR09FG4023
X10C0506151C	OR-DWAS-0130	OR-RTR6-0110	N/A	N/A		OR09FG4023
X10C0506151E	OR-DWAS-0131	OR-RTR6-0110	N/A	N/A		OR08FG4039
X10C0506152A	OR-DWAS-0131	OR-RTR6-0111	N/A	N/A		OR09FG4023
X10C0506152B	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4051

Signature of Site Project Manager

Julius Lyons
Printed Name

12/13/2010
Date

Kirkes, Creta - NWP

From:	Mueller, Terry - WTS
Sent:	Monday, December 27, 2010 7:58 AM
To:	Bond, Betty - WTS; Dominguez, Lena - WTS; Gonzalez, Ana C. - WTS; Pettus, Helen - WTS; Sandate, Yoli - WTS; Soaterna, Carolina - WTS; Underwood, Luann - WTS; Valenzuela, Bobbie; Whiteaker, Roger - WTS; Ybarra, Deanna - WTS
Cc:	Walker, Mak (Maryann) - WTS
Subject:	FW: NCR/CAR Request ORNL NFS-CH-SOIL 011
Attachments:	NCR Check ORNL NFS Soil Lot 1S11.xls

There are no NCR or CAR dispositions that impact the acceptability of these drums, alternate drum IDs, and associated BDRs for certification and shipping as listed on the attached. This check was verified independently.

Thanks!

Terry L. Mueller
CCP QA
Washington TRU Solutions, LLC
Contractor to the Department of Energy
MS GSA-103
***work* (575)-234-7016**
***fax* (575)-234-7042**

From: Dominguez, Lena - WTS
Sent: Monday, December 27, 2010 7:44 AM
To: Mueller, Terry - WTS; Gomez, Chris - WTS; Jones, Laura - WTS; Wade, Louis - WTS; Walentine, Michael - WTS; Kantrowitz, Rich - WTS; Walker, Mak (Maryann) - WTS; Mireles, Jessica - WTS
Subject: NCR/CAR Request ORNL NFS-CH-SOIL 011

Please do an NCR/CAR check for ORNL NFS CH Soil Lot 1S11.

Thanks,
Lena

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	WDS Master Template.xls Rev. 3 Addendum #3, SCO #1065 Excel 2003/2007 Microsoft Windows XP	Units	data	comments									initial	date
2	Shipper Site ID		C6	Location ID	Dest Program ID	Shipping Purpose							YS/LU	12/15/10
3	Waste Stream Profile		OR-NFS-CH-SOIL	OR	WI	D							YS/LU	12/15/10
4	Container Number		X10C0506150B										YS/LU	12/15/10
5	Container Type		drum	drum, swb, tdop, etc., see WWIS labels for valid types.					U-235 FEM	U-235 FEM Uncert	FGGR Flag	FGGR Test Period	YS/LU	12/15/10
6	WAC Rev #		6.5						NULL	NULL	NULL	NULL		
7								Be <=100 kg	Be <= 1%	Be Present	Aqueous Material	Compacted Wst	YS/LU	12/15/10
8	Cert Site		C6					N	N	N	N	N		
9	Cert Date		12-22-10										YS/LU	12/15/10
10	Waste Handling Code		CH	CH, RH									YS/LU	12/15/10
11	Waste Type Code		MTRU	TRU, MTRU									YS/LU	12/15/10
12	Waste Stream BIR ID		OR-NFS-CH-SOIL										YS/LU	12/15/10
13	Waste Stream MWIR ID		NONE										YS/LU	12/15/10
14	Generator Site ID		OR										YS/LU	12/15/10
15	IDC Code		NONE										YS/LU	12/15/10
16	Matrix Code		S4100										YS/LU	12/15/10
17	Trucon Code		OR211B											
18	Shipping Category		1001300122										YS/LU	12/15/10
19	Tru Alpha Act	Ci	2.95E-02		2.944E-02								YS/LU	12/15/10
20	Tru Alpha Act Uncert	1sigma Ci	5.77E-03	4.104E-02	Tru Alpha Act + 2sigma (Ci)								YS/LU	12/15/10
21	Tru Alpha Act Conc	nCi/g	1.30E+02		1.30E+02								YS/LU	12/15/10
22			2.54E+01	1.808E+02	Tru Alpha Act Conc + 2sigma (Ci)			Drum Weight	27.7				YS/LU	12/15/10
23	Pu239 Fiss Gm Eq	g	2.75E-01		2.748E-01								YS/LU	12/15/10
24	Pu239 Fiss Gm Eq Uncert	1sigma g	8.44E-02	4.438E-01	Pu239 Fiss Gm Eq + 2sigma (Ci)								YS/LU	12/15/10
25	Pu239 Eq Act	Ci	2.99E-02		2.985E-02								YS/LU	12/15/10
26	Decay Heat	watts	9.30E-04		9.286E-04								YS/LU	12/15/10
27	Decay Heat Uncert	1sigma watts	1.79E-04	1.11E-03	Decay Heat + 1sigma (watts)								YS/LU	12/15/10
28	Layers of Packaging		2											
29	Fill Factor		90	percentage	Liner Lid Present								YS/LU	12/15/10
30	Liner Type			1 = plastic drum liner									YS/LU	12/15/10
31	Liner Punctured				Liner Hole Size (mm)								YS/LU	12/15/10
32	PCB Conc		NULL				PCB Waste	PCB Mass (kg)	Out of Service				YS/LU	12/15/10
33	Closure Date		7/30/2008	Watt-years	Waste Gen Date		N	NULL	NULL				YS/LU	12/15/10
34	Vent Date		7/30/2008	0.002	NULL								YS/LU	12/15/10
35	Filter Install Date		7/30/2008										YS/LU	12/15/10
36	Filter Manufacturer		NFT										YS/LU	12/15/10
37													YS/LU	12/15/10
38	Filter Model Number		NF019D										YS/LU	12/15/10
39	Number of Filters Installed		1										YS/LU	12/15/10
40	Aspiration Method ID		3											
41	Gas Gen Rate			1.494E-10	<<Gas Gen Rate Calculated.									
42	Hydrogen/Methane Gen Rate													
43	Gas Gen Comp Date				Waste (kg)	Packaging (kg)	Total (kg)						YS/LU	12/15/10
44	Gross Weight	kg	259.2		226.8	32.4	259.2						YS/LU	12/15/10
45	Gross Weight Uncert	1sigma kg	2.3										YS/LU	12/15/10
46	Alpha Surf Cont	dpm/100 cm^2	19										YS/LU	12/15/10
47	Beta/Gamma Surf Cont	dpm/100 cm^2	199										YS/LU	12/15/10
48	Neutron Dose Rate	mrem/hr	0.5										YS/LU	12/15/10
49	Beta/Gamma Dose Rate	mrem/hr	0.1										YS/LU	12/15/10
50	Radionuclide		SR-90	CS-137	U-233	U-234	U-235	NP-237	PU-238	U-238	PU-239	PU-240	YS/LU	12/15/10
51	Activity	Ci	-1.00E+00	-1.00E+00	-1.00E+00	-1.00E+00	0.00E+00	0.00E+00	2.28E-03	-1.00E+00	1.72E-02	6.16E-03	YS/LU	12/15/10
52	Activity Uncert	1sigma Ci	-1.00E+00	-1.00E+00	-1.00E+00	-1.00E+00	0.00E+00	0.00E+00	7.66E-04	-1.00E+00	5.31E-03	2.09E-03	YS/LU	12/15/10
53	Mass	grams	-1.00E+00	-1.00E+00	-1.00E+00	-1.00E+00	0.00E+00	0.00E+00	1.32E-04	-1.00E+00	2.73E-01	2.68E-02		
54	Mass Uncert	1sigma grams	-1.00E+00	-1.00E+00	-1.00E+00	-1.00E+00	0.00E+00	0.00E+00	4.52E-05	-1.00E+00	8.61E-02	9.27E-03		
55	calc Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.28E-03	0.00E+00	1.72E-02	6.16E-03		
56	calc Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E+01	0.00E+00	7.58E+01	2.72E+01		
57	calc Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.28E-03	0.00E+00	1.72E-02	6.16E-03		
58	calc Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E+01	0.00E+00	7.58E+01	2.72E+01		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
59	calc Pu239 FGE	g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-05	0.00E+00	2.73E-01	6.03E-04		
60	calc Pu239 Eq Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-03	0.00E+00	1.72E-02	6.16E-03		
61	calc Decay Heat	watts	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.55E-05	0.00E+00	5.33E-04	1.92E-04		
62	uncert Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.62E-04	0.00E+00	5.42E-03	2.13E-03		
63	uncert Tru Alpha Act Conc	pCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.45E+00	0.00E+00	2.39E+01	9.40E+00		
64	uncert Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.62E-04	0.00E+00	5.42E-03	2.13E-03		
65	uncert Act Conc	pCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.45E+00	0.00E+00	2.39E+01	9.40E+00		
66	uncert Pu239 FGE	g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.11E-06	0.00E+00	8.61E-02	2.09E-04		
67	uncert Pu239 Eq Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.96E-04	0.00E+00	5.33E-03	2.09E-03		
68	uncert Decay Heat	watts	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-05	0.00E+00	1.68E-04	6.64E-05		
69	Shipping Calcs	5.56E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.21E-01	0.00E+00	3.16E+00	1.14E+00		
70	49CFR173.433f		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.58%	0.00%	57.21%	20.49%		
71	Radionuclide		AM-241	PU-241	PU-242	AM-243	U-232							
72	Activity	Ci	3.80E-03	3.12E-02	1.46E-06	0.00E+00	6.45E-07						YS/LU	12/15/10
73	Activity Uncert	1sigma Ci	4.72E-04	1.05E-02	4.94E-07	0.00E+00	1.07E-07						YS/LU	12/15/10
74	Mass	grams	1.10E-03	9.00E-04	3.68E-04	0.00E+00	2.99E-08	NULL	NULL	NULL	NULL	NULL	YS/LU	12/15/10
75	Mass Uncert	1sigma grams	1.39E-04	3.03E-04	1.27E-04	0.00E+00	5.05E-09	NULL	NULL	NULL	NULL	NULL		
76	calc Tru Alpha Act	Ci	3.80E-03	3.12E-02	1.46E-06	0.00E+00	6.45E-07	NULL	NULL	NULL	NULL	NULL		
77	calc Tru Alpha Act Conc	pCi/g	1.68E+01	9.00E+00	6.62E-03	0.00E+00	2.99E-06	NULL	NULL	NULL	NULL	NULL		
78	calc Act	Ci	3.80E-03	3.12E-02	1.46E-06	0.00E+00	6.45E-07	NULL	NULL	NULL	NULL	NULL		
79	calc Act Conc	pCi/g	1.68E+01	9.00E+00	6.62E-03	0.00E+00	2.99E-06	NULL	NULL	NULL	NULL	NULL		
80	calc Pu239 FGE	g	2.05E-05	6.75E-04	2.70E-06	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
81	calc Pu239 Eq Act	Ci	3.60E-03	6.12E-04	4.33E-06	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
82	calc Decay Heat	watts	1.27E-04	9.93E-07	4.30E-06	0.00E+00	2.07E-08	NULL	NULL	NULL	NULL	NULL		
83	uncert Tru Alpha Act	Ci	4.82E-04	0.00E+00	5.04E-07	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
84	uncert Tru Alpha Act Conc	pCi/g	2.12E+00	0.00E+00	2.22E-03	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
85	uncert Act	Ci	4.82E-04	1.07E-02	5.04E-07	0.00E+00	1.09E-07	NULL	NULL	NULL	NULL	NULL		
86	uncert Act Conc	pCi/g	2.12E+00	4.72E+01	2.22E-03	0.00E+00	4.81E-04	NULL	NULL	NULL	NULL	NULL		
87	uncert Pu239 FGE	g	2.60E-06	2.32E-04	9.52E-07	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
88	uncert Pu239 Eq Act	Ci	4.72E-04	2.06E-04	4.49E-07	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
89	uncert Decay Heat	watts	1.61E-05	3.41E-07	1.49E-06	0.00E+00	3.50E-09	NULL	NULL	NULL	NULL	NULL		
90	Shipping Calcs		7.02E-01	1.16E-01	2.70E-04	0.00E+00	7.95E-05	NULL	NULL	NULL	NULL	NULL		
91	49CFR173.433f		12.64%	2.08%	0.00%	0.00%	0.00%	NULL	NULL	NULL	NULL	NULL		
92	Waste Material Parameter		PP	CP	OI	PW	S							
93	Wgt of Mat Parms	kg	1	3.7	0.5	1	225.3						YS/LU	12/15/10
94	Radio Assay Method		16SG1	PAN, FRAM, TGS, HENC									YS/LU	12/15/10
95	Data Package Number		OR-DWAS-0130										YS/LU	12/15/10
96	Assay Date		9/12/2008										YS/LU	12/15/10
97	Charz Method ID		16RR1	RTRM, VISUAL									YS/LU	12/15/10
98	Data Package Number		OR-RTR6-0111										YS/LU	12/15/10
99	Charz Method Date		9/12/2008										YS/LU	12/15/10
100	Haz Codes		F002										YS/LU	12/15/10
101	Haz Codes												YS/LU	12/15/10
102	Haz Codes												YS/LU	12/15/10
103	Haz Codes												YS/LU	12/15/10
104	Sample ID	Headspace Gas H/M	X10C0506150B											
105	Sample Type		HGHM-T	HGHM									YS/LU	12/15/10
106	Layer No. Sampled		0			229.29							YS/LU	12/15/10
107	Date Sampled		3/26/2009			Sample Site							YS/LU	12/15/10
108	Method ID		16HG2	DTP-1.2-041		C6							YS/LU	12/15/10
109	Data Package Number		OR09FG4023										YS/LU	12/15/10
110	CAS #		1333-74-0	74-82-8									YS/LU	12/15/10
111	Analyte		HYDROGEN	METHANE										
112	Concentration					96.03	133.26						YS/LU	12/15/10
113	units	%vol				PPMV	PPMV						YS/LU	12/15/10
114	Date Analyzed		03/26/09	3/26/2009									YS/LU	12/15/10
115	B Detectable Flag												YS/LU	12/15/10
116	D Detectable Flag													
117	E Detectable Flag													
118	J Detectable Flag													
119	U Detectable Flag		U	U										
120	NA Detectable Flag													
121													YS/LU	12/15/10
122	Sample ID	Headspace Gas VOC	X10C0506150B											
123	Sample Type		HGVO-T	HGVO										
124	Layer No. Sampled		0										YS/LU	12/15/10
125	Date Sampled		3/26/2009			SARP-Flammable VOCs (ppmv)	21.3						YS/LU	12/15/10
126	Method ID		16HG2	DTP-1.2-041									YS/LU	12/15/10
127	Data Package Number		OR09FG4023										YS/LU	12/15/10

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
128													YS/LU	12/15/10
129	CAS #		67-56-1	60-29-7	75-35-4	67-64-1	75-34-3	156-59-2	78-93-3	110-82-7				
130	Analyte		Methanol	Ethyl ether	1,1-Dichloroethylene	Acetone	1,1-Dichloroethane	cis-1,2-Dichloroethylene	Methyl ethyl ketone	Cyclohexane			YS/LU	12/15/10
131	Concentration		13.00	1.30	0.60	7.80	1.70	0.50	3.40	3.20			YS/LU	12/15/10
132	units	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv			YS/LU	12/15/10
133	Date Analyzed		3/26/2009	3/26/2009	3/26/2009	3/26/2009	3/26/2009	3/26/2009	3/26/2009	3/26/2009				
134	B Detectable Flag													
135	D Detectable Flag													
136	E Detectable Flag												YS/LU	12/15/10
137	J Detectable Flag													
138	U Detectable Flag		U	U	U	U	U	U	U	U				
139	NA Detectable Flag													
140	SARP-Flammable Calc		6.5	0.65	0.3	3.9	0.85	0.25	1.7	1.6			YS/LU	12/15/10
141	CAS #		71-43-2	107-06-2	71-36-3	108-10-1	108-88-3	108-90-7	100-41-4	108383/106423				
142	Analyte		Benzene	1,2-Dichloroethane	Butanol	Methyl isobutyl ketone	Toluene	Chlorobenzene	Ethyl benzene	m-Xylene/p-Xylene			YS/LU	12/15/10
143	Concentration		0.60	1.70	0.60	3.10	2.20	0.50	0.60	0.40			YS/LU	12/15/10
144	units	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv			YS/LU	12/15/10
145	Date Analyzed		3/26/2009	3/26/2009	3/26/2009	3/26/2009	3/26/2009	3/26/2009	3/26/2009	3/26/2009				
146	B Detectable Flag													
147	D Detectable Flag													
148	E Detectable Flag												YS/LU	12/15/10
149	J Detectable Flag													
150	U Detectable Flag		U	U	U	U	U	U	U	U				
151	NA Detectable Flag													
152	SARP-Flammable Calc		0.3	0.85	0.3	1.55	1.1	0.25	0.3	0.2			YS/LU	12/15/10
153	CAS #		95-47-6	108-67-8	95-63-6									
154	Analyte		o-Xylene	1,3,5-Trimethylbenzen	1,2,4-Trimethylbenzen	NULL	NULL	NULL	NULL	NULL			YS/LU	12/15/10
155	Concentration		0.40	0.50	0.50								YS/LU	12/15/10
156	units	ppmv	ppmv	ppmv	ppmv								YS/LU	12/15/10
157	Date Analyzed		3/26/2009	3/26/2009	3/26/2009	NULL	NULL	NULL	NULL	NULL				
158	B Detectable Flag													
159	D Detectable Flag													
160	E Detectable Flag												YS/LU	12/15/10
161	J Detectable Flag													
162	U Detectable Flag		U	U	U	NA	NA	NA	NA	NA				
163	NA Detectable Flag					NULL	NULL	NULL	NULL	NULL				
164	SARP-Flammable Calc		0.2	0.25	0.25								YS/LU	12/15/10
165	CAS #													
166	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			YS/LU	12/15/10
167	Concentration												YS/LU	12/15/10
168	units	ppmv	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			YS/LU	12/15/10
169	Date Analyzed													
170	B Detectable Flag													
171	D Detectable Flag													
172	E Detectable Flag												YS/LU	12/15/10
173	J Detectable Flag													
174	U Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
175	NA Detectable Flag		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
176	SARP-Flammable Calc													
177	CAS #													
178	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
179	Concentration													
180	units	ppmv	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
181	Date Analyzed													
182	B Detectable Flag													
183	D Detectable Flag													
184	E Detectable Flag													
185	J Detectable Flag													
186	U Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
187	NA Detectable Flag		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
188	SARP-Flammable Calc													

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
189			type	comment										
190	Comment												YS/LU	12/15/10
191	Comment													
192	Comment													
193	Comment													
194	Comment													
195	Comment													
196	Comment													
197	Comment													
198	Comment													
199	Comment													
200														
201			Requirements Met?											
202	Free liquids <1% by volume		YES											
203	No non-rad. pyrophorics		YES											
204	Chemical compatability		YES											
205	No explosives		YES											
206	No corrosives		YES											
207	No pressurized containers		YES											
208	No sealed Containers >4 liters		YES											
209	Liner punctured/ filtered		YES											
210	Flammable VOCs <500ppmv		Yes											
211	Container is in Approved Waste Stream Profile Form?	OR-NFS-CH-SOIL	YES											
212	Can it be established through Process Knowledge that the concentration of flammable VOCs present in the headspace of the container is <= 500 ppm?.		No											
213														
214														
215														
216														
217														
218														
219														
220	CCP Certification Official										Date 12-22-10			
221														
222														
223														
224														
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228														
229														
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235														

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Radiation & Contamination Survey Form

CM-P-RP-306 Rev. 4, Radiation/Contamination Surveys

SURVEY NO: 10-SUR-00715

LOCATION / TYPE: Transportation- 2109 Containers

PURPOSE: Outgoing Transportation

DATE/TIME: 02/11/10 19:15

RWP/ALARA: 10-TRU-003

Instruments Used

Instrument Type	Serial Number	Cal Due Date	Alpha Eff.	Beta Eff.
LM 12-4 / LM 42-31	215335 / 215335	09/11/10	N/A	N/A
LM-2360 / 43-93	227397 / 236988	06/10/10	24.77%	21.77%
LM-3 / 44-38	245361 / 260035	01/26/11	N/A	N/A
LM-3030E / LM-3030	241621 / 241621	08/12/10	35.56%	26.31%
LM-3030E / LM-3030E	259092 / 259092	05/07/10	38.7%	34.3%

Container ID	TID	Smears	Gamma Dose Rate (mR/hr)			Neutron Dose Rate (mrem/hr)		
			O.C.	30 CM	1 Meter	O.C.	30 CM	1 Meter
X10C0402990AG	N/A	1-3	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0402990AI	N/A	4-6	0.2	<0.1	<0.1	<0.5	<0.5	<0.5
X10C9312941B	N/A	7-9	0.3	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0402990WW	N/A	10-12	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0402990AX	N/A	13-15	<0.12	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0506150B	N/A	16-18	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0506149E	N/A	19-21	<0.15	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0402990AJ	N/A	22-24	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0402859C	N/A	25-27	1.5	0.5	<0.1	2.0	1.0	<0.5
X10C0402990AU	N/A	28-30	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0506152A	N/A	31-33	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0506149B	N/A	34-36	0.1	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0506152B	N/A	37-39	0.1	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0506151B	N/A	40-42	0.15	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0402990BC	N/A	43-45	0.12	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0402990BA	N/A	46-48	0.15	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0403030B	N/A	49-51	4.0	1.0	0.15	3.0	1.0	<0.5
X10C0402990AE	N/A	52-54	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5
X10C0403030E	N/A	55-57	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

O.C. = On contact

Annotate Highest Dose Rate on Container

Trailer Max Dose Rate (O.C./30 cm): N/A / N/A gamma N/A / N/A neutron

LAW Results (dpm/probe): Inside Trailer N/A Outside Trailer N/A

* On contact (OC) or OC/30cm @ Smear LAS Direct

REMARKS: All dose rates in mR/hr gamma and mrem/hr neutron unless otherwise noted. LAS in dpm/probe, smears in dpm/100 sq. cm. Smears 1-57 were <20 dpm/100cm² (α) and <200 dpm/100cm² (βγ).

RCT SIGNATURE: Chris Hopson

RCO SIGNATURE: Bob Jones Aldridge Date: 3/30/10

The signature(s) on this sheet are that of the responsible technician(s) who certify that the data recorded represent the readings, measurements, and/or observations at the time indicated.

ORIGINAL

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0111
Examination Date:	09/12/08
Waste Container ID:	X10C0506150B
Video/Audio Recorded Media Number:	OR-RTR6-0111 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 259.2 kg. Tare Wt: 32.4 kg. Net Wt: 226.8 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0506150B

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with a horsetail Soil and small rocks, piece of broken concrete ~20 ml residual liquid in fold of plastic bag at 17"

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.7
Plastics (PP):	1.0
Others: Cardboard Liner Insert	3.7
Total Packaging Weight:	32.4
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	0.5
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	225.3
Total WMP Weight:	226.8

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0506150B

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block.)	Yes	No	N/A
Is there liquid in the container?	☑	☐	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☑	☐
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☑	☐
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
~20 ml residual liquid in fold of plastic bag at 17"

RTR Operator:

E. Lee Smith	E. Lee Smith	09/12/08
Print Name	Signature	Date

********** Radioassay Data Sheet **********

Engine Version: TMU Gamma 1.5

Assay Instrument: Segmented Gamma S
Analysis Method: CCP-TP-169 Rev 1
Item ID: X10C0506150B

Location: DWAS/IPAN/SGS
Software Version: NDA 2000 V.4.0
Analysis Date: 9/12/2008

NID identified fiducial nuclide PU-239
Source of isotopics: DECLARED

Net Weight	227000.0 g		
Pu mass	3.02E-001	+- 8.48E-002	g
TRU Alpha Activity	2.95E-002	+- 5.77E-003	Ci
TRU Activity Concentration	1.30E+002	+- 2.54E+001	nCi/g
Pu-239 Equivalent Activity	2.99E-002	+- 5.77E-003	Ci
Pu-239 FGE	2.75E-001	+- 8.44E-002	g
Decay heat	9.30E-004	+- 1.79E-004	W

Nuclide	Mass g	Activity Ci	Activity Uncert. Ci	MDA Ci
SR90	<LLD	<LLD	0.00E+000	0.00E+000
CS137	<LLD	<LLD	0.00E+000	4.04E-007
EU154	0.00E+000	0.00E+000	0.00E+000	7.44E-007
RA226	0.00E+000	0.00E+000	0.00E+000	6.64E-007
AC227	0.00E+000	0.00E+000	0.00E+000	2.07E-006
TH229	0.00E+000	0.00E+000	0.00E+000	1.06E-006
TH232	0.00E+000	0.00E+000	0.00E+000	1.09E-006
U232	2.99E-008	6.45E-007	1.07E-007	3.87E-007
U233	<LLD	<LLD	0.00E+000	3.87E-003
U234	<LLD	<LLD	0.00E+000	0.00E+000
U235	0.00E+000	0.00E+000	0.00E+000	7.06E-007
NP237	0.00E+000	0.00E+000	0.00E+000	7.59E-007
PU238	1.32E-004	2.28E-003	7.66E-004	1.03E-003
U238	<LLD	<LLD	0.00E+000	3.27E-005
PU239	2.74E-001	1.72E-002	5.31E-003	7.81E-003
PU240	2.68E-002	6.16E-003	2.09E-003	2.79E-003
AM241	1.09E-003	3.80E-003	4.72E-004	3.05E-005
PU241	3.00E-004	3.12E-002	1.05E-002	1.41E-002
PU242	3.68E-004	1.46E-006	4.94E-007	0.00E+000
AM243	0.00E+000	0.00E+000	0.00E+000	2.13E-006
CM243	0.00E+000	0.00E+000	0.00E+000	2.20E-006
CM245	0.00E+000	0.00E+000	0.00E+000	4.15E-006
CF249	0.00E+000	0.00E+000	0.00E+000	4.29E-007

Errors quoted at 1.000 sigma

Operator: Jared Francis Jared F Date: 12/10/08

ITR: Deborah Satterfield Date: 12/18/2008

Satterfield

#4649
OR-NFS-CH-SOIL

Radioassay Data Sheet

Version Information
DNGI Version: 1.10
DWAS Acquisition SW Version: 3.02
DWAS Analysis SW Version: 1.20 PCFRAM Analysis Version: N/A
Calculation DLL: 1.10, License File DLL: 1.10, Password DLL: 1.10, Report DLL: 1.10
Neutron Data Import DLL: 1.10, Gamma Data Import DLL: 1.30, Data Archive DLL: 1.10
DNGI.akl Version: 3.0, DNGI.GLB Version: 3.0, DNGI.MDA Version: 2.2

Identifying Data
Radioassay Procedure: CCP-TP-166 Rev 1
Facility: DWAS/IPAN/SGS
Neutron Assay Date and Time: Thu Dec 04 15:01:35 2008 Gamma Assay Date and Time: Not Listed
DWASAnalysis Filename 080912_P18.NEU PCFRAM Filename: 4649_NOFRAM.r01
DNGI results File: C:\DWAS_Analysis_Package\DNGI_Results\4649_nofram.ngi

Tare Weight: 32.40 kg Gross Weight: 259.20 kg Net Weight: 226.80 kg
Gamma Live Time: 0.00 s Gamma Real Time: 0.00 s Gamma Percent Dead Time: 100.00

Neutron Cont. ID: X10C0506150B
Neutron Equipment ID: DWAS
Neutron User ID:

Gamma Cont. ID: NOFRAM
Gamma Equipment ID: 4649
DNGI Analyst ID: JOHN_WEST

NOT USED FOR CHARACTERIZATION

Imported Pu240e Mass: 0.005822 g
Corrected Pu240e Mass: 0.005822 g
Imported Pu239e Mass: 0.359724 g
Corrected Pu239e Mass: 0.359724 g

Imported Pu240e Mass Uncertainty: 0.167632 g
Corrected Pu240e Mass TMU: 0.167632 g
Imported Pu239e Mass Uncertainty: 0.090385 g
Corrected Pu239e Mass TMU: 0.090385 g

PCFRAM Parameter Set: N/A. PCFRAM analysis could not be performed (poor counting stats). AK Used.

Isotope	Fraction (g/gPu)	Fraction Uncertainty (g/gPu)	Mass (g)	Mass TMU at 1-Sigma (g)	Activity (Ci)	Activity TMU at 1-Sigma (Ci)	Rule Used	Mode
Pu238	4.4000e-004	4.4000e-005	1.7337e-004	4.9955e-005	2.9992e-003	8.6423e-004	AK	Active
Pu239	9.0837e-001	9.0837e-002	3.5791e-001	8.9929e-002	2.2512e-002	5.6566e-003	AK	Active
Pu240	8.8930e-002	8.8930e-003	3.5039e-002	1.0094e-002	8.0591e-003	2.3216e-003	AK	Active
Pu241	1.0400e-003	1.0400e-004	4.0977e-004	1.1804e-004	4.2616e-002	1.2276e-002	AK	Active
Pu242	1.2200e-003	1.2200e-004	4.8069e-004	1.3851e-004	1.9084e-006	5.4990e-007	AK	Active
Am241	1.1150e-002	1.1150e-003	4.3932e-003	1.2659e-003	1.5245e-002	4.3926e-003	AK	Active
Np237	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	Not In AK	Active
U235	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	Not In AK	Active
Am243	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	Not In AK	Active
Cs137	< LLD						< LLD	
U233	< LLD						< LLD	
U238	< LLD						< LLD	
Cm244	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	Not In AK	Passive
Ra226	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	Not In AK	Active
Sr90	< LLD						< LLD	
U234	< LLD						< LLD	

AK Set Selected: OR-NFS-CH-HET

	Value	TMU at 1-Sigma
Total Thermal Power (Watts):	1.5592e-003	4.0209e-004
Total Plutonium Active Mass (g):	3.9401e-001	1.0648e-001
Total Plutonium Passive Mass (g):	6.3211e-002	1.8200e+000
Total Plutonium Isotope Sum Mass (g):	3.9401e-001	1.0533e-001
Total Pu239 FGE (g Pu239 FGE):	3.5972e-001	9.7214e-002
Total Pu239 Equivalent Activity (PE-Ci):	4.9380e-002	1.2730e-002
Total Alpha Activity (Ci):	4.8818e-002	1.2593e-002
Total TRU Alpha Activity (Ci):	4.8817e-002	1.2593e-002
Total TRU Alpha Activity Concentration (nCi/g):	2.1524e+002	5.5525e+001
ABSMOD:	328.391417	
MOD:	20.754274	
Active MDA (g-Pu239e):	0.000000	
Passive MDA (g-Pu240e):	0.000000	
MDC (nCi/g):	0.000000	
FGE For Criticality Control	0.550263	(g Pu239 FGE)

Warning Messages
Assay Identification Parameters (User ID and/or Radio-Assay Procedure) have been Overridden.
Warning! ABSMOD index was higher than the highest region in the MDA file. Active Mode Analysis not valid!
Warning! MOD index was higher than the highest region in the MDA file. Passive Mode Analysis not valid!

Operator Name: Jared Francis
Operator Signature: Jared F
Date: 12/10/08

Reviewer Name: Satterfield
Reviewer Signature: Deborah Satterfield
Date: 12/18/2008

OR-DWAS-0130

099

Automated Independent Technical Review

Counter ID: Segmented Gamma S Count Type: Item Count I (CTYP0001)
Container ID: X10C0506150B Assay Date: 9/12/2008
Waste Matrix Code:
Sequence Number: 4649

Data Combiner Analysis:
Override enabled; Gamma data specified as input.
Analysis Status: Override enabled; data marked not available but were used

Results taken from Quantitative Gamma data.

Results comparison test passed.

DISPOSITION: Summed Segment Spectra results used in this assay.

MGA Analysis:
Results are marked as invalid.

DISPOSITION: No MGA results available.
Default OR-NFS-CH-SOIL isotopics applied.

Gamma Analysis:
Analysis Status: No errors.
Spectrum Validity Check engine has suggested data review.

DISPOSITION: Summed Segment Spectra results are acceptable.

Segment Data Review:
Segment: 1 Analysis Warnings:
Minimum transmission used.
Segment: 2 Analysis Warnings:
Minimum transmission used.
Some transmission peaks rejected.
Segment: 3 Analysis Warnings:
Minimum transmission used.
Some transmission peaks rejected.
Segment: 4 Analysis Warnings:
Minimum transmission used.
Some transmission peaks rejected.
Segment: 5 Analysis Warnings:
Minimum transmission used.
Segment: 6 Analysis Warnings:
Minimum transmission used.
Segment: 7 Analysis Warnings:
Minimum transmission used.
Some transmission peaks rejected.
Segment: 8 OK

Segment: 9 Analysis Warnings:
Transmission Error 11: The xmission ratio > 1 for one or more peaks.

Peak Attenuation obtained by Standard Transmission Correction

DISPOSITION: Transmission-corrected results not used in this assay.

Miscellaneous:

DISPOSITION: No additional radionuclides detected that contribute to 95% of the radiological hazard.

Expert Review by: Robert N. Ceo Date: 11-24-08

Robert N. Ceo
#4649
OR-NFS-CH-SOIL

Attachment 6 – Expert Analysis Comment Sheet

1. *DRUM ID:* X10C0506150B

2. *ASY FILE / RUN #::* 080912 Run 18

3. *SGS SEQUENCE #:* 4649

4. *FRAM Analysis:*
- (⋈) FRAM Analysis not performed, see Comments
- ( ) FRAM Analysis performed [Complete Boxes 4a and 4b]

4a. FRAM Parameter Set:
- ( ) Coax_DWAS_250_rev1, 0.25 keV/ch (>125 keV)
- ( ) LowE_DWAS_250_rev2, 0.25 keV/ch, with 96-106 keV
- ( ) Other, see Comments

4b. FRAM Efficiency Method:
- ( ) Empirical
- ( ) Physical: coax, U/Pu 0.1-50, Al 0.1-100, Fe 0.1-100, Cd 0.2-3
- ( ) Other, see Comments

5. *AK Stream:* (Note AK Stream Used) OR-NFS-CH-SOIL

6. *DWAS Neutron Gamma Integration (DNGI) Analysis:*
- (⋈) DNGI analysis not performed, see Comments
- ( ) DNGI analysis performed [Complete Boxes 6a, 6b and 6c]

6a. AK File Used:
- ( ) DNGI.AKL Default
- ( ) Alternate AKL, see Comments

6b. DNGI Analysis Isotopics Selection:
- ( ) DNGI isotopics reviewed and accepted
- ( ) DNGI isotopics over-ridden:
  - ( ) forced AK for all Pu isotopes
  - ( ) forced AK for Am-241
  - ( ) forced AK for other isotopes, see Comments.

6c. DNGI Analysis IPAN Mode Selection:
- ( ) DNGI active / passive mode selection reviewed and accepted
- ( ) DNGI active / passive mode selection over-ridden:
  - ( ) forced active mode, see alternate AKL file
  - ( ) forced passive mode, see alternate AKL file

7. *Method used to calculate final radioassay data:*
- ( ) IPAN
- (⋈) SGS
- ( ) Rejected both IPAN and SGS (Both Radioassay Data Sheets to be stamped "Not Used for Characterization")

8. *Expert Analysis Comments:*

Reject IPAN-ABSMOD & MOD OOR.

Use SGS.

9. *Expert Analyst Name:* John West

10. *Expert Analyst Signature:* John West

11. *Date:* 12/4/08

BDR Number	OR09FG4023
Sample Date	3/26/2009
Waste Container ID	X10C0506150B

CAS Number	Compound	ppmv	Reporting Flag
1333-74-0	Hydrogen	96	U
74-82-8	Methane	133	U

		ppmv	Reporting Flag
67-56-1	Methanol	13.0	U
60-29-7	Ethyl Ether	1.3	U
75-35-4	1,1-Dichloroethylene	0.6	U
67-64-1	Acetone	7.8	U
75-34-3	1,1-Dichloroethane	1.7	U
156-59-2	cis-1,2-Dichloroethene	0.5	U
78-93-3	Methyl ethyl ketone	3.4	U
110-82-7	Cyclohexane	3.2	U
71-43-2	Benzene	0.6	U
107-06-2	1,2-Dichloroethane	1.7	U
71-36-3	1-Butanol	0.6	U
108-10-1	Methyl isobutyl ketone	3.1	U
108-88-3	Toluene	2.2	U
108-90-7	Chlorobenzene	0.5	U
100-41-4	Ethylbenzene	0.6	U
108-38-3/106-42-3	m- and p-Xylene	0.4	U
95-47-6	o-Xylene	0.4	U
108-67-8	1,3,5-Trimethylbenzene	0.5	U
95-63-6	1,2,4-Trimethylbenzene	0.5	U

CAS Number	Identified TIC Compound	Estimated ppmv
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Attachment 1 – Sample Container Data Form

BDR Number: OR09FG4023

	Waste Container ID	Filter Model Number	Hydrogen Diffusivity of Filter (mol/s/mf)	Package Configuration Group Number	Closure Date	Vent Date	Required DAC Value (in days)	Drum Age (in days)	Can this container be sampled?
1	X10C9311562A	NFT NucFil®-019DS	1.85E-05	3	2/6/2009	2/6/2009	12	48	Y
2	X10C9312241A	NFT NucFil®-019DS	1.85E-05	3	2/26/2009	2/26/2009	12	28	Y
3	X10C9312695A	NFT NucFil®-019DS	1.85E-05	3	2/19/2009	2/19/2009	12	35	Y
4	X10C9312660A	NFT NucFil®-019DS	1.85E-05	3	2/24/2009	2/24/2009	12	30	Y
5	X10C9311184A	NFT NucFil®-019DS	1.85E-05	3	2/20/2009	2/20/2009	12	34	Y
6	X10C9312734A	NFT NucFil®-019DS	1.85E-05	3	2/26/2009	2/26/2009	12	28	Y
7	X10C0506150B	NFT NucFil®-019DS	1.85E-05	2	7/30/2008	7/30/2008	13	239	Y
8	X10C0506151B	NFT NucFil®-019DS	1.85E-05	2	8/4/2008	8/4/2008	13	234	Y
9	X10C9311292A	NFT NucFil®-019DS	1.85E-05	3	1/28/2009	1/28/2009	12	57	Y
10	X10C0506152A	NFT NucFil®-019DS	1.85E-05	2	8/7/2008	8/7/2008	13	231	Y
11	X10C9309210A	NFT NucFil®-019DS	1.85E-05	2	1/20/2009	1/20/2009	9	65	Y
12	X10C0506151C	NFT NucFil®-019DS	1.85E-05	2	8/5/2008	8/5/2008	13	233	Y
13	X10C9313099A	NFT NucFil®-019DS	1.85E-05	3	2/20/2009	2/20/2009	12	34	Y
14	X10C9311202A	NFT NucFil®-019DS	1.85E-05	3	3/9/2009	3/9/2009	12	17	Y
15	X10C9311580A	NFT NucFil®-019DS	1.85E-05	3	2/5/2009	2/5/2009	12	49	Y
16	X10C9312266A	NFT NucFil®-019DS	1.85E-05	3	2/27/2009	2/27/2009	12	27	Y
17	X10C9313042A	NFT NucFil®-019DS	1.85E-05	3	2/24/2009	2/24/2009	12	30	Y
18	X10C9311805A	NFT NucFil®-019DS	1.85E-05	3	3/10/2009	3/10/2009	12	16	Y
19	X10C9312650A	NFT NucFil®-019DS	1.85E-05	3	2/27/2009	2/27/2009	12	27	Y
20	X10C9312051A	NFT NucFil®-019DS	1.85E-05	3	3/3/2009	3/3/2009	12	23	Y

OR09FG4023

Operator: Kristoffer Henderson
Printed Name

Signature

3/30/09
Date

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PAGE

Waste Isolation Pilot Plant
Container Data Report

Report Statistics

Report Version:	**2.3**
WDS Instance:	**prd05.wipp.carlsbad.nm.us**
Generated on:	**January 13, 2014 10:35 AM**
Generated by:	**KIRKES, CRETA**
Total Pages:	**8**

Selection Criteria

Container Number:	**X10C0506150B**

Container: X10C0506150B
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

Current Location Site: OR
Generator Site: OR
Destination Site ID: WI

Certification Program ID: C6
Shipping Program ID: C6

Neutron Dose Rate (mrem/hr): 0.5
Beta Gamma Dose Rate (mrem/hr): 0.1
Total Dose Rate (mrem/hr): 0.6

FGE (g): 2.75E-01
FGE Uncertainty (g): 8.44E-02

Gross Weight (kg): 259.20
Gross Weight Uncert (kg): 2.30

Decay Heat (W): 9.3E-04
Decay Heat Uncertainty (W): 1.79E-04

Certification Data Values

Waste Stream Profile Code: OR-NFS-CH-SOIL
Waste Type Code: MTRU
IDC Code: NONE
Waste Matrix Code: S4100
WAC Revision Number: 6.5
Fill Factor (%): 90.00
Waste Stream BIR ID: OR-NFS-CH-SOIL
Waste Stream MWIR ID: NONE

TRU Alpha Activity (Ci): 2.95E-02
TRU Alpha Activity Uncertainty (Ci): 5.77E-03
TRU Alpha Activity Concentration (Ci/g): 1.3E-07
PU-239 Equivalent Activity (PE-Ci): 2.99E-02
Alpha Surface Contamination (dpm/cm^2): 19.0
Beta/Gamma Surface Contamination (dpm/cm^2): 199.0

Transportation Data Values

Closure Date: 07/30/2008
Vent Date: 07/30/2008
Process Knowledge? N

TRUCON Code: OR211B
Shipping Category: 1001300122
Aspiration Method: 3

Shipment Purpose: DISPOSAL
Machine Compacted? N
Liner Exists? N
Liner Hole Size(mm):
Liner Lid Present?
Layers of Packaging 2
Aqueous Material? N

Gas Generation Data Values

Measured FGGR (mol/s)	Measured TGRR (mol/s)	Truncated FGGR Test (Y/N)	Truncated FGGR Test Period (days)

Filters

Filter Model Number	Filter Diffusivity (mol/s/ml)	Quantity	Install Date
NF019D	1.85E-05	1	07/30/2008

Container: X10C0506150B
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

PCB Waste? N
PCB Mass (kg):
PCB Concentration (ppm):
PCB Out of Service Date:
Be Present? N
Be <= 1% by weight?
Be mass <= 100kg?
Separation OK?
Packing Fraction (compaction level): non-compacted

Certification Comments

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
AM-241	3.800E-03	4.720E-04	1.095E-03	1.388E-04
AM-243	.000E00	.000E00	.000E00	.000E00
CS-137	<LLD	<LLD	<LLD	<LLD
NP-237	.000E00	.000E00	.000E00	.000E00
PU-238	2.280E-03	7.660E-04	1.318E-04	4.518E-05
PU-239	1.720E-02	5.310E-03	2.734E-01	8.614E-02
PU-240	6.160E-03	2.090E-03	2.678E-02	9.272E-03
PU-241	3.120E-02	1.050E-02	3.000E-04	1.030E-04
PU-242	1.460E-06	4.940E-07	3.678E-04	1.270E-04
SR-90	<LLD	<LLD	<LLD	<LLD
U-232	6.450E-07	1.070E-07	2.986E-08	5.055E-09
U-233	<LLD	<LLD	<LLD	<LLD

Container: X10C0506150B
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
U-234	<LLD	<LLD	<LLD	<LLD
U-235	.000E00	.000E00	.000E00	.000E00
U-238	<LLD	<LLD	<LLD	<LLD

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	H-X10C0506150B	HGHM-T	HEADSPACE GAS HYDROGEN AND METHANE	03/26/2009	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
1333-74-0	HYDROGEN	96.03	03/26/2009	16HG2	U
74-82-8	METHANE	133.26	03/26/2009	16HG2	U

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	X10C0506150B	HGVO-T	HEADSPACE GAS VOC	03/26/2009	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
100-41-4	ETHYL BENZENE	0.6	03/26/2009	16HG2	U
107-06-2	1,2-DICHLOROETHANE	1.7	03/26/2009	16HG2	U
108-10-1	METHYL ISOBUTYL KETONE	3.1	03/26/2009	16HG2	U
108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	03/26/2009	16HG2	U
108-88-3	TOLUENE	2.2	03/26/2009	16HG2	U

Container: X10C0506150B
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	X10C0506150B	HGVO-T	HEADSPACE GAS VOC	03/26/2009	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
108-90-7	CHLOROBENZENE	0.5	03/26/2009	16HG2	U
108383/106423	M,P-XYLENE	0.4	03/26/2009	16HG2	U
110-82-7	CYCLOHEXANE	3.2	03/26/2009	16HG2	U
156-59-2	CIS-1,2-DICHLOROETHYLENE	0.5	03/26/2009	16HG2	U
60-29-7	ETHYL ETHER	1.3	03/26/2009	16HG2	U
67-56-1	METHANOL	13.0	03/26/2009	16HG2	U
67-64-1	ACETONE	7.8	03/26/2009	16HG2	U
71-36-3	BUTANOL	0.6	03/26/2009	16HG2	U
71-43-2	BENZENE	0.6	03/26/2009	16HG2	U
75-34-3	1,1-DICHLOROETHANE	1.7	03/26/2009	16HG2	U
75-35-4	1,1-DICHLOROETHYLENE	0.6	03/26/2009	16HG2	U
78-93-3	METHYL ETHYL KETONE	3.4	03/26/2009	16HG2	U
95-47-6	O-XYLENE	0.4	03/26/2009	16HG2	U
95-63-6	1,2,4-TRIMETHYLBENZENE	0.5	03/26/2009	16HG2	U

Material Parameters

Material Parameter	Description	Weight (kg)

Container: X10C0506150B
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

Material Parameters

Material Parameter	Description	Weight (kg)
4	OTHER INORGANIC MATERIALS	0.50
8	PLASTICS	1.00
12	SOILS	225.30
13	STEEL CONTAINER MATERIALS	27.70
14	PLASTIC/LINERS CONTAINER MATERIALS	1.00
15	CELLULOSICS PACKAGING MATERIALS	3.70
	Waste Weight:	226.80
	Packaging Weight:	32.40
	Total Material Weight:	259.20

Hazardous Codes

Hazardous Code	Description
F002	SPENT HALOGENATED SOLVENTS

Assay Methods

Labor Code	Assay Method	Description	Assay Date
C6	16SG1	IPAN-SGS-001 - MOBILE SGS	09/12/2008

Non-Destructive Examination (NDE)

Labor Code	NDE Method	Description	Examination Date
C6	16RR1	RTR MCS MOBILE CHARACTERIZATION SYSTEM	09/12/2008

Container: X10C0506150B
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

Edit Limit Check Results
Evaluation Date: 06/19/2013 10:26:18 Overall Status: PASS

Evaluation Code	Status	Return Code	Detailed Description
DI_CERT_ALL	PASS		
DI_CERT_BE	PASS		
DI_CERT_CERT	PASS		
DI_CERT_CHARZ	PASS		
DI_CERT_ED	PASS		
DI_CERT_EPA	PASS		
DI_CERT_PCB	PASS		
DI_CERT_PERC	PASS		
DI_CERT_TRAMPAC	PASS		
DSA	PASS		
WAC	PASS		
WAP_CERT	PASS		

TRAMPAC Evaluation Results
Evaluation Date: 06/19/2013 10:26:18 Overall Status: PASS

Evaluation Code	Status	Return Code	Detailed Description
CE_ACT	PASS		
CE_ALL	PASS		
CE_ASP	PASS		
CE_DDH	PASS		
CE_FGE	PASS		
CE_FIL	PASS		
CE_GVE	PASS		
CE_RDR	PASS		
CE_TRU	PASS		

Container: X10C0506150B
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

TRAMPAC Evaluation Results

Evaluation Date: 06/19/2013 10:26:18 Overall Status: PASS

Evaluation Code	Status
CE_WGT	PASS

Details

Matrix Depleted Shipping Category:		Compliance Method:	ANALYTICAL
Decay Heat Limit (w):	0.30418789407313995	FGE Limit (g):	200
FGGR (mol/s):	1.253103608036654E-10	FGGR Limit (mol/s):	4.098360655737705E-8
Volume Model:		Required Aspiration Time (days):	
Total Headspace VOCs (ppm):	42.6		
Packaging Configuration:	COMMON_PACKAGING 3	DAC Scenario:	3
Closure Time (days):	0	Minimum Closure Time Applied (days):	127
Sample-Vent Time (days):	239	Min Sample-Vent Time Applied (days):	19
TFGVC in ICL (mol fr):		MLEL (mol fr):	0.05

History

Event Date/Time	Event Description	Reason
12/27/2010 08:03:26	INSERT DATA INTO THE DATABASE	
12/27/2010 08:03:26	SUCCESSFUL SUBMISSION FOR CERT	
12/27/2010 11:20:22	APPROVED FOR CERT	
04/01/2011 09:03:32	RESET TO PRESUBMITTAL CERT	THE CONTAINER IS ON HOLD FOR RANDOM SAMPLING
06/19/2013 10:26:19	SUCCESSFUL SUBMISSION FOR CERT	
06/19/2013 10:29:17	APPROVED FOR CERT	

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Waste Characterization Case File:

including Container Information Summary (CIS) excerpts, Waste Certification Data Entry Form (WCDEF) spreadsheet signed copies, supporting forms and data, and WWIS/WDS Waste Container Data Report for the container

X10C0506150C

(a 55 gal soils container)

ORNL CH/RH AUDIT - January 14-17 - WWIS Data Entry

CONTAINER ID	CONTAINER TYPE	WASTE STREAM	AK REPORT	CLOSURE DATE	VENT DATE
X10C0506150B	55G	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	7/30/2008	7/30/2008
X10C0506150C	55G	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	7/30/2008	7/30/2008

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CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: OR-NFS-CH-SOIL Lot # 11

Container ID Number	NDA BDR	NDE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes	Transportation Headspace Gas BDR*
NFS0544	OR-DWAS-0098	OR-RTR6-0080	N/A	N/A		OR08FG4056
NFS0668	OR-DWAS-0129	OR-RTR6-0094	N/A	N/A		OR08FG4047
NFS0691	OR-DWAS-0106	OR-RTR6-0091	N/A	N/A		OR09FG4034
NFS0824	OR-DWAS-0092	OR-RTR6-0077	N/A	N/A		OR09FG4038
NFS0847	OR-IQ3-0076	OR-RTR6-0104	N/A	N/A		OR09FG4011
X10C0506047	OR-DWAS-0120	OR-RTR6-0305	N/A	N/A		OR09FG4043
X10C0506148A	OR-DWAS-0130	OR-RTR6-0110	N/A	N/A		OR08FG4051
X10C0506148C	OR-DWAS-0131	OR-RTR6-0110	N/A	N/A		OR08FG4039
X10C0506149B	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4051
X10C0506149D	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4048
X10C0506149E	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4051
X10C0506150A	OR-IQ3-0065	OR-RTR6-0317	N/A	N/A		OR08FG4051
X10C0506150B	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR09FG4023
X10C0506150C	OR-DWAS-0130	OR-RTR6-0110	N/A	N/A		OR08FG4051
X10C0506151B	OR-DWAS-0131	OR-RTR6-0111	N/A	N/A		OR09FG4023
X10C0506151C	OR-DWAS-0130	OR-RTR6-0110	N/A	N/A		OR09FG4023
X10C0506151E	OR-DWAS-0131	OR-RTR6-0110	N/A	N/A		OR08FG4039
X10C0506152A	OR-DWAS-0131	OR-RTR6-0111	N/A	N/A		OR09FG4023
X10C0506152B	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4051

Signature of Site Project Manager

Julius Lyons
Printed Name

12/13/2010
Date

Kirkes, Creta - NWP

From: Mueller, Terry - WTS
Sent: Monday, December 27, 2010 7:58 AM
To: Bond, Betty - WTS; Dominguez, Lena - WTS; Gonzalez, Ana C. - WTS; Pettus, Helen - WTS; Sandate, Yoli - WTS; Soaterna, Carolina - WTS; Underwood, Luann - WTS; Valenzuela, Bobbie; Whiteaker, Roger - WTS; Ybarra, Deanna - WTS
Cc: Walker, Mak (Maryann) - WTS
Subject: FW: NCR/CAR Request ORNL NFS-CH-SOIL 011
Attachments: NCR Check ORNL NFS Soil Lot 1S11.xls

There are no NCR or CAR dispositions that impact the acceptability of these drums, alternate drum IDs, and associated BDRs for certification and shipping as listed on the attached. This check was verified independently.

Thanks!

Terry L. Mueller
CCP QA
Washington TRU Solutions, LLC
Contractor to the Department of Energy
MS GSA-103
***work* (575)-234-7016**
***fax* (575)-234-7042**

From: Dominguez, Lena - WTS
Sent: Monday, December 27, 2010 7:44 AM
To: Mueller, Terry - WTS; Gomez, Chris - WTS; Jones, Laura - WTS; Wade, Louis - WTS; Walentine, Michael - WTS; Kantrowitz, Rich - WTS; Walker, Mak (Maryann) - WTS; Mireles, Jessica - WTS
Subject: NCR/CAR Request ORNL NFS-CH-SOIL 011

Please do an NCR/CAR check for ORNL NFS CH Soil Lot 1S11.

Thanks,
Lena

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1	WDS Master Template.xls Rev. 3 Addendum #3, SCO #1065 Excel 2003/2007 Microsoft Windows XP	Units	data	comments									initial	date
2	Shipper Site ID		C6	Location ID	Dest Program ID	Shipping Purpose							YS/LU	12/15/10
3	Waste Stream Profile		OR-NFS-CH-SOIL	OR	WI	D							YS/LU	12/15/10
4	Container Number		X10C0506150C										YS/LU	12/15/10
5	Container Type		drum	drum, swb, tdop, etc., see WWIS labels for valid types.					U-235 FEM	U-235 FEM Uncert	FGGR Flag	FGGR Test Period	YS/LU	12/15/10
6	WAC Rev #		6.5						NULL	NULL	NULL	NULL		
7	[redacted]							Be <=100 kg	Be <= 1%	Be Present	Aqueous Material	Compacted Wst	YS/LU	12/15/10
8	Cert Site		C6					N	N	N	N	N		
9	Cert Date		12-22-10										YS/LU	12/15/10
10	Waste Handling Code		CH	CH, RH									YS/LU	12/15/10
11	Waste Type Code		MTRU	TRU, MTRU									YS/LU	12/15/10
12	Waste Stream BIR ID		OR-NFS-CH-SOIL										YS/LU	12/15/10
13	Waste Stream MWIR ID		NONE										YS/LU	12/15/10
14	Generator Site ID		OR										YS/LU	12/15/10
15	IDC Code		NONE										YS/LU	12/15/10
16	Matrix Code		S4100										YS/LU	12/15/10
17	Trucon Code		OR211B											
18	Shipping Category		1001300122										YS/LU	12/15/10
19	Tru Alpha Act	Ci	3.30E-02		3.292E-02								YS/LU	12/15/10
20	Tru Alpha Act Uncert	1sigma Ci	4.83E-03	4.266E-02	Tru Alpha Act + 2sigma (Ci)								YS/LU	12/15/10
21	Tru Alpha Act Conc	nCi/g	1.35E+02		1.35E+02								YS/LU	12/15/10
22	[redacted]		1.98E+01	1.746E+02	Tru Alpha Act Conc + 2sigma (Ci)			Drum Weight	27.7				YS/LU	12/15/10
23	Pu239 Fiss Gm Eq	g	3.14E-01		3.131E-01			[redacted]					YS/LU	12/15/10
24	Pu239 Fiss Gm Eq Uncert	1sigma g	6.96E-02	4.532E-01	Pu239 Fiss Gm Eq + 2sigma (Ci)								YS/LU	12/15/10
25	Pu239 Eq Act	Ci	3.34E-02		3.338E-02								YS/LU	12/15/10
26	Decay Heat	watts	1.04E-03		1.037E-03								YS/LU	12/15/10
27	Decay Heat Uncert	1sigma watts	1.50E-04	1.19E-03	Decay Heat + 1sigma (watts)								YS/LU	12/15/10
28	Layers of Packaging		2											
29	Fill Factor		85	percentage	Liner Lid Present								YS/LU	12/15/10
30	Liner Type			1 = plastic drum liner									YS/LU	12/15/10
31	Liner Punctured				Liner Hole Size (mm)								YS/LU	12/15/10
32	PCB Conc		NULL				PCB Waste	PCB Mass (kg)	Out of Service				YS/LU	12/15/10
33	Closure Date		7/30/2008	Watt-years	Waste Gen Date		N	NULL	NULL				YS/LU	12/15/10
34	Vent Date		7/30/2008	0.002	NULL								YS/LU	12/15/10
35	Filter Install Date		7/30/2008										YS/LU	12/15/10
36	Filter Manufacturer		NFT										YS/LU	12/15/10
37	[redacted]												YS/LU	12/15/10
38	Filter Model Number		NF019D										YS/LU	12/15/10
39	Number of Filters Installed		1										YS/LU	12/15/10
40	Aspiration Method ID		3											
41	Gas Gen Rate			1.603E-10	<<Gas Gen Rate Calculated.									
42	Hydrogen/Methane Gen Rate													
43	Gas Gen Comp Date				Waste (kg)	Packaging (kg)	Total (kg)						YS/LU	12/15/10
44	Gross Weight	kg	276.4		244.0	32.4	276.4						YS/LU	12/15/10
45	Gross Weight Uncert	1sigma kg	2.3										YS/LU	12/15/10
46	Alpha Surf Cont	dpm/100 cm^2	19										YS/LU	12/15/10
47	Beta/Gamma Surf Cont	dpm/100 cm^2	199										YS/LU	12/15/10
48	Neutron Dose Rate	mrem/hr	0.5										YS/LU	12/15/10
49	Beta/Gamma Dose Rate	mrem/hr	0.1										YS/LU	12/15/10
50	Radionuclide		SR-90	CS-137	U-233	U-234	U-235	NP-237	PU-238	U-238	PU-239	PU-240	YS/LU	12/15/10
51	Activity	Ci	5.48E-07	5.48E-07	-1.00E+00	-1.00E+00	0.00E+00	0.00E+00	2.60E-03	-1.00E+00	1.96E-02	7.02E-03	YS/LU	12/15/10
52	Activity Uncert	1sigma Ci	9.48E-08	9.48E-08	-1.00E+00	-1.00E+00	0.00E+00	0.00E+00	6.77E-04	-1.00E+00	4.38E-03	1.86E-03	YS/LU	12/15/10
53	Mass	grams	3.97E-09	6.23E-09	-1.00E+00	-1.00E+00	0.00E+00	0.00E+00	1.50E-04	-1.00E+00	3.12E-01	3.05E-02		
54	Mass Uncert	1sigma grams	7.01E-10	1.10E-09	-1.00E+00	-1.00E+00	0.00E+00	0.00E+00	3.99E-05	-1.00E+00	7.11E-02	8.25E-03		
55	calc Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-03	0.00E+00	1.96E-02	7.02E-03		
56	calc Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E+01	0.00E+00	8.03E+01	2.88E+01		
57	calc Act	Ci	5.48E-07	5.48E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-03	0.00E+00	1.96E-02	7.02E-03		
58	calc Act Conc	nCi/g	2.25E-03	2.25E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E+01	0.00E+00	8.03E+01	2.88E+01		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
59	calc Pu239 FGE	g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-05	0.00E+00	3.12E-01	6.87E-04		
60	calc Pu239 Eq Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-03	0.00E+00	1.96E-02	7.02E-03		
61	calc Decay Heat	watts	6.35E-10	6.07E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.61E-05	0.00E+00	6.08E-04	2.19E-04		
62	uncert Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E-04	0.00E+00	4.41E-03	1.90E-03		
63	uncert Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E+00	0.00E+00	1.83E+01	7.78E+00		
64	uncert Act	Ci	9.67E-08	9.67E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.91E-04	0.00E+00	4.47E-03	1.90E-03		
65	uncert Act Conc	nCi/g	3.96E-04	3.96E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E+00	0.00E+00	1.83E+01	7.78E+00		
66	uncert Pu239 FGE	g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.51E-06	0.00E+00	7.11E-02	1.86E-04		
67	uncert Pu239 Eq Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.15E-04	0.00E+00	4.38E-03	1.86E-03		
68	uncert Decay Heat	watts	1.12E-10	1.07E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.29E-05	0.00E+00	1.39E-04	5.91E-05		
69	Shipping Calcs	6.22E+00	2.03E-07	4.05E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.81E-01	0.00E+00	3.62E+00	1.30E+00		
70	49CFR173.433f		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.73%	0.00%	58.28%	20.87%	YS/LU	12/15/10
71	Radionuclide		AM-241	PU-241	PU-242	AM-243	U-232						YS/LU	12/15/10
72	Activity	Ci	3.70E-03	3.55E-02	1.66E-06	0.00E+00	7.14E-07						YS/LU	12/15/10
73	Activity Uncert	1sigma Ci	4.60E-04	9.33E-03	4.38E-07	0.00E+00	1.16E-07							
74	Mass	grams	1.07E-03	3.41E-04	4.18E-04	0.00E+00	3.31E-08	NULL	NULL	NULL	NULL	NULL		
75	Mass Uncert	1sigma grams	1.35E-04	9.15E-05	1.13E-04	0.00E+00	5.48E-09	NULL	NULL	NULL	NULL	NULL		
76	calc Tru Alpha Act	Ci	3.70E-03	0.00E+00	1.66E-06	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
77	calc Tru Alpha Act Conc	nCi/g	1.52E+01	0.00E+00	6.80E-03	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
78	calc Act	Ci	3.70E-03	3.55E-02	1.66E-06	0.00E+00	7.14E-07	NULL	NULL	NULL	NULL	NULL		
79	calc Act Conc	nCi/g	1.52E+01	1.45E+02	6.80E-03	0.00E+00	2.93E-03	NULL	NULL	NULL	NULL	NULL		
80	calc Pu239 FGE	g	1.99E-05	7.68E-04	3.14E-06	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
81	calc Pu239 Eq Act	Ci	3.70E-03	6.96E-04	1.51E-06	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
82	calc Decay Heat	watts	1.24E-04	1.13E-06	4.89E-08	0.00E+00	2.29E-08	NULL	NULL	NULL	NULL	NULL		
83	uncert Tru Alpha Act	Ci	4.69E-04	0.00E+00	4.47E-07	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
84	uncert Tru Alpha Act Conc	nCi/g	1.92E+00	0.00E+00	1.83E-03	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
85	uncert Act	Ci	4.69E-04	9.52E-03	4.47E-07	0.00E+00	1.18E-07	NULL	NULL	NULL	NULL	NULL		
86	uncert Act Conc	nCi/g	1.92E+00	3.90E+01	1.83E-03	0.00E+00	4.85E-04	NULL	NULL	NULL	NULL	NULL		
87	uncert Pu239 FGE	g	2.53E-06	2.06E-04	9.44E-07	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
88	uncert Pu239 Eq Act	Ci	4.60E-04	1.83E-04	3.98E-07	0.00E+00	0.00E+00	NULL	NULL	NULL	NULL	NULL		
89	uncert Decay Heat	watts	1.57E-05	3.03E-07	1.32E-08	0.00E+00	3.80E-09	NULL	NULL	NULL	NULL	NULL		
90	Shipping Calcs		6.84E-01	1.31E-01	3.07E-04	0.00E+00	8.80E-05	NULL	NULL	NULL	NULL	NULL		
91	49CFR173.433f		11.00%	2.11%	0.00%	0.00%	0.00%						YS/LU	12/15/10
92	Waste Material Parameter	kg	PP	CP	IM	PW	S						YS/LU	12/15/10
93	Wgt of Mat Parms		1	3.7	0.1	1	242.9						YS/LU	12/15/10
94	Radio Assay Method		16SG1	PAN, FRAM, TGS, HENC									YS/LU	12/15/10
95	Data Package Number		OR-DWAS-0130										YS/LU	12/15/10
96	Assay Date		9/12/2008										YS/LU	12/15/10
97	Charz Method ID		16RR1	RTRM, VISUAL									YS/LU	12/15/10
98	Data Package Number		OR-RTR6-0110										YS/LU	12/15/10
99	Charz Method Date		9/10/2008										YS/LU	12/15/10
100	Haz Codes		F002											
101	Haz Codes													
102	Haz Codes												YS/LU	12/15/10
103	Haz Codes												YS/LU	12/15/10
104	Sample ID	Headspace Gas H/M	H-X10C0506150C										YS/LU	12/15/10
105	Sample Type		HGHM-T	HGHM									YS/LU	12/15/10
106	Layer No. Sampled		0		450.57								YS/LU	12/15/10
107	Date Sampled		11/10/2008			Sample Site							YS/LU	12/15/10
108	Method ID		16HG2	DTP-1.2-041		C6								
109	Data Package Number		OR08FG4051										YS/LU	12/15/10
110	CAS #		1333-74-0	74-82-8									YS/LU	12/15/10
111	Analyte		HYDROGEN	METHANE									YS/LU	12/15/10
112	Concentration				95.42	355.15							YS/LU	12/15/10
113	units	%vol			PPMV	PPMV								
114	Date Analyzed		11/10/08	11/10/2008										
115	B Detectable Flag													
116	D Detectable Flag													
117	E Detectable Flag												YS/LU	12/15/10
118	J Detectable Flag													
119	U Detectable Flag		U	U										
120	NA Detectable Flag												YS/LU	12/15/10
121													YS/LU	12/15/10
122	Sample ID	Headspace Gas VOC	X10C0506150C										YS/LU	12/15/10
123	Sample Type		HGVO-T	HGVO									YS/LU	12/15/10
124	Layer No. Sampled		0			SARP-Flammable VOCs (ppmv)	34.9						YS/LU	12/15/10
125	Date Sampled		11/10/2008										YS/LU	12/15/10
126	Method ID		16HG2	DTP-1.2-041										
127	Data Package Number		OR08FG4051											

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128													YS/LU	12/15/10
129	CAS #		67-56-1	60-29-7	75-35-4	67-64-1	75-34-3	156-59-2	78-93-3	110-82-7				
130	Analyte		Methanol	Ethyl ether	1,1-Dichloroethylene	Acetone	1,1-Dichloroethane	cis-1,2-Dichloroethylene	Methyl ethyl ketone	Cyclohexane			YS/LU	12/15/10
131	Concentration		21.00	1.40	5.50	10.30	3.90	0.40	4.20	4.30			YS/LU	12/15/10
132	units	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv			YS/LU	12/15/10
133	Date Analyzed		11/10/2008	11/10/2008	11/10/2008	11/10/2008	11/10/2008	11/10/2008	11/10/2008	11/10/2008				
134	B Detectable Flag													
135	D Detectable Flag													
136	E Detectable Flag												YS/LU	12/15/10
137	J Detectable Flag		U	U	U	U	U	U	U	U				
138	U Detectable Flag													
139	NA Detectable Flag												YS/LU	12/15/10
140	SARP-Flammable Calc		10.5	0.7	2.75	5.15	1.95	0.2	2.1	2.15				
141	CAS #		71-43-2	107-06-2	71-36-3	108-10-1	108-88-3	108-90-7	100-41-4	108383/106423				
142	Analyte		Benzene	1,2-Dichloroethane	n-Butanol	Methyl isobutyl ketone	Toluene	Chlorobenzene	Ethyl benzene	m-Xylene/p-Xylene			YS/LU	12/15/10
143	Concentration		1.00	2.30	1.40	3.10	2.10	1.50	1.30	0.80			YS/LU	12/15/10
144	units	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv			YS/LU	12/15/10
145	Date Analyzed		11/10/2008	11/10/2008	11/10/2008	11/10/2008	11/10/2008	11/10/2008	11/10/2008	11/10/2008				
146	B Detectable Flag													
147	D Detectable Flag													
148	E Detectable Flag												YS/LU	12/15/10
149	J Detectable Flag		U	U	U	U	U	U	U	U				
150	U Detectable Flag													
151	NA Detectable Flag												YS/LU	12/15/10
152	SARP-Flammable Calc		0.5	1.15	0.7	1.55	1.05	0.75	0.65	0.4				
153	CAS #		95-47-6	108-67-8	95-63-6									
154	Analyte		o-Xylene	1,3,5-Trimethylbenzen	1,2,4-Trimethylbenzen	NULL	NULL	NULL	NULL	NULL			YS/LU	12/15/10
155	Concentration		1.00	1.90	2.40								YS/LU	12/15/10
156	units	ppmv	ppmv	ppmv	ppmv	NULL	NULL	NULL	NULL	NULL			YS/LU	12/15/10
157	Date Analyzed		11/10/2008	11/10/2008	11/10/2008									
158	B Detectable Flag													
159	D Detectable Flag													
160	E Detectable Flag												YS/LU	12/15/10
161	J Detectable Flag		U	U	U									
162	U Detectable Flag					NA	NA	NA	NA	NA				
163	NA Detectable Flag					NULL	NULL	NULL	NULL	NULL			YS/LU	12/15/10
164	SARP-Flammable Calc		0.5	0.95	1.2									
165	CAS #													
166	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			YS/LU	12/15/10
167	Concentration												YS/LU	12/15/10
168	units	ppmv											YS/LU	12/15/10
169	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
170	B Detectable Flag													
171	D Detectable Flag													
172	E Detectable Flag												YS/LU	12/15/10
173	J Detectable Flag													
174	U Detectable Flag													
175	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
176	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
177	CAS #													
178	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
179	Concentration													
180	units	ppmv												
181	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
182	B Detectable Flag													
183	D Detectable Flag													
184	E Detectable Flag													
185	J Detectable Flag													
186	U Detectable Flag													
187	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
188	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				

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189			type	comment									YS/LU	12/15/10
190	Comment													
191	Comment													
192	Comment													
193	Comment													
194	Comment													
195	Comment													
196	Comment													
197	Comment													
198	Comment													
199	Comment													
200														
201			Requirements Met?											
202	Free liquids <1% by volume		YES											
203	No non-rad. pyrophorics		YES											
204	Chemical compatability		YES											
205	No explosives		YES											
206	No corrosives		YES											
207	No pressurized containers		YES											
208	No sealed Containers >4 liters		YES											
209	Liner punctured/ filtered		YES											
210	Flammable VOCs <500ppmv		Yes											
211	Container is in Approved Waste Stream Profile Form?	OR-NFS-CH-SOIL	YES											
212	Can it be established through Process Knowledge that the concentration of flammable VOCs present in the headspace of the container is <= 500 ppm?.		No											
213														
214														
215														
216														
217														
218														
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235														

CCP Certification Official

12-22-10
Date

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Radiation & Contamination Survey Form

SURVEY NO: 09-SUR-03499

Instruments Used

Instrument Type	Serial Number	Cal Due Date	Alpha Eff.	Beta Eff.
LM-3030E / LM-3030	241621 / 241621	08/12/10	35.56%	26.31%
LM 12-4 / LM 42-31	231188 / 243752	12/24/09	N/A	N/A
LM-3 / 44-38	245319 / 260043	10/06/10	N/A	N/A
LM-3030E / LM-3030	259093 / 259093	05/07/10	38.7%	34.3%

LOCATION / TYPE: Transportation- 2109 Containers

PURPOSE: Characterization

COPY

DATE/TIME: 12/04/09 14:37 RWP/ALARA: 09-TRU-003

Container ID	TID	Smears	Gamma Dose Rate (mR/hr) O.C.	Gamma Dose Rate (mR/hr) 30 CM	Gamma Dose Rate (mR/hr) 1 Meter	Neutron Dose Rate (mrem/hr) O.C.	Neutron Dose Rate (mrem/hr) 30 CM	Neutron Dose Rate (mrem/hr) 1 Meter
X10C0506148A	10169163	1-3	<0.1γ	<0.1γ	<0.1γ	<0.5n	<0.5n	<0.5n
X10C0506150C	10169197	4-6	<0.1γ	<0.1γ	<0.1γ	<0.5n	<0.5n	<0.5n

N/A

O.C. = On contact

Annotate Highest Dose Rate on Container

Trailer Max Dose Rate (O.C./30 cm): N/A gamma N/A neutron

LAW Results (dpm/probe): Inside Trailer NA Outside Trailer NA

*On Contact (OC) or OC/30cm (#)Smear #LAS #Direct

REMARKS: All dose rates in mR/hr gamma and mrem/hr neutron unless otherwise noted. LAS in dpm/probe, smears in dpm/100 sq. cm. All Smears were <20 dpm/100cm²α <200 dpm/100cm²βγ.

RCT SIGNATURE: Jessica Britt / Jessica Britt RCO SIGNATURE: Date: 12-9-09

The signature(s) on this sheet are that of the responsible technician(s) who certify that the data recorded represent the readings, measurements, and/or observations at the time indicated.

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0110
Examination Date:	09/10/08
Waste Container ID:	X10C0506150C
Video/Audio Recorded Media Number:	OR-RTR6-0110 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 276.4 kg. Tare Wt: 32.4 kg. Net Wt: 244.0 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0506150C

Section 3: *Container Inventory and Comments* (Detailed descriptions)
Piece of metal Plastic bag with a horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.7
Plastics (PP):	1.0
Others: Cardboard Liner Insert	3.7
Total Packaging Weight:	32.4
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	242.9
Total WMP Weight:	244.0

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0506150C

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

Steve Binning	Steve Binning	09/10/08
Print Name	Signature	Date

********** Radioassay Data Sheet **********

Engine Version: TMU Gamma 1.5

Assay Instrument:	Segmented Gamma S	Location:	DWAS/IPAN/SGS
Analysis Method:	CCP-TP-169 Rev 1	Software Version:	NDA 2000 V.4.0
Item ID:	X10C0506150C	Analysis Date:	9/12/2008

NID identified fiducial nuclide PU-239
Source of isotopics: DECLARED

Net Weight	244000.0 g		
Pu mass	3.44E-001 +-	7.01E-002	g
TRU Alpha Activity	3.30E-002 +-	4.83E-003	Ci
TRU Activity Concentration	1.35E+002 +-	1.98E+001	nCi/g
Pu-239 Equivalent Activity	3.34E-002 +-	4.82E-003	Ci
Pu-239 FGE	3.14E-001 +-	6.96E-002	g
Decay heat	1.04E-003 +-	1.50E-004	W

Nuclide	Mass g	Activity Ci	Activity Uncert. Ci	MDA Ci
SR90	3.97E-009	5.48E-007	9.48E-008	0.00E+000
CS137	6.25E-009	5.48E-007	9.48E-008	2.58E-007
EU154	0.00E+000	0.00E+000	0.00E+000	7.85E-007
RA226	0.00E+000	0.00E+000	0.00E+000	6.66E-007
AC227	0.00E+000	0.00E+000	0.00E+000	2.21E-006
TH229	0.00E+000	0.00E+000	0.00E+000	1.19E-006
TH232	0.00E+000	0.00E+000	0.00E+000	1.25E-006
U232	3.31E-008	7.14E-007	1.16E-007	3.97E-007
U233	<LLD	<LLD	0.00E+000	4.24E-003
U234	<LLD	<LLD	0.00E+000	0.00E+000
U235	0.00E+000	0.00E+000	0.00E+000	8.04E-007
NP237	0.00E+000	0.00E+000	0.00E+000	8.52E-007
PU238	1.50E-004	2.60E-003	6.77E-004	1.04E-003
U238	<LLD	<LLD	0.00E+000	3.53E-005
PU239	3.12E-001	1.96E-002	4.38E-003	7.89E-003
PU240	3.06E-002	7.02E-003	1.86E-003	2.82E-003
AM241	1.07E-003	3.70E-003	4.60E-004	3.28E-005
PU241	3.41E-004	3.55E-002	9.33E-003	1.43E-002
PU242	4.19E-004	1.66E-006	4.38E-007	0.00E+000
AM243	0.00E+000	0.00E+000	0.00E+000	2.36E-006
CM243	0.00E+000	0.00E+000	0.00E+000	2.44E-006
CM245	0.00E+000	0.00E+000	0.00E+000	4.60E-006
CF249	0.00E+000	0.00E+000	0.00E+000	4.65E-007

Errors quoted at 1.000 sigma

Operator: Jared Francis Date: 12/10/08

ITR: Deborah Satterfield Date: 12/17/2008
Satterfield
#4646
OR-NFS-CH-SOIL

Version Information
DNGI Version: 1.10
DWAS Acquisition SW Version: 3.02
DWAS Analysis SW Version: 1.20 PCFRAM Analysis Version: N/A
Calculation DLL: 1.10, License File DLL: 1.10, Password DLL: 1.10, Report DLL: 1.10
Neutron Data Import DLL: 1.10, Gamma Data Import DLL: 1.30, Data Archive DLL: 1.10
DNGI.akl Version: 3.0, DNGI.GLB Version: 3.0, DNGI.MDA Version: 2.2

Identifying Data
Radioassay Procedure: CCP-TP-166 Rev 1

NOT USED FOR CHARACTERIZATION

Facility: DWAS/IPAN/SGS
Neutron Assay Date and Time: Thu Dec 04 15:01:35 2008 Gamma Assay Date and Time: Not Listed
DWASAnalysis Filename 080912_P15.NEU PCFRAM Filename: 4646_NOFRAM.r01
DNGI results File: C:\DWAS_Analysis_Package\DNGI_Results\4646_nofram.ngi

Tare Weight: 32.40 kg Gross Weight: 276.40 kg Net Weight: 244.00 kg
Gamma Live Time: 0.00 s Gamma Real Time: 0.00 s Gamma Percent Dead Time: 100.00

Neutron Cont. ID: X10C0506150C Gamma Cont. ID: NOFRAM
Neutron Equipment ID: DWAS Gamma Equipment ID: 4646
Neutron User ID: DNGI Analyst ID: JOHN_WEST

Imported Pu240e Mass: 0.012984 g Imported Pu240e Mass Uncertainty: 0.182040 g
Corrected Pu240e Mass: 0.012984 g Corrected Pu240e Mass TMU: 0.182040 g
Imported Pu239e Mass: 0.512081 g Imported Pu239e Mass Uncertainty: 0.129058 g
Corrected Pu239e Mass: 0.512081 g Corrected Pu239e Mass TMU: 0.129058 g

PCFRAM Parameter Set: N/A. PCFRAM analysis could not be performed (poor counting stats). AK Used.

Isotope	Fraction (g/gPu)	Fraction Uncertainty (g/gPu)	Mass (g)	Mass TMU at 1-Sigma (g)	Activity (Ci)	Activity TMU at 1-Sigma (Ci)	Rule Used	Mode
Pu238	4.4000e-004	4.4000e-005	2.4679e-004	7.1278e-005	4.2695e-003	1.2331e-003	AK	Active
Pu239	9.0837e-001	9.0837e-002	5.0950e-001	1.2841e-001	3.2047e-002	8.0768e-003	AK	Active
Pu240	8.8930e-002	8.8930e-003	4.9880e-002	1.4403e-002	1.1472e-002	3.3126e-003	AK	Active
Pu241	1.0400e-003	1.0400e-004	5.8333e-004	1.6842e-004	6.0666e-002	1.7516e-002	AK	Active
Pu242	1.2200e-003	1.2200e-004	6.8429e-004	1.9764e-004	2.7166e-006	7.8461e-007	AK	Active
Am241	1.1150e-002	1.1150e-003	6.2539e-003	1.8062e-003	2.1701e-002	6.2675e-003	AK	Active
Np237	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	Not In AK	Active
U235	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	Not In AK	Active
Am243	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	Not In AK	Active
Cs137	< LLD						< LLD	
U233	< LLD						< LLD	
U238	< LLD						< LLD	
Cm244	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	Not In AK	Passive
Ra226	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	0.0000e+000	Not In AK	Active
Sr90	< LLD						< LLD	
U234	< LLD						< LLD	

AK Set Selected: OR-NFS-CH-HET

	Value	TMU at 1-Sigma	
Total Thermal Power (Watts):	2.2195e-003	5.7404e-004	
Total Plutonium Active Mass (g):	5.6089e-001	1.5198e-001	
Total Plutonium Passive Mass (g):	1.4096e-001	1.9764e+000	
Total Plutonium Isotope Sum Mass (g):	5.6089e-001	1.5034e-001	
Total Pu239 FGE (g Pu239 FGE):	5.1208e-001	1.3875e-001	
Total Pu239 Equivalent Activity (PE-Ci):	7.0294e-002	1.8175e-002	
Total Alpha Activity (Ci):	6.9495e-002	1.7979e-002	
Total TRU Alpha Activity (Ci):	6.9493e-002	1.7978e-002	
Total TRU Alpha Activity Concentration (nCi/g):	2.8481e+002	7.3682e+001	
ABSMOD:	330.759539		
MOD:	21.487657		
Active MDA (g-Pu239e):	0.000000		
Passive MDA (g-Pu240e):	0.000000		
MDC (nCi/g):	0.000000		
FGE For Criticality Control	0.784033	(g Pu239 FGE)	

Warning Messages
Assay Identification Parameters (User ID and/or Radio-Assay Procedure) have been Overridden.
Warning! ABSMOD index was higher than the highest region in the MDA file. Active Mode Analysis not valid!
Warning! MOD index was higher than the highest region in the MDA file. Passive Mode Analysis not valid!

Operator Name: Jared Francis
Operator Signature: Jared Francis
Date 12/10/08

Reviewer Name: Satterfield
Reviewer Signature: Deborah Satterfield
Date 12/17/2008

Automated Independent Technical Review

Counter ID: Segmented Gamma S Count Type: Item Count I (CTYP0001)
Container ID: X10C0506150C Assay Date: 9/12/2008
Waste Matrix Code:
Sequence Number: 4646

Data Combiner Analysis:
Override enabled; Gamma data specified as input.
Analysis Status: Override enabled; data marked not available but were used

Results taken from Quantitative Gamma data.

Results comparison test passed.

DISPOSITION: Summed Segment Spectra results used in this assay.

MGA Analysis:
Results are marked as invalid.

DISPOSITION: No MGA results available.
Default OR-NFS-CH-SOIL isotopics applied.

Gamma Analysis:
Analysis Status: No errors.
Spectrum Validity Check engine has suggested data review.

DISPOSITION: Refit 204 keV, 375 keV regions in summed spectrum.

Segment Data Review:
Segment: 1 Analysis Warnings:
Minimum transmission used.
Some transmission peaks rejected.
Segment: 2 Analysis Warnings:
Minimum transmission used.
Segment: 3 Analysis Warnings:
Minimum transmission used.
Some transmission peaks rejected.
Segment: 4 Analysis Warnings:
Minimum transmission used.
Some transmission peaks rejected.
Segment: 5 Analysis Warnings:
Minimum transmission used.
Some transmission peaks rejected.
Segment: 6 Analysis Warnings:
Minimum transmission used.
Segment: 7 Analysis Warnings:
Minimum transmission used.
Some transmission peaks rejected.

Segment: 8 OK
Segment: 9 Analysis Warnings:
Transmission Error 11: The xmission ratio > 1 for one or more peaks.

Peak Attenuation obtained by Standard Transmission Correction

DISPOSITION: Transmission-corrected results not used in this assay.

Miscellaneous:

DISPOSITION: No additional radionuclides detected that contribute to 95% of the radiological hazard.

Expert Review by: Robert N Ceo Date: 11-25-08
Robert N. Ceo
#4646
OR-NFS-CH-SOIL

Attachment 6 – Expert Analysis Comment Sheet

1. DRUM ID: X10C0506150C
2. ASY FILE / RUN #:: 080912 Run 15
3. SGS SEQUENCE #: 4646
4. FRAM Analysis: (X) FRAM Analysis not performed, see Comments ( ) FRAM Analysis performed [Complete Boxes 4a and 4b]
4a. FRAM Parameter Set: ( ) Coax_DWAS_250_rev1, 0.25 keV/ch (>125 keV) ( ) LowE_DWAS_250_rev2, 0.25 keV/ch, with 96-106 keV ( ) Other, see Comments
4b. FRAM Efficiency Method: ( ) Empirical ( ) Physical: coax, U/Pu 0.1-50, Al 0.1-100, Fe 0.1-100, Cd 0.2-3 ( ) Other, see Comments
5. AK Stream: (Note AK Stream Used) OR-NFS-CH-SOIL
6. DWAS Neutron Gamma Integration (DNGI) Analysis: (X) DNGI analysis not performed, see Comments ( ) DNGI analysis performed [Complete Boxes 6a, 6b and 6c]
6a. AK File Used: ( ) DNGI.AKL Default ( ) Alternate AKL, see Comments
6b. DNGI Analysis Isotopics Selection: ( ) DNGI isotopics reviewed and accepted ( ) DNGI isotopics over-ridden: ( ) forced AK for all Pu isotopes ( ) forced AK for Am-241 ( ) forced AK for other isotopes, see Comments.
6c. DNGI Analysis IPAN Mode Selection: ( ) DNGI active / passive mode selection reviewed and accepted ( ) DNGI active / passive mode selection over-ridden: ( ) forced active mode, see alternate AKL file ( ) forced passive mode, see alternate AKL file
7. Method used to calculate final radioassay data: ( ) IPAN (X) SGS ( ) Rejected both IPAN and SGS (Both Radioassay Data Sheets to be stamped "Not Used for Characterization")
8. Expert Analysis Comments: Reject IPAN-ABSMOD & MOD OOR. Use SGS.
9. Expert Analyst Name: John West
10. Expert Analyst Signature: John West — *11. Date:* 12/4/08

BDR Number	OR08FG4051
Sample Date	11/10/2008
Waste Container ID	X10C0506150C

CAS Number	Compound	ppmv	Reporting Flag
1333-74-0	Hydrogen	95	U
74-82-8	Methane	355	U

		ppmv	Reporting Flag
67-56-1	Methanol	21.0	U
60-29-7	Ethyl Ether	1.4	U
75-35-4	1,1-Dichloroethylene	5.5	U
67-64-1	Acetone	10.3	U
75-34-3	1,1-Dichloroethane	3.9	U
156-59-2	cis-1,2-Dichloroethene	0.4	U
78-93-3	Methyl ethyl ketone	4.2	U
110-82-7	Cyclohexane	4.3	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	2.3	U
71-36-3	1-Butanol	1.4	U
108-10-1	Methyl isobutyl ketone	3.1	U
108-88-3	Toluene	2.1	U
108-90-7	Chlorobenzene	1.5	U
100-41-4	Ethylbenzene	1.3	U
108-38-3/106-42-3	m- and p-Xylene	0.8	U
95-47-6	o-Xylene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.9	U
95-63-6	1,2,4-Trimethylbenzene	2.4	U

CAS Number	Identified TIC Compound	Estimated ppmv
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Attachment 1 – Sample Container Data Form

BDR Number: OR08FG4051

	7	8	9	10	11	12	13	14	15
	Waste Container ID	Filter Model Number	Hydrogen Diffusivity of Filter (mol/s/mf)	Package Configuration Group Number	Closure Date	Vent Date	Required DAC Value (in days)	Drum Age (in days)	Can this container be sampled?
1	NFS0124	NFT NucFil®-013	3.70E-06	2	8/17/1993	8/17/1993	188	5564	Y
2	NFS0675	NFT NucFil®-013	3.70E-06	2	9/4/1993	9/4/1993	188	5546	Y
3	NFS0119	NFT NucFil®-013	3.70E-06	2	8/18/1993	8/18/1993	188	5563	Y
4	NFS0771	NFT NucFil®-013	3.70E-06	2	9/18/1993	9/18/1993	188	5532	Y
5	X10C0506149E	NFT NucFil®-019DS	1.85E-05	2	7/28/2008	7/28/2008	13	105	Y
6	X10C0506149B	NFT NucFil®-019DS	1.85E-05	2	7/17/2008	7/17/2008	13	116	Y
7	X10C0506152B	NFT NucFil®-019DS	1.85E-05	2	8/7/2008	8/7/2008	13	95	Y
8	X10C0506152D	NFT NucFil®-019DS	1.85E-05	2	8/7/2008	8/7/2008	13	95	Y
9	NFS0706	NFT NucFil®-013	3.70E-06	2	9/10/1993	9/10/1993	188	5540	Y
10	NFS0226	NFT NucFil®-013	3.70E-06	2	7/29/1993	7/29/1993	188	5583	Y
11	X10C0506148A	NFT NucFil®-019DS	1.85E-05	2	7/17/2008	7/17/2008	13	116	Y
12	X10C0506150C	NFT NucFil®-019DS	1.85E-05	2	7/30/2008	7/30/2008	13	103	Y
13	X10C0506150A	NFT NucFil®-019DS	1.85E-05	2	7/30/2008	7/30/2008	13	103	Y
14	X10C0506066	NFT NucFil®-019DS	1.85E-05	2	9/23/2005	9/23/2005	13	1144	Y
15	X10C0506149C	NFT NucFil®-019DS	1.85E-05	2	7/28/2008	7/28/2008	13	105	Y
16	NFS0748	NFT NucFil®-013	3.70E-06	2	9/14/1993	9/14/1993	188	5536	Y
17	NFS0762	NFT NucFil®-013	3.70E-06	2	9/17/1993	9/17/1993	188	5533	Y
18	NFS0167	NFT NucFil®-013	3.70E-06	2	8/11/1993	8/11/1993	188	5570	Y
19	NFS0742	NFT NucFil®-013	3.70E-06	2	9/13/1993	9/13/1993	188	5537	Y
20	NFS0125	NFT NucFil®-013	3.70E-06	2	8/17/1993	8/17/1993	188	5564	Y

Operator: William P. Byrd
Printed Name

William P. Byrd
Signature

11-11-2008
Date

DIVIDER

PAGE

Waste Isolation Pilot Plant
Container Data Report

Report Statistics

Report Version:	**2.3**
WDS Instance:	**prd05.wipp.carlsbad.nm.us**
Generated on:	**January 13, 2014 10:36 AM**
Generated by:	**KIRKES, CRETA**
Total Pages:	**8**

Selection Criteria

Container Number:	**X10C0506150C**

Container: X10C0506150C
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

Current Location Site: OR
Generator Site: OR
Destination Site ID: WI

Certification Program ID: C6
Shipping Program ID: C6

Neutron Dose Rate (mrem/hr): 0.5
Beta Gamma Dose Rate (mrem/hr): 0.1
Total Dose Rate (mrem/hr): 0.6

FGE (g): 3.14E-01
FGE Uncertainty (g): 6.96E-02

Gross Weight (kg): 276.40
Gross Weight Uncert (kg): 2.30

Decay Heat (W): 1.04E-03
Decay Heat Uncertainty (W): 1.5E-04

Certification Data Values

Waste Stream Profile Code: OR-NFS-CH-SOIL
Waste Type Code: MTRU
IDC Code: NONE
Waste Matrix Code: S4100
WAC Revision Number: 6.5
Fill Factor (%): 85.00
Waste Stream BIR ID: OR-NFS-CH-SOIL
Waste Stream MWIR ID: NONE

TRU Alpha Activity (Ci): 3.3E-02
TRU Alpha Activity Uncertainty (Ci): 4.83E-03
TRU Alpha Activity Concentration (Ci/g): 1.35E-07
PU-239 Equivalent Activity (PE-Ci): 3.34E-02
Alpha Surface Contamination (dpm/cm^2): 19.0
Beta/Gamma Surface Contamination (dpm/cm^2): 199.0

Transportation Data Values

Closure Date: 07/30/2008
Vent Date: 07/30/2008
Process Knowledge? N

TRUCON Code: OR211B
Shipping Category: 1001300122
Aspiration Method: 3

Shipment Purpose: DISPOSAL
Machine Compacted? N
Liner Exists? N
Liner Hole Size(mm):
Liner Lid Present?
Layers of Packaging 2
Aqueous Material? N

Gas Generation Data Values

Measured FGGR (mol/s)	Measured TGRR (mol/s)	Truncated FGGR Test (Y/N)	Truncated FGGR Test Period (days)

Filters

Filter Model Number	Filter Diffusivity (mol/s/ml)	Quantity	Install Date
NF019D	1.85E-05	1	07/30/2008

Container: X10C0506150C
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

PCB Waste? N
PCB Mass (kg):
PCB Concentration (ppm):
PCB Out of Service Date:
Be Present? N
Be <= 1% by weight?
Be mass <= 100kg?
Separation OK?
Packing Fraction (compaction level): non-compacted

Certification Comments

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
AM-241	3.700E-03	4.600E-04	1.066E-03	1.353E-04
AM-243	.000E00	.000E00	.000E00	.000E00
CS-137	5.480E-07	9.480E-08	6.227E-09	1.099E-09
NP-237	.000E00	.000E00	.000E00	.000E00
PU-238	2.600E-03	6.770E-04	1.503E-04	3.993E-05
PU-239	1.960E-02	4.380E-03	3.116E-01	7.106E-02
PU-240	7.020E-03	1.860E-03	3.052E-02	8.252E-03
PU-241	3.550E-02	9.330E-03	3.413E-04	9.154E-05
PU-242	1.660E-06	4.380E-07	4.181E-04	1.126E-04
SR-90	5.480E-07	9.480E-08	3.971E-09	7.010E-10
U-232	7.140E-07	1.160E-07	3.306E-08	5.480E-09
U-233	<LLD	<LLD	<LLD	<LLD

Container: X10C0506150C
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
U-234	<LLD	<LLD	<LLD	<LLD
U-235	.000E00	.000E00	.000E00	.000E00
U-238	<LLD	<LLD	<LLD	<LLD

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	H-X10C0506150C	HGHM-T	HEADSPACE GAS HYDROGEN AND METHANE	11/10/2008	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
1333-74-0	HYDROGEN	95.42	11/10/2008	16HG2	U
74-82-8	METHANE	355.15	11/10/2008	16HG2	U

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	X10C0506150C	HGVO-T	HEADSPACE GAS VOC	11/10/2008	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
100-41-4	ETHYL BENZENE	1.3	11/10/2008	16HG2	U
107-06-2	1,2-DICHLOROETHANE	2.3	11/10/2008	16HG2	U
108-10-1	METHYL ISOBUTYL KETONE	3.1	11/10/2008	16HG2	U
108-67-8	1,3,5-TRIMETHYLBENZENE	1.9	11/10/2008	16HG2	U
108-88-3	TOLUENE	2.1	11/10/2008	16HG2	U

Container: X10C0506150C
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	X10C0506150C	HGVO-T	HEADSPACE GAS VOC	11/10/2008	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
108-90-7	CHLOROBENZENE	1.5	11/10/2008	16HG2	U
108383/106423	M,P-XYLENE	0.8	11/10/2008	16HG2	U
110-82-7	CYCLOHEXANE	4.3	11/10/2008	16HG2	U
156-59-2	CIS-1,2-DICHLOROETHYLENE	0.4	11/10/2008	16HG2	U
60-29-7	ETHYL ETHER	1.4	11/10/2008	16HG2	U
67-56-1	METHANOL	21.0	11/10/2008	16HG2	U
67-64-1	ACETONE	10.3	11/10/2008	16HG2	U
71-36-3	BUTANOL	1.4	11/10/2008	16HG2	U
71-43-2	BENZENE	1.0	11/10/2008	16HG2	U
75-34-3	1,1-DICHLOROETHANE	3.9	11/10/2008	16HG2	U
75-35-4	1,1-DICHLOROETHYLENE	5.5	11/10/2008	16HG2	U
78-93-3	METHYL ETHYL KETONE	4.2	11/10/2008	16HG2	U
95-47-6	O-XYLENE	1.0	11/10/2008	16HG2	U
95-63-6	1,2,4-TRIMETHYLBENZENE	2.4	11/10/2008	16HG2	U

Material Parameters

Material Parameter	Description	Weight (kg)

Container: X10C0506150C
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

Material Parameters

Material Parameter	Description	Weight (kg)
1	IRON BASE METAL ALLOYS	0.10
8	PLASTICS	1.00
12	SOILS	242.90
13	STEEL CONTAINER MATERIALS	27.70
14	PLASTIC/LINERS CONTAINER MATERIALS	1.00
15	CELLULOSICS PACKAGING MATERIALS	3.70

Waste Weight:	244.00
Packaging Weight:	32.40
Total Material Weight:	276.40

Hazardous Codes

Hazardous Code	Description
F002	SPENT HALOGENATED SOLVENTS

Assay Methods

Labor Code	Assay Method	Description	Assay Date
C6	16SG1	IPAN-SGS-001 - MOBILE SGS	09/12/2008

Non-Destructive Examination (NDE)

Labor Code	NDE Method	Description	Examination Date
C6	16RR1	RTR MCS MOBILE CHARACTERIZATION SYSTEM	09/10/2008

Container: X10C0506150C
Type: 1 - 55 gal

Current Status:
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

Edit Limit Check Results
Evaluation Date: 06/19/2013 10:20:02 Overall Status: PASS

Evaluation Code	Status	Return Code	Detailed Description
DI_CERT_ALL	PASS		
DI_CERT_BE	PASS		
DI_CERT_CERT	PASS		
DI_CERT_CHARZ	PASS		
DI_CERT_ED	PASS		
DI_CERT_EPA	PASS		
DI_CERT_PCB	PASS		
DI_CERT_PERC	PASS		
DI_CERT_TRAMPAC	PASS		
DSA	PASS		
WAC	PASS		
WAP_CERT	PASS		

TRAMPAC Evaluation Results
Evaluation Date: 06/19/2013 10:20:03 Overall Status: PASS

Evaluation Code	Status	Return Code	Detailed Description
CE_ACT	PASS		
CE_ALL	PASS		
CE_ASP	PASS		
CE_DDH	PASS		
CE_FGE	PASS		
CE_FIL	PASS		
CE_GVE	PASS		
CE_RDR	PASS		
CE_TRU	PASS		

Container: X10C0506150C
Type: 1 - 55 gal

Current Status:
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 12/22/2010
Waste Handling Code: CH
Disposal Date:

TRAMPAC Evaluation Results
Evaluation Date: 06/19/2013 10:20:03 Overall Status: PASS

Evaluation Code	Status
CE_WGT	PASS

Details

Matrix Depleted Shipping Category:		Compliance Method:	ANALYTICAL
Decay Heat Limit (w):	0.30418789407313995	FGE Limit (g):	200
FGGR (mol/s):	1.4013201638259356E-10	FGGR Limit (mol/s):	4.098360655737705E-8
Volume Model:		Required Aspiration Time (days):	
Total Headspace VOCs (ppm):	69.8		
Packaging Configuration:	COMMON_PACKAGING 3	DAC Scenario:	3
Closure Time (days):	0	Minimum Closure Time Applied (days):	127
Sample-Vent Time (days):	103	Min Sample-Vent Time Applied (days):	19
TFGVC in ICL (mol fr):		MLEL (mol fr):	0.05

History

Event Date/Time	Event Description	Reason
12/27/2010 08:07:10	INSERT DATA INTO THE DATABASE	
12/27/2010 08:07:10	SUCCESSFUL SUBMISSION FOR CERT	
12/27/2010 11:20:23	APPROVED FOR CERT	
02/07/2011 16:03:58	RESET TO PRESUBMITTAL CERT	TO BE ADDED TO RS LOT
06/19/2013 10:20:04	SUCCESSFUL SUBMISSION FOR CERT	
06/19/2013 10:21:41	APPROVED FOR CERT	

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Waste Characterization Case File:

including Container Information Summary (CIS) excerpts, Waste Certification Data Entry Form (WCDEF) spreadsheet signed copies, supporting forms and data, and WWIS/WDS Waste Container Data Report for the container

X10C9311454A

(a 55 gal debris container)

ORNL CH/RH AUDIT - January 14-17 - WWIS Data Entry

CONTAINER ID	CONTAINER TYPE	WASTE STREAM	AK REPORT	CLOSURE DATE	VENT DATE
X10C9313063A	55G	OR-ISTP-CH-HET	CCP-AK-ORNL-008	1/7/2011	1/7/2011
X10C9311454A	55G	OR-ISTP-CH-HET	CCP-AK-ORNL-008	12/8/2010	12/8/2010

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CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET

Lot # 3

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
X10C9308368A	OR-IQ3-0203	OR-RTR6-0413	N/A	N/A	N/A		N/A	N/A	N/A
X10C9309217B	OR-IQ3-0193	OR-RTR6-0403	N/A	N/A	N/A		N/A	N/A	N/A
X10C9309217J	OR-IQ3-0192	OR-RTR6-0402	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311193A	OR-IQ3-0190	OR-RTR6-0400	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311206A	OR-IQ3-0213	OR-RTR6-0416	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311267A	OR-IQ3-0133	N/A	ORVECH0037	N/A	N/A		N/A	N/A	N/A
X10C9311290A	OR-IQ3-0206	OR-RTR6-0414	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311351A1	OR-IQ3-0213	N/A	ORVECH0088	N/A	N/A		N/A	N/A	N/A
X10C9311360A	OR-IQ3-0189	N/A	ORVECH0072	N/A	N/A		N/A	N/A	N/A
X10C9311452A	OR-IQ3-0207	N/A	ORVECH0069	N/A	N/A		N/A	N/A	N/A
→ X10C9311454A	OR-IQ3-0201	OR-RTR6-0411	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311471A	OR-IQ3-0220	N/A	ORVECH0082	N/A	N/A		N/A	N/A	N/A
X10C9311476A	OR-IQ3-0215	N/A	ORVECH0082	N/A	N/A		N/A	N/A	N/A
X10C9311525A1	OR-IQ3-0180	N/A	ORVECH0068	N/A	N/A		N/A	N/A	N/A
X10C9311529A	OR-IQ3-0220	N/A	ORVECH0082	N/A	N/A		N/A	N/A	N/A
X10C9311553A	OR-IQ3-0198	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311561A	OR-IQ3-0203	OR-RTR6-0412	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311700A	OR-IQ3-0213	OR-RTR6-0416	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311726A	OR-IQ3-0144	OR-RTR6-0362	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311765A	OR-IQ3-0210	N/A	ORVECH0042	N/A	N/A		N/A	N/A	N/A
X10C9311795A	OR-IQ3-0198	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311812A	OR-IQ3-0198	N/A	ORVECH0051	N/A	N/A		N/A	N/A	N/A
X10C9311818A	OR-IQ3-0206	OR-RTR6-0414	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311886A	OR-IQ3-0194	OR-RTR6-0404	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311894A	OR-IQ3-0194	OR-RTR6-0404	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312020A	OR-IQ3-0129	N/A	ORVECH0042	N/A	N/A		N/A	N/A	N/A
X10C9312029A	OR-IQ3-0207	OR-RTR6-0411	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312098A	OR-IQ3-0202	OR-RTR6-0408	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312107A1	OR-IQ3-0169	N/A	ORVECH0059	N/A	N/A		N/A	N/A	N/A
X10C9312110A	OR-IQ3-0196	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312143A	OR-IQ3-0196	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312157A	OR-IQ3-0118	N/A	ORVECH0042	N/A	N/A		N/A	N/A	N/A
X10C9312198A	OR-IQ3-0188	OR-RTR6-0399	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312214A	OR-IQ3-0220	N/A	ORVECH0082	N/A	N/A		N/A	N/A	N/A
X10C9312223A	OR-IQ3-0117	N/A	ORVECH0043	N/A	N/A		N/A	N/A	N/A
X10C9312227A1	OR-IQ3-0202	N/A	ORVECH0059	N/A	N/A		N/A	N/A	N/A
X10C9312328A	OR-IQ3-0196	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312328B	OR-IQ3-0196	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET

Lot # 3

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
X10C9312337A	OR-IQ3-0213	OR-RTR6-0415	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312348A	OR-IQ3-0189	OR-RTR6-0401	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312454A	OR-IQ3-0203	OR-RTR6-0411	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312474A	OR-IQ3-0203	OR-RTR6-0413	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312569A	OR-IQ3-0215	OR-RTR6-0415	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312659A	OR-IQ3-0188	OR-RTR6-0399	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312674A	OR-IQ3-0205	OR-RTR6-0414	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312676A	OR-IQ3-0190	OR-RTR6-0399	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312696A	OR-IQ3-0191	N/A	ORVECH0038	N/A	N/A		N/A	N/A	N/A
X10C9312803A	OR-IQ3-0215	OR-RTR6-0416	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312832A	OR-IQ3-0176	N/A	ORVECH0043	N/A	N/A		N/A	N/A	N/A
X10C9312853A	OR-IQ3-0203	OR-RTR6-0413	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312861A	OR-IQ3-0207	OR-RTR6-0413	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312945A	OR-IQ3-0195	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313089A	OR-IQ3-0215	OR-RTR6-0415	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313106A	OR-IQ3-0197	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313672A	OR-IQ3-0190	OR-RTR6-0401	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400173A	OR-IQ3-0212	OR-RTR6-0422	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400202B	OR-IQ3-0213	OR-RTR6-0415	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400258A	OR-IQ3-0213	OR-RTR6-0415	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400373A	OR-IQ3-0169	N/A	ORVECH0044	N/A	N/A		N/A	N/A	N/A
X10C9801421A	OR-IQ3-0188	OR-RTR6-0400	N/A	N/A	N/A		N/A	N/A	N/A
X10C9902206A	OR-IQ3-0188	OR-RTR6-0400	N/A	N/A	N/A		N/A	N/A	N/A

Signature of Site Project Manager

Candice Weston
Printed Name

8/29/2011
Date

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Kirkes, Creta - NWP

From: Mueller, Terry - WTS
Sent: Thursday, September 01, 2011 2:55 PM
To: Bradley, Sue - WTS; Dominguez, Lena - WTS; Gonzalez, Ana C. - WTS; Larson, David - WTS; Pettus, Helen - WTS; Sandate, Yoli - WTS; Soaterna, Carolina - WTS; Underwood, Luann - WTS; Valenzuela, Bobbie; Whiteaker, Roger - WTS; Ybarra, Deanna - WTS
Cc: Gomez, Chris - WTS; Walker, Mak (Maryann) - WTS; Jones, Laura - WTS
Subject: FW: Request: ORNL ISTP Lot 3 NCR Check
Attachments: NCR_BDR_CONTAINER_CHECK_ORNL OR-ISTP-CH-HET Lot 3.xls

There are no NCR or CAR dispositions that impact the acceptability of these drums, alternate drum IDs, and associated BDRs for certification and shipping as listed on the attached. This check was verified independently.

Thanks!

Terry L. Mueller
CCP QA
Washington TRU Solutions, LLC
Contractor to the Department of Energy
MS GSA-103
***work* (575)-234-7016**
***fax* (575)-234-7042**

From: Whiteaker, Roger - WTS
Sent: Thursday, September 01, 2011 2:21 PM
To: Mueller, Terry - WTS; Gomez, Chris - WTS; Jones, Laura - WTS; Walker, Mak (Maryann) - WTS; Mireles, Jessica - WTS
Subject: Request: ORNL ISTP Lot 3 NCR Check

Please do an NCR/CAR check for ORNL ISTP Lot 3.

Thanks,

Roger Whiteaker
Central Characterization Project
Washington TRU Solutions LLC
Contractor for the U.S. Department of Energy
575-234-7234
575-234-7042 (Fax)

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	WDS Master Template.xls Rev. 4 Addendum #4, SCO #1065 Excel 2003/2007 Microsoft Windows XP	Units	data	comments									initial	date
2	Shipper Site ID		C6	Location ID	Dest Program ID	Shipping Purpose						X10C9311454A	SB/LD	09/01/11
3	Waste Stream Profile		OR-ISTP-CH-HET	OR	WI	D							SB/LD	09/01/11
4	Container Number		X10C9311454A										SB/LD	09/01/11
5	Container Type		drum	drum, swb, tdop, etc., see WWIS labels for valid types.					U-235 FEM	U-235 FEM Uncert	FGGR Flag	FGGR Test Period	SB/LD	09/01/11
6	WAC Rev #		7.2						NULL	NULL	NULL	NULL	SB/LD	09/01/11
7	[redacted]							Be <=100 kg	Be <= 1%	Be Present	Aqueous Material	Compacted Wst		
8	Cert Site		C6					Y	Y	Y	N	N	SB/LD	09/01/11
9	Cert Date		09/06/11										SB/LD	09/01/11
10	Waste Handling Code		CH	CH, RH									SB/LD	09/01/11
11	Waste Type Code		MTRU	TRU, MTRU									SB/LD	09/01/11
12	Waste Stream BIR ID		OR-ISTP-CH-HET										SB/LD	09/01/11
13	Waste Stream MWIR ID		NONE										SB/LD	09/01/11
14	Generator Site ID		OR										SB/LD	09/01/11
15	IDC Code		NONE										SB/LD	09/01/11
16	Matrix Code		S5400										SB/LD	09/01/11
17	Trucon Code		OR225E											
18	Shipping Category		3003400443	> 0.012 Watt-years									SB/LD	09/01/11
19	Tru Alpha Act	Ci	2.76E-01		2.758E-01								SB/LD	09/01/11
20	Tru Alpha Act Uncert	1sigma Ci	8.07E-02	4.374E-01	Tru Alpha Act + 2sigma (Ci)								SB/LD	09/01/11
21	Tru Alpha Act Conc	nCi/g	7.31E+03		7.30E+03								SB/LD	09/01/11
22	[redacted]		2.14E+03	1.159E+04	Tru Alpha Act Conc + 2sigma (Ci)								SB/LD	09/01/11
23	Pu239 Fiss Gm Eq	g	2.98E-02		2.980E-02								SB/LD	09/01/11
24	Pu239 Fiss Gm Eq Uncert	1sigma g	1.01E-02	5.000E-02	Pu239 Fiss Gm Eq + 2sigma (Ci)								SB/LD	09/01/11
25	Pu239 Eq Act	Ci	2.28E+00		2.282E+00								SB/LD	09/01/11
26	Decay Heat	watts	1.44E-01		1.441E-01								SB/LD	09/01/11
27	Decay Heat Uncert	1sigma watts	2.52E-02	1.69E-01	Decay Heat + 1sigma (watts)								SB/LD	09/01/11
28	Layers of Packaging		3											
29	Fill Factor		95	percentage	Liner Lid Present								SB/LD	09/01/11
30	Liner Type			1 = plastic drum liner									SB/LD	09/01/11
31	Liner Punctured				Liner Hole Size (mm)								SB/LD	09/01/11
32	PCB Conc		NULL						PCB Waste	PCB Mass (kg)	Out of Service		SB/LD	09/01/11
33	Closure Date		12/8/2010	Watt-years	Waste Gen Date				N	NULL	NULL		SB/LD	09/01/11
34	Vent Date		12/8/2010	0.105	NULL								SB/LD	09/01/11
35	Filter Install Date		12/8/2010						Filter Reduction Date	NULL			SB/LD	09/01/11
36	Filter Manufacturer		UltraTech						Reduced Filter Model	NULL			SB/LD	09/01/11
37	[redacted]												SB/LD	09/01/11
38	Filter Model Number		U9424X										SB/LD	09/01/11
39	Number of Filters Installed		1										SB/LD	09/01/11
40	Aspiration Method ID		3											
41	Gas Gen Rate			5.962E-08	<<Gas Gen Rate Calculated.									
42	Hydrogen/Methane Gen Rate													
43	Gas Gen Comp Date				Waste (kg)	Packaging (kg)	Total (kg)						SB/LD	09/01/11
44	Gross Weight	kg	71		37.8	33.2	71.0						SB/LD	09/01/11
45	Gross Weight Uncert	1sigma kg	2.3										SB/LD	09/01/11
46	Alpha Surf Cont	dpm/100 cm^2	19										SB/LD	09/01/11
47	Beta/Gamma Surf Cont	dpm/100 cm^2	199										SB/LD	09/01/11
48	Neutron Dose Rate	mrem/hr	3										SB/LD	09/01/11
49	Beta/Gamma Dose Rate	mrem/hr	2										SB/LD	09/01/11
50	Radionuclide		SR-90	CS-137	U-233	U-234	U-235	NP-237	PU-238	U-238	PU-239	PU-240	SB/LD	09/01/11
51	Activity	Ci	3.02E-06	3.02E-06	-1.00E+00	4.83E-05	0.00E+00	6.06E-07	2.73E-01	-1.00E+00	-1.00E+00	-1.00E+00	SB/LD	09/01/11
52	Activity Uncert	1sigma Ci	5.61E-07	5.61E-07	-1.00E+00	1.43E-05	0.00E+00	1.42E-07	8.07E-02	-1.00E+00	-1.00E+00	-1.00E+00	SB/LD	09/01/11
53	Mass	grams	2.19E-08	3.43E-08	-1.00E+00	7.64E-03	0.00E+00	6.50E-04	1.58E-02	-1.00E+00	-1.00E+00	-1.00E+00		
54	Mass Uncert	1sigma grams	4.15E-09	6.61E-09	-1.00E+00	2.31E-03	0.00E+00	2.03E-04	4.76E-03	-1.00E+00	-1.00E+00	-1.00E+00		
55	calc Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.06E-07	2.73E-01	0.00E+00	0.00E+00	0.00E+00		
56	calc Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-02	7.22E+03	0.00E+00	0.00E+00	0.00E+00		
57	calc Act	Ci	3.02E-06	3.02E-06	0.00E+00	4.83E-05	0.00E+00	6.06E-07	2.73E-01	0.00E+00	0.00E+00	0.00E+00		
58	calc Act Conc	nCi/g	7.99E-02	7.99E-02	0.00E+00	1.28E+00	0.00E+00	1.60E-02	7.22E+03	0.00E+00	0.00E+00	0.00E+00		

Drum Weight	27.8
	[redacted]

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
59	calc Pu239 FGE	g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-05	1.78E-03	0.00E+00	0.00E+00	0.00E+00		
60	calc Pu239 Eq Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.06E-07	2.48E-01	0.00E+00	0.00E+00	0.00E+00		
61	calc Decay Heat	watts	3.50E-09	3.34E-09	0.00E+00	1.39E-06	0.00E+00	1.78E-08	9.04E-03	0.00E+00	0.00E+00	0.00E+00		
62	uncert Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-07	8.23E-02	0.00E+00	0.00E+00	0.00E+00		
63	uncert Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.83E-03	2.18E-03	0.00E+00	1.66E-03	6.08E-03		
64	uncert Act	Ci	5.72E-07	5.72E-07	0.00E+00	1.46E-05	0.00E+00	1.45E-07	8.23E-02	0.00E+00	0.00E+00	0.00E+00		
65	uncert Act Conc	nCi/g	1.51E-02	1.51E-02	0.00E+00	3.86E-01	0.00E+00	3.83E-03	2.18E-03	0.00E+00	0.00E+00	0.00E+00		
66	uncert Pu239 FGE	g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.06E-06	5.38E-04	0.00E+00	0.00E+00	0.00E+00		
67	uncert Pu239 Eq Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E-07	7.34E-02	0.00E+00	0.00E+00	0.00E+00		
68	uncert Decay Heat	watts	6.64E-10	6.34E-10	0.00E+00	4.20E-07	0.00E+00	4.25E-09	2.73E-03	0.00E+00	0.00E+00	0.00E+00		
69	Shipping Calcs	4.08E+02	1.12E-06	2.24E-07	0.00E+00	1.79E-03	0.00E+00	1.12E-04	5.06E+01	0.00E+00	0.00E+00	0.00E+00		
70	49CFR173.433f		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.36%	0.00%	0.00%	0.00%	SB/LD	09/01/11
71	Radionuclide		AM-241	PU-241	PU-242	AM-243	CM-243	CM-244	CM-245	CF-249			SB/LD	09/01/11
72	Activity	Ci	1.08E-03	0.00E+00	8.20E-08	2.84E-04	1.14E-03	3.86E+00	2.74E-04	2.40E-07			SB/LD	09/01/11
73	Activity Uncert	1sigma Ci	2.07E-04	0.00E+00	2.42E-08	5.31E-05	2.12E-04	7.17E-01	5.10E-05	7.39E-08				
74	Mass	grams	3.11E-04	0.00E+00	2.07E-05	1.41E-03	2.18E-05	4.72E-02	1.57E-03	5.80E-08	NULL	NULL		
75	Mass Uncert	1sigma grams	6.09E-06	0.00E+00	6.22E-06	2.68E-04	4.14E-06	8.94E-03	2.99E-04	1.82E-08	NULL	NULL		
76	calc Tru Alpha Act	Ci	1.08E-03	0.00E+00	8.20E-08	2.84E-04	1.14E-03	0.00E+00	2.74E-04	2.40E-07	NULL	NULL		
77	calc Tru Alpha Act Conc	nCi/g	2.86E+01	0.00E+00	2.17E-03	7.51E+00	3.02E+01	0.00E+00	7.25E+00	6.35E-03	NULL	NULL		
78	calc Act	Ci	1.08E-03	0.00E+00	8.20E-08	2.84E-04	1.14E-03	3.86E+00	2.74E-04	2.40E-07	NULL	NULL		
79	calc Act Conc	nCi/g	2.86E+01	0.00E+00	2.17E-03	7.51E+00	3.02E+01	1.02E+06	7.25E+00	6.35E-03	NULL	NULL		
80	calc Pu239 FGE	g	6.82E-06	0.00E+00	1.55E-07	1.81E-05	1.09E-04	4.25E-03	2.36E-02	2.81E-06	NULL	NULL		
81	calc Pu239 Eq Act	Ci	1.08E-03	0.00E+00	7.45E-08	2.84E-04	7.82E-04	2.03E+00	2.90E-04	2.59E-07	NULL	NULL		
82	calc Decay Heat	watts	3.61E-05	0.00E+00	2.42E-09	9.12E-06	4.15E-05	1.35E-01	9.09E-06	8.93E-09	NULL	NULL		
83	uncert Tru Alpha Act	Ci	2.11E-04	0.00E+00	2.47E-08	5.42E-05	2.16E-04	0.00E+00	5.20E-05	7.54E-08	NULL	NULL		
84	uncert Tru Alpha Act Conc	nCi/g	5.59E+00	0.00E+00	6.53E-04	1.43E+00	5.72E+00	0.00E+00	1.38E+00	1.99E-03	NULL	NULL		
85	uncert Act	Ci	2.11E-04	0.00E+00	2.47E-08	5.42E-05	2.16E-04	7.32E-01	5.20E-05	7.54E-08	NULL	NULL		
86	uncert Act Conc	nCi/g	5.59E+00	0.00E+00	6.53E-04	1.43E+00	5.72E+00	1.94E+04	1.38E+00	1.99E-03	NULL	NULL		
87	uncert Pu239 FGE	g	1.14E-06	0.00E+00	4.67E-08	3.46E-06	2.07E-05	8.05E-04	4.49E-03	8.20E-07	NULL	NULL		
88	uncert Pu239 Eq Act	Ci	2.07E-04	0.00E+00	2.20E-08	5.31E-05	1.45E-04	3.77E-01	5.40E-05	7.97E-08	NULL	NULL		
89	uncert Decay Heat	watts	7.06E-06	0.00E+00	7.28E-10	1.74E-06	7.87E-06	2.56E-02	1.73E-06	2.81E-09	NULL	NULL		
90	Shipping Calcs		2.00E-01	0.00E+00	1.52E-05	5.25E-02	1.41E-01	3.67E+02	5.06E-02	4.44E-05	NULL	NULL		
91	49CFR173.433f		0.05%	0.00%	0.00%	0.01%	0.03%	87.53%	0.01%	0.00%	NULL	NULL	SB/LD	09/01/11
92	Waste Material Parameter		PP	CP	IM	OI	R	PW					SB/LD	09/01/11
93	Wgt of Mat Parms	kg	1	4.4	28	0.3	6	3.5					SB/LD	09/01/11
94	Radio Assay Method		16IQ1	PAN, FRAM, TGS, HENC									SB/LD	09/01/11
95	Data Package Number		OR-IQ3-0201										SB/LD	09/01/11
96	Assay Date		3/29/2011										SB/LD	09/01/11
97	Charz Method ID		16RR1	RTRM, VISUAL									SB/LD	09/01/11
98	Data Package Number		OR-RTR6-0411										SB/LD	09/01/11
99	Charz Method Date		3/29/2011										SB/LD	09/01/11
100	Haz Codes		D005	D006	D007	D008	D009	D011	D019	D022	F002	F005	SB/LD	09/01/11
101	Haz Codes													
102	Haz Codes													
103	Haz Codes												SB/LD	09/01/11
104	Sample ID	Headspace Gas H/M	H-X10C9311454A										SB/LD	09/01/11
105	Sample Type		HGHM-T	HGHM									SB/LD	09/01/11
106	Layer No. Sampled		0		238.39								SB/LD	09/01/11
107	Date Sampled		3/30/2011			Sample Site							SB/LD	09/01/11
108	Method ID		16HG2	DTP-1.2-041		C6							SB/LD	09/01/11
109	Data Package Number		OR11FG11022											
110	CAS #		133-74-0	74-82-8									SB/LD	09/01/11
111	Analyte		HYDROGEN	METHANE									SB/LD	09/01/11
112	Concentration				87.36	151.03							SB/LD	09/01/11
113	units	%vol			PPMV	PPMV							SB/LD	09/01/11
114	Date Analyzed		03/30/11	3/30/2011										
115	B Detectable Flag													
116	D Detectable Flag													
117	E Detectable Flag													
118	J Detectable Flag												SB/LD	09/01/11
119	U Detectable Flag		U	U										
120	NA Detectable Flag													
121														
122	Sample ID	Headspace Gas VOC	X10C9311454A										SB/LD	09/01/11
123	Sample Type		HGVO-T	HGVO									SB/LD	09/01/11
124	Layer No. Sampled		0			SARP-Flammable VOCs (ppmv)	55.545						SB/LD	09/01/11
125	Date Sampled		3/30/2011										SB/LD	09/01/11
126	Method ID		16HG2	DTP-1.2-041									SB/LD	09/01/11
127	Data Package Number		OR11FG11022											

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
128													SB/LD	09/01/11
129	CAS #		67-56-1	60-29-7	75-35-4	67-64-1	75-34-3	156-59-2	78-93-3	110-82-7				
130	Analyte		Methanol	Ethyl ether	1,1-Dichloroethylene	Acetone	1,1-Dichloroethane	cis-1,2-Dichloroethylene	Methyl ethyl ketone	Cyclohexane			SB/LD	09/01/11
131	Concentration		36.03	0.68	4.82	8.29	3.52	0.48	4.32	3.23			SB/LD	09/01/11
132	units	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv			SB/LD	09/01/11
133	Date Analyzed		3/30/2011	3/30/2011	3/30/2011	3/30/2011	3/30/2011	3/30/2011	3/30/2011	3/30/2011				
134	B Detectable Flag													
135	D Detectable Flag													
136	E Detectable Flag													
137	J Detectable Flag			U	U	U	U	U	U	U			SB/LD	09/01/11
138	U Detectable Flag													
139	NA Detectable Flag		NA											
140	SARP-Flammable Calc		36.03	0.34	2.41	4.145	1.76	0.24	2.16	1.615			SB/LD	09/01/11
141	CAS #		71-43-2	107-06-2	71-36-3	108-10-1	108-88-3	108-90-7	100-41-4	108383/106423				
142	Analyte		Benzene	1,2-Dichloroethane	1-Butanol	Methyl isobutyl ketone	Toluene	Chlorobenzene	Ethyl benzene	m-Xylene/P-Xylene			SB/LD	09/01/11
143	Concentration		0.63	2.21	1.27	3.90	2.51	0.51	0.73	0.46			SB/LD	09/01/11
144	units	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv			SB/LD	09/01/11
145	Date Analyzed		3/30/2011	3/30/2011	3/30/2011	3/30/2011	3/30/2011	3/30/2011	3/30/2011	3/30/2011				
146	B Detectable Flag													
147	D Detectable Flag													
148	E Detectable Flag													
149	J Detectable Flag												SB/LD	09/01/11
150	U Detectable Flag		U	U	U	U	U	U	U	U				
151	NA Detectable Flag													
152	SARP-Flammable Calc		0.315	1.105	0.635	1.96	1.255	0.255	0.365	0.23			SB/LD	09/01/11
153	CAS #		95-47-6	108-67-8	95-63-6									
154	Analyte		o-Xylene	1,3,5-Trimethylbenzen	1,2,4-Trimethylbenzen	NULL	NULL	NULL	NULL	NULL			SB/LD	09/01/11
155	Concentration		0.31	0.55	0.61								SB/LD	09/01/11
156	units	ppmv	ppmv	ppmv	ppmv	NULL	NULL	NULL	NULL	NULL			SB/LD	09/01/11
157	Date Analyzed		3/30/2011	3/30/2011	3/30/2011									
158	B Detectable Flag													
159	D Detectable Flag													
160	E Detectable Flag													
161	J Detectable Flag												SB/LD	09/01/11
162	U Detectable Flag		U	U	U	NA	NA	NA	NA	NA				
163	NA Detectable Flag					NULL	NULL	NULL	NULL	NULL				
164	SARP-Flammable Calc		0.155	0.275	0.305								SB/LD	09/01/11
165	CAS #													
166	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			SB/LD	09/01/11
167	Concentration												SB/LD	09/01/11
168	units	ppmv	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			SB/LD	09/01/11
169	Date Analyzed													
170	B Detectable Flag													
171	D Detectable Flag													
172	E Detectable Flag													
173	J Detectable Flag												SB/LD	09/01/11
174	U Detectable Flag													
175	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
176	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
177	CAS #													
178	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
179	Concentration													
180	units	ppmv	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
181	Date Analyzed													
182	B Detectable Flag													
183	D Detectable Flag													
184	E Detectable Flag													
185	J Detectable Flag													
186	U Detectable Flag													
187	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
188	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
189			type	comment										
190	Comment													
191	Comment													
192	Comment													
193	Comment													
194	Comment													
195	Comment													
196	Comment													
197	Comment													
198	Comment													
199	Comment													
200														
201			Requirements Met?											
202	Free liquids <1% by volume		YES											
203	No non-rad. pyrophorics		YES											
204	Chemical compatability		YES											
205	No explosives		YES											
206	No corrosives		YES											
207	No pressurized containers		YES											
208	No sealed Containers >4 liters		YES											
209	Liner punctured/ filtered		YES											
210	Flammable VOCs <500ppmv		Yes											
211	Container is in Approved Waste Stream Profile Form?	OR-ISTP-CH-HET	YES											
212	Can it be established through Process Knowledge that the concentration of flammable VOCs present in the headspace of the container is <= 500 ppm?.		NO											
213														
214														
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M	N
SB/LD	09/01/11

CCP Certification Official

09/06/11
Date

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Radiation & Contamination Survey Form

CM-P-RP-306 Rev. 6, Radiation/Contamination Surveys

SURVEY NO: 10-SUR-06577

Instruments Used

Instrument Type	Serial Number	Cal Due Date	Alpha Eff.	Beta Eff.
LM-3 / 44-38	245517 / 260034	01/27/11	N/A	N/A
LM 12-4 / LM 42-31	244806 / 258916	10/19/11	N/A	N/A
REM 500 / REM 500	410 / 410	04/23/11	N/A	N/A
LM-2360 / 43-93	202453 / 238086	11/22/11	22.85%	21.16%
LM-2360 / 43-93	259738 / 277355	09/14/11	22.78%	20.71%
LM-3030E / LM-3030	259088 / 259088	09/22/11	36.9	26.5

LOCATION / TYPE: CHGB Drum Out

PURPOSE: Job Coverage

DATE/TIME: 12/07/10 5:00 | RWP/ALARA: 10-TRU-007

		Station #	3		2		1		2		3	
		Drum ID	X10C9313065A		X10C9311790A		X10C0502604		X10C9311454A		X10C9311561A	
Gamma Dose Rate (mR/hr)		OC	0.2		<0.1		<0.1		2		1.0	
		30 cm	<0.1		<0.1		<0.1		0.5		0.3	
		1m	<0.1		<0.1		<0.1		0.2		0.1	
Neutron Dose Rate (mrem/hr)		OC	<0.5		<0.5		<0.5		3		2	
		30 cm	<0.5		<0.5		<0.5		2		1.0	
		1m	<0.5		<0.5		<0.5		1.0		0.5	
LAS (dpm/probe)			α	β	α	β	α	β	α	β	α	β
		Umbilical Cut	<100	<1K	<100	<1K	<100	<1K	<100	<1K	<100	<1K
		Tool	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Drum	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Cart	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Station	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Smears (dpm/100 cm²)		Lid	<20	<200	<20	<200	<20	<200	<20	<200	<20	<200
		Lid Ring	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Drum	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Cart	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Station	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Sleeve Ring	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓

✱ On Contact (OC) or OC/30cm (#) Smear [#] LAS ⚠ Direct

REMARKS: All dose rates in mR/hr gamma and mrem/hr neutron unless otherwise noted. LAS in dpm/probe, smears in dpm/100 sq. cm. Other Instruments Used: Model: LM-3030E / LM-3030 - 259093 / 259093 - Cal Due: 5/14/2011 / 5/14/2011

RCT SIGNATURE: Kenneth Hodges Kenneth O Hodges | RCO SIGNATURE: [signature] Date: 12/8/10

The signature(s) on this sheet are that of the responsible technician(s) who certify that the data recorded represent the readings, measurements, and/or observations at the time indicated.

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Attachment 2 – CCP Radiography Data Sheet

Section 1: [illegible]	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0411
Examination Date:	3/29/11
Waste Container ID:	X10C9312454A
Video/Audio Recorded Media Number:	OR-RTR6-0411 A
Procedure and Revision No.:	CCP-TP-053 Rev. 10
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 129.3 kg. Tare Wt: 33.2 kg. Net Wt: 96.1 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9312454A

Section 3: Container Inventory and Comments (Detailed descriptions)
Scrap metal, metal hardware, metal tank, metal tubing, saw blade, hand tool Respirator cartridges Scrap plastic, nylon straps, horsetail bags, plastic handled hand tool, plastic sheeting

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard liner insert MM 4/19/11 @ 4/19/11	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	83.0
Aluminum-based Metals / Alloys (AM):	2.6
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	10.6
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	96.1

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9312454A

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block.)	Yes	No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐	☑
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code(s))?	☐	☑
Is there an indication of wastes containing explosives or compressed gases?	☐	☑
Is there an indication of PCBs liquids?	☐	☑
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑
CH or RH TRAMPAC		
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐	☑
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑
Are there sealed containers GREATER than 4 liters?	☐	☑
Are there indications of inadequate protection for heavy and/or sharp objects?	☐	☑
Comments: .N/A		

RTR Operator: Merri McNamer Merri McNamer 4/19/11

Merri McNamer Merri McNamer 3/29/11

Print Name Tyson Christensen Signature Tyson Christensen Date 3/29/11

Tyson Christensen Tyson Christensen 4/19/11

********** Radioassay Data Sheet **********

Engine Version: TMU Gamma 1.5

Count Sequence Number:	309	Batch Number:	OR-IQ3-0201
Assay Instrument:	MCS IQ3	Location:	ORNL
Analysis Method:	CCP-TP-047 v 11	Software Version:	NDA 2000 V.4.0
Item ID:	X10C9311454A	Assay Start:	3/29/2011 4:10:17 PM

NID did not identify fiducial nuclide PU-239
Source of isotopics: DECLARED

Net Weight	37800.0 g	
Percent Full	95 %	
Density	0.191 kg /l	
Pu mass	1.58E-002 +-	1.02E-002 g
TRU Alpha Activity	2.76E-001 +-	8.07E-002 Ci
TRU Activity Concentration	7.31E+003 +-	2.14E+003 nCi/g
Pu-239 Equivalent Activity	2.28E+000 +-	3.85E-001 Ci
Pu-239 FGE	2.98E-002 +-	1.01E-002 g
Decay heat	1.44E-001 +-	2.52E-002 W

Nuclide	Mass g	Activity Ci	Activity Uncert. Ci	MDA Ci
SR90	2.19E-008	3.02E-006	5.61E-007	0.00E+000
CS137	3.44E-008	3.02E-006	5.61E-007	5.91E-008
U233	<LLD	<LLD	0.00E+000	1.09E-003
U234	7.64E-003	4.83E-005	1.43E-005	0.00E+000
U235	0.00E+000	0.00E+000	0.00E+000	3.21E-007
NP237	8.48E-004	6.06E-007	1.42E-007	2.44E-007
PU238	1.58E-002	2.73E-001	8.07E-002	4.06E-002
U238	<LLD	<LLD	0.00E+000	5.69E-006
PU239	<LLD	<LLD	0.00E+000	3.02E-003
PU240	<LLD	<LLD	0.00E+000	3.43E-002
AM241	3.10E-004	1.08E-003	2.07E-004	3.46E-005
PU241	0.00E+000	0.00E+000	0.00E+000	8.64E-002
PU242	2.07E-005	8.20E-008	2.42E-008	0.00E+000
AM243	1.41E-003	2.84E-004	5.31E-005	1.70E-006
CM243	2.26E-005	1.14E-003	2.12E-004	1.76E-006
CM244	4.71E-002	3.86E+000	7.17E-001	3.96E-002
CM245	1.57E-003	2.74E-004	5.10E-005	4.55E-006
CF249	5.79E-008	2.40E-007	7.39E-008	1.43E-007

Errors quoted at 1.000 sigma

Operator: Susan Anderson Susan Anderson Date: 5/19/11

ITR: Kristie Garbett Kristie Garbett Date: 5/23/11

Automated Independent Technical Review

Count Sequence Number: 309 Batch Number: OR-IQ3-0201
Assay Instrument: MCS IQ3 Location: ORNL
Analysis Method: CCP-TP-047 v 11 Software Version: NDA 2000 V.4.0
Item ID: X10C9311454A Assay Start: 3/29/2011 4:10:17 PM

MGA Analysis:
Results are marked as invalid.

DISPOSITION: No measured or declared isotopics available. Only directly measured radionuclides reported. Use newresults.

Gamma Analysis:
Analysis Status: No errors.
Spectrum Validity Check engine has suggested data review.
Pu-239/Am-241 ratio is less than the lower limit of 200.00
Pu-239/Np-237 ratio is less than the lower limit of 125.00

DISPOSITION: Pu-239 < LLD. No changes.

Segment Data Review:
Segment: 1 OK
Segment: 2 Analysis Warnings:
Transmission Error 11: The xmission ratio > 1 for one or more peaks.
Minimum transmission used.
Segment: 3 Analysis Warnings:
Minimum transmission used.

DISPOSITION: Refit 276 keV region in all transmission segments. Use new results. Transmission ratio clamped to one does not affect final results. No changes.

Miscellaneous:

DISPOSITION: No additional radionuclides identified that contribute to 95% of the radiological hazard. No changes.

Expert Review by: Robert N. Ceo Date: 5-18-11
Robert N. Ceo

Attachment 4 – Flammable Gas Analysis Form

Waste Container ID: **X10C9311454A**

BDR Number: **OR11FG11022**

Sampling Date: **3/30/2011**

CAS NUMBER	COMPOUND	Measured ppmv	Reporting Flag
1333-74-0	Hydrogen	87.36	U
74-82-8	Methane	151.03	U
67-56-1	Methanol	36.03	
60-29-7	Ethyl Ether	0.68	U
75-35-4	1,1-Dichloroethylene	4.82	U
67-64-1	Acetone	8.29	U
75-34-3	1,1-Dichloroethane	3.52	U
156-59-2	cis-1,2-Dichloroethene	0.48	U
78-93-3	Methyl ethyl ketone	4.32	U
110-82-7	Cyclohexane	3.23	U
71-43-2	Benzene	0.63	U
107-06-2	1,2-Dichloroethane	2.21	U
71-36-3	1-Butanol	1.27	U
108-10-1	Methyl isobutyl ketone	3.90	U
108-88-3	Toluene	2.51	U
108-90-7	Chlorobenzene	0.51	U
100-41-4	Ethylbenzene	0.73	U
108-38-3/106-42-3	m- and p-Xylene	0.46	U
95-47-6	o-Xylene	0.31	U
108-67-8	1,3,5-Trimethylbenzene	0.55	U
95-63-6	1,2,4-Trimethylbenzene	0.61	U

CAS Number	IDENTIFIED TIC COMPOUND	Est. Amount ppmv
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Attachment 1 – Sample Container Data Form

BDR Number: OR11FG11022 **Page 2 of 2**

Waste Container ID		8 Filter Model Number	9 Hydrogen Diffusivity of Filter (mol/s/mf)	10 Package Configuration Group Number	11 Closure Date	12 Vent Date	13 Required DAC Value (in days)	14 Drum Age (in days)	15 Can this container be sampled?
1	X10C9309217I	NucFil®-019DS	1.85E-05	2	2/17/2010	2/17/2010	9	406	Y
2	X10C9311454A	UltraTech 9424X	1.85E-05	3	12/8/2010	12/8/2010	12	112	Y
3	X10C9313609A	UltraTech 9424X	1.85E-05	3	12/17/2010	12/17/2010	12	103	Y
4	X10C9311812A	UltraTech 9424X	1.85E-05	2	9/23/2010	9/23/2010	9	188	Y
5	X10C9309217H	NucFil®-019DS	1.85E-05	3	2/17/2010	2/17/2010	12	406	Y
6	X10C9306660A	UltraTech 9424X	1.85E-05	3	12/23/2010	12/23/2010	12	97	Y
7	X10C9307213A	UltraTech 9424X	1.85E-05	3	12/17/2010	12/17/2010	12	103	Y
8	X10CSATN02022C	UltraTech 9424X	1.85E-05	2	12/9/2010	12/9/2010	9	111	Y
9	X10C9311461A	UltraTech 9424X	1.85E-05	3	1/19/2011	1/19/2011	12	70	Y
10	X10C9311863A	UltraTech 9424X	1.85E-05	3	12/17/2010	12/17/2010	12	103	Y
11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Operator: Kristopher Henderson
Printed Name

Signature

04-04-11
Date

OR11FG11022

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PAGE

Waste Isolation Pilot Plant
Container Data Report

Report Statistics

Report Version:	**2.3**
WDS Instance:	**prd05.wipp.carlsbad.nm.us**
Generated on:	**January 14, 2014 04:32 PM**
Generated by:	**KIRKES, CRETA**
Total Pages:	**9**

Selection Criteria

Container Number: **X10C9311454A**

Container: X10C9311454A
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/06/2011

Waste Handling Code: CH
Disposal Date:

Current Location Site: OR
Generator Site: OR
Destination Site ID: WI

Certification Program ID: C6
Shipping Program ID: C6

Neutron Dose Rate (mrem/hr): 3.0
Beta Gamma Dose Rate (mrem/hr): 2.0
Total Dose Rate (mrem/hr): 5.0

FGE (g): 2.98E-02
FGE Uncertainty (g): 1.01E-02

Gross Weight (kg): 71.00
Gross Weight Uncert (kg): 2.30

Decay Heat (W): 1.44E-01
Decay Heat Uncertainty (W): 2.52E-02

Certification Data Values

Waste Stream Profile Code: OR-ISTP-CH-HET
Waste Type Code: MTRU
IDC Code: NONE
Waste Matrix Code: S5400
WAC Revision Number: 7.2
Fill Factor (%): 95.00
Waste Stream BIR ID: OR-ISTP-CH-HET
Waste Stream MWIR ID: NONE

TRU Alpha Activity (Ci): 2.76E-01
TRU Alpha Activity Uncertainty (Ci): 8.07E-02
TRU Alpha Activity Concentration (Ci/g): 7.31E-06
PU-239 Equivalent Activity (PE-Ci): 2.28E00
Alpha Surface Contamination (dpm/cm^2): 19.0
Beta/Gamma Surface Contamination (dpm/cm^2): 199.0

Transportation Data Values

Closure Date: 12/08/2010
Vent Date: 12/08/2010
Process Knowledge? N

TRUCON Code: OR225E
Shipping Category: 3003400443
Aspiration Method: 3

Shipment Purpose: DISPOSAL
Machine Compacted? N
Liner Exists? N
Liner Hole Size(mm):
Liner Lid Present?
Layers of Packaging 3
Aqueous Material? N

Gas Generation Data Values

Measured FGGR (mol/s)	Measured TGRR (mol/s)	Truncated FGGR Test (Y/N)	Truncated FGGR Test Period (days)

Filters

Filter Model Number	Filter Diffusivity (mol/s/ml)	Quantity	Install Date
U9424X	1.85E-05	1	12/08/2010

WDS WASTE DATA SYSTEM

Waste Isolation Pilot Plant
Container Data Report

Container: X10C9311454A
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/06/2011
Waste Handling Code: CH
Disposal Date:

PCB Waste?	N
PCB Mass (kg):	
PCB Concentration (ppm):	
PCB Out of Service Date:	
Be Present?	Y
Be <= 1% by weight?	Y
Be mass <= 100kg?	Y
Separation OK?	
Packing Fraction (compaction level):	non-compacted

Certification Comments

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
AM-241	1.080E-03	2.070E-04	3.112E-04	6.087E-05
AM-243	2.840E-04	5.310E-05	1.406E-03	2.682E-04
CF-249	2.400E-07	7.390E-08	5.797E-08	1.821E-08
CM-243	1.140E-03	2.120E-04	2.184E-05	4.144E-06
CM-244	3.860E00	7.170E-01	4.719E-02	8.944E-03
CM-245	2.740E-04	5.100E-05	1.575E-03	2.991E-04
CS-137	3.020E-06	5.610E-07	3.432E-08	6.505E-09
NP-237	6.060E-07	1.420E-07	8.499E-04	2.032E-04
PU-238	2.730E-01	8.070E-02	1.578E-02	4.760E-03
PU-239	<LLD	<LLD	<LLD	<LLD
PU-240	<LLD	<LLD	<LLD	<LLD
PU-241	.000E00	.000E00	.000E00	.000E00

Container: X10C9311454A
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/06/2011
Waste Handling Code: CH
Disposal Date:

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
PU-242	8.200E-08	2.420E-08	2.065E-05	6.220E-06
SR-90	3.020E-06	5.610E-07	2.188E-08	4.148E-09
U-233	<LLD	<LLD	<LLD	<LLD
U-234	4.830E-05	1.430E-05	7.642E-03	2.309E-03
U-235	.000E00	.000E00	.000E00	.000E00
U-238	<LLD	<LLD	<LLD	<LLD

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	H-X10C9311454A	HGHM-T	HEADSPACE GAS HYDROGEN AND METHANE	03/30/2011	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
1333-74-0	HYDROGEN	87.36	03/30/2011	16HG2	U
74-82-8	METHANE	151.03	03/30/2011	16HG2	U

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	X10C9311454A	HGVO-T	HEADSPACE GAS VOC	03/30/2011	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
100-41-4	ETHYL BENZENE	0.73	03/30/2011	16HG2	U
107-06-2	1,2-DICHLOROETHANE	2.21	03/30/2011	16HG2	U

WDS WASTE DATA SYSTEM

Waste Isolation Pilot Plant
Container Data Report

Container: X10C9311454A
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/06/2011
Waste Handling Code: CH
Disposal Date:

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	X10C9311454A	HGVO-T	HEADSPACE GAS VOC	03/30/2011	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
108-10-1	METHYL ISOBUTYL KETONE	3.9	03/30/2011	16HG2	U
108-67-8	1,3,5-TRIMETHYLBENZENE	0.55	03/30/2011	16HG2	U
108-88-3	TOLUENE	2.51	03/30/2011	16HG2	U
108-90-7	CHLOROBENZENE	0.51	03/30/2011	16HG2	U
108383/106423	M,P-XYLENE	0.46	03/30/2011	16HG2	U
110-82-7	CYCLOHEXANE	3.23	03/30/2011	16HG2	U
156-59-2	CIS-1,2-DICHLOROETHYLENE	0.48	03/30/2011	16HG2	U
60-29-7	ETHYL ETHER	0.68	03/30/2011	16HG2	U
67-56-1	METHANOL	36.03	03/30/2011	16HG2	NA
67-64-1	ACETONE	8.29	03/30/2011	16HG2	U
71-36-3	BUTANOL	1.27	03/30/2011	16HG2	U
71-43-2	BENZENE	0.63	03/30/2011	16HG2	U
75-34-3	1,1-DICHLOROETHANE	3.52	03/30/2011	16HG2	U
75-35-4	1,1-DICHLOROETHYLENE	4.82	03/30/2011	16HG2	U
78-93-3	METHYL ETHYL KETONE	4.32	03/30/2011	16HG2	U
95-47-6	O-XYLENE	0.31	03/30/2011	16HG2	U
95-63-6	1,2,4-TRIMETHYLBENZENE	0.61	03/30/2011	16HG2	U

WDS WASTE DATA SYSTEM

Waste Isolation Pilot Plant
Container Data Report

Container: X10C9311454A
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/06/2011
Waste Handling Code: CH
Disposal Date:

Material Parameters

Material Parameter	Description	Weight (kg)
1	IRON BASE METAL ALLOYS	28.00
4	OTHER INORGANIC MATERIALS	0.30
7	RUBBER	6.00
8	PLASTICS	3.50
13	STEEL CONTAINER MATERIALS	27.80
14	PLASTIC/LINERS CONTAINER MATERIALS	1.00
15	CELLULOSICS PACKAGING MATERIALS	4.40
	Waste Weight:	37.80
	Packaging Weight:	33.20
	Total Material Weight:	71.00

Hazardous Codes

Hazardous Code	Description
D005	BARIUM
D006	CADMIUM
D007	CHROMIUM
D008	LEAD
D009	MERCURY
D011	SILVER
D019	CARBON TETRACHLORIDE
D022	CHLOROFORM
F002	SPENT HALOGENATED SOLVENTS
F005	SPENT NON-HALOGENATED SOLVENTS

WDS WASTE DATA SYSTEM

Waste Isolation Pilot Plant
Container Data Report

Container: X10C9311454A
Type: 1 - 55 gal

Current Status
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/06/2011
Waste Handling Code: CH
Disposal Date:

Assay Methods

Labor Code	Assay Method	Description	Assay Date
C6	16IQ1	CANBERRA MOBILE DRUM COUNTER (IQ3)	03/29/2011

Non-Destructive Examination (NDE)

Labor Code	NDE Method	Description	Examination Date
C6	16RR1	RTR MCS MOBILE CHARACTERIZATION SYSTEM	03/29/2011

Edit Limit Check Results
Evaluation Date: 09/07/2011 10:59:42 Overall Status: PASS

Evaluation Code	Status	Return Code	Detailed Description
DI_CERT_ALL	PASS		
DI_CERT_BE	PASS		
DI_CERT_CERT	PASS		
DI_CERT_CHARZ	PASS		
DI_CERT_ED	PASS		
DI_CERT_EPA	PASS		
DI_CERT_PCB	PASS		
DI_CERT_PERC	PASS		
DI_CERT_TRAMPAC	PASS		
DSA	PASS		
WAC	PASS		
WAP_CERT	PASS		

Container: X10C9311454A
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/06/2011
Waste Handling Code: CH
Disposal Date:

TRAMPAC Evaluation Results

Evaluation Date: 09/07/2011 10:59:45 Overall Status: COND

Evaluation Code	Status
CE_ACT	PASS
CE_ALL	COND
CE_ASP	PASS
CE_DDH	PASS
CE_FGE	PASS
CE_FIL	PASS
CE_GVE	COND
CE_RDR	PASS
CE_TRU	PASS
CE_WGT	PASS

Return Code	Detailed Description
CE_GVE_FGR	Container exceeded the allowable flammable gas generation rate.
CE_GVE_MCT	Container is eligible for consideration as a part of a mixed category payload.
CE_GVE_TP	Container is eligible for consideration in a TRUPACT-II payload assembly.

Details

Matrix Depleted Shipping Category:	3001090443	Compliance Method:	MEASUREMENT
Decay Heat Limit (w):	0.03203040764838667	FGE Limit (g):	200
FGGR (mol/s):	1.3056848854450197E-8	FGGR Limit (mol/s):	1.1286681715575622E-8
Volume Model:	2	Required Aspiration Time (days):	
Total Headspace VOCs (ppm):	75.06		
Packaging Configuration:	COMMON_PACKAGING 2	DAC Scenario:	3
Closure Time (days):	0	Minimum Closure Time Applied (days):	53
Sample-Vent Time (days):	112	Min Sample-Vent Time Applied (days):	9
TFGVC in ICL (mol fr):		MLEL (mol fr):	0.05

History

Event Date/Time	Event Description	Reason
09/07/2011 10:59:45	SUCCESSFUL SUBMISSION FOR CERT	

WDS
WASTE DATA SYSTEM

Waste Isolation Pilot Plant
Container Data Report

Container: X10C9311454A
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/06/2011

Waste Handling Code: CH
Disposal Date:

History

Event Date/Time	Event Description	Reason
09/07/2011 12:03:38	APPROVED FOR CERT	

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Waste Characterization Case File:

including Container Information Summary (CIS) excerpts, Waste Certification Data Entry Form (WCDEF) spreadsheet signed copies, supporting forms and data, and WWIS/WDS Waste Container Data Report for the container

X10C9313063A.

(a 55 gal debris container)

ORNL CH/RH AUDIT - January 14-17 - WWIS Data Entry

CONTAINER ID	CONTAINER TYPE	WASTE STREAM	AK REPORT	CLOSURE DATE	VENT DATE
X10C9313063A	55G	OR-ISTP-CH-HET	CCP-AK-ORNL-008	1/7/2011	1/7/2011
X10C9311454A	55G	OR-ISTP-CH-HET	CCP-AK-ORNL-008	12/8/2010	12/8/2010

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CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET

Lot # 2

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
X10C0401430A	OR-IQ3-0188	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C0501524	OR-IQ3-0120	OR-RTR6-0353	N/A	N/A	N/A		N/A	N/A	N/A
X10C0501534	OR-IQ3-0119	OR-RTR6-0342	N/A	N/A	N/A		N/A	N/A	N/A
X10C0501650	OR-IQ3-0125	OR-RTR6-0353	N/A	N/A	N/A		N/A	N/A	N/A
X10C0501810	OR-IQ3-0140	OR-RTR6-0359	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311196A	OR-IQ3-0134	OR-RTR6-0355	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311252A	OR-IQ3-0141	OR-RTR6-0355	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311285A	OR-IQ3-0187	OR-RTR6-0397	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311353A	OR-IQ3-0118	OR-RTR6-0348	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311364A	OR-IQ3-0164	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311396A	OR-IQ3-0198	OR-RTR6-0360	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311517A	OR-IQ3-0151	OR-RTR6-0362	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311558A	OR-IQ3-0182	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311680A	OR-IQ3-0151	OR-RTR6-0365	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311757A	OR-IQ3-0183	OR-RTR6-0395	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311999A	OR-IQ3-0183	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312003A	OR-IQ3-0131	OR-RTR6-0350	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312096A	OR-IQ3-0144	OR-RTR6-0362	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312100A	OR-IQ3-0181	OR-RTR6-0391	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312174A	OR-IQ3-0164	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312335A	OR-IQ3-0186	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312387C	OR-IQ3-0154	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312473A	OR-IQ3-0158	OR-RTR6-0372	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312642A	OR-IQ3-0176	OR-RTR6-0378	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312642B	OR-IQ3-0169	OR-RTR6-0373	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312716A	OR-IQ3-0186	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312723A	OR-IQ3-0118	OR-RTR6-0352	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312789A	OR-IQ3-0150	OR-RTR6-0362	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312805A	OR-IQ3-0132	OR-RTR6-0354	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312834A	OR-IQ3-0159	N/A	ORVECH0050	N/A	N/A		N/A	N/A	N/A
X10C9312946A	OR-IQ3-0197	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313025A	OR-IQ3-0151	OR-RTR6-0365	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313046B	OR-IQ3-0188	OR-RTR6-0396	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313063A	OR-IQ3-0190	OR-RTR6-0392	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313065A	OR-IQ3-0182	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313102A	OR-IQ3-0181	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313104A	OR-IQ3-0188	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313119A	OR-IQ3-0176	OR-RTR6-0372	N/A	N/A	N/A		N/A	N/A	N/A

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET

Lot # 2

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
X10C9313670A	OR-IQ3-0162	OR-RTR6-0372	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313671A	OR-IQ3-0162	OR-RTR6-0369	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400031A	OR-IQ3-0181	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400038A	OR-IQ3-0190	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400202A	OR-IQ3-0158	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104E	OR-IQ3-0168	OR-RTR6-0370	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104F	OR-IQ3-0156	OR-RTR6-0370	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104H	OR-IQ3-0161	OR-RTR6-0369	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104K	OR-IQ3-0160	OR-RTR6-0368	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104L	OR-IQ3-0160	OR-RTR6-0368	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104Q	OR-IQ3-0157	OR-RTR6-0371	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104U	OR-IQ3-0180	OR-RTR6-0382	N/A	N/A	N/A		N/A	N/A	N/A

DIVIDER PAGE

Kirkes, Creta - NWP

From: Mueller, Terry - WTS
Sent: Thursday, September 01, 2011 12:54 PM
To: Bradley, Sue - WTS; Dominguez, Lena - WTS; Gonzalez, Ana C. - WTS; Larson, David - WTS; Pettus, Helen - WTS; Sandate, Yoli - WTS; Soaterna, Carolina - WTS; Underwood, Luann - WTS; Valenzuela, Bobbie; Whiteaker, Roger - WTS; Ybarra, Deanna - WTS
Cc: Gomez, Chris - WTS; Walker, Mak (Maryann) - WTS; Jones, Laura - WTS
Subject: FW: NCR/CAR check on OR-ISTP-CH-HET_Lot 2
Attachments: NCR_BDR_CONTAINER_CHECK_ORNL OR-ISTP-CH-HET Lot 2.xls

There are no NCR or CAR dispositions that impact the acceptability of these drums, alternate drum IDs, and associated BDRs for certification and shipping as listed on the attached. This check was verified independently.

Thanks!

Terry L. Mueller
CCP QA
Washington TRU Solutions, LLC
Contractor to the Department of Energy
MS GSA-103
work (575)-234-7016
fax (575)-234-7042

From: Pettus, Helen - WTS
Sent: Thursday, September 01, 2011 12:38 PM
To: Jones, Laura - WTS; Mireles, Jessica - WTS; Mueller, Terry - WTS; Walker, Mak (Maryann) - WTS
Subject: NCR/CAR check on OR-ISTP-CH-HET_Lot 2

Would you please do an NCR/CAR check on OR-ISTP-CH-Het Lot 2.

Thanks,

Helen Pettus
Central Characterization Project
Washington TRU Solutions LLC
Contractor for the U.S. Department of Energy
575-234-7696 (W)
helen.pettus@wipp.ws

DIVIDER

PAGE

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	WDS Master Template.xls Rev. 4 Addendum #4, SCO #1065 Excel 2003/2007 Microsoft Windows XP	Units	data	comments						X10C9313063A			initial	date
2	Shipper Site ID		C6	Location ID	Dest Program ID	Shipping Purpose							CS/SB	08/31/11
3	Waste Stream Profile		OR-ISTP-CH-HET	OR	W	D							CS/SB	08/31/11
4	Container Number		X10C9318063A										CS/SB	08/31/11
5	Container Type		drum	drum, swb, tdop, etc., see WWIS labels for valid types.					U-235 FEM	U-235 FEM Uncert	FGGR Flag	FGGR Test Period	CS/SB	08/31/11
6	WAC Rev #		7.2						NULL	NULL	NULL	NULL	CS/SB	08/31/11
7								Be <=100 kg	Be <= 1%	Be Present	Aqueous Material	Compacted Wst		
8	Cert Site		C6					Y	Y	Y	N	N	CS/SB	08/31/11
9	Cert Date		9/1/11										CS/SB	08/31/11
10	Waste Handling Code		CH	CH, RH									CS/SB	08/31/11
11	Waste Type Code		MTRU	TRU, MTRU									CS/SB	08/31/11
12	Waste Stream BIR ID		OR-ISTP-CH-HET										CS/SB	08/31/11
13	Waste Stream MWIR ID		NONE										CS/SB	08/31/11
14	Generator Site ID		OR										CS/SB	08/31/11
15	IDC Code		NONE										CS/SB	08/31/11
16	Matrix Code		S5400											
17	Trucon Code		OR225E	30010900443 NS 9/1/11									CS/SB	08/31/11
18	Shipping Category		~~3000400443~~	> 0.012 Watt-years										
19	Tru Alpha Act	Ci	1.01E+01	1.015E+01									CS/SB	08/31/11
20	Tru Alpha Act Uncert	1sigma Ci	1.90E+00	1.390E+01	Tru Alpha Act + 2sigma (Ci)								CS/SB	08/31/11
21	Tru Alpha Act Conc	nCi/g	1.78E+05	1.78E+05									CS/SB	08/31/11
22			3.34E+04	2.448E+05	Tru Alpha Act Conc + 2sigma (Ci)								CS/SB	08/31/11
23	Pu239 Fiss Gm Eq	g	1.47E-01	1.468E-01									CS/SB	08/31/11
24	Pu239 Fiss Gm Eq Uncert	1sigma g	1.35E-01	4.170E-01	Pu239 Fiss Gm Eq + 2sigma (Ci)								CS/SB	08/31/11
25	Pu239 Eq Act	Ci	1.55E+01	1.555E+01									CS/SB	08/31/11
26	Decay Heat	watts	7.44E-01	7.460E-01									CS/SB	08/31/11
27	Decay Heat Uncert	1sigma watts	1.09E-01	8.53E-01	Decay Heat + 1sigma (watts)								CS/SB	08/31/11
28	Layers of Packaging		3											
29	Fill Factor		90	percentage	Liner Lid Present								CS/SB	08/31/11
30	Liner Type			1 = plastic drum liner									CS/SB	08/31/11
31	Liner Punctured				Liner Hole Size (mm)								CS/SB	08/31/11
32	PCB Conc		NULL					PCB Waste	PCB Mass (kg)	Out of Service			CS/SB	08/31/11
33	Closure Date		1/7/2011	Watt-years	Waste Gen Date			N	NULL	NULL			CS/SB	08/31/11
34	Vent Date		1/7/2011	0.481	NULL								CS/SB	08/31/11
35	Filter Install Date		1/7/2011					Filter Reduction Date	NULL				CS/SB	08/31/11
36	Filter Manufacturer		ULTRATECH					Reduced Filter Model	NULL				CS/SB	08/31/11
37													CS/SB	08/31/11
38	Filter Model Number		U9424X										CS/SB	08/31/11
39	Number of Filters Installed		1											
40	Aspiration Method ID		3											
41	Gas Gen Rate			3.006E-07	<<Gas Gen Rate Calculated.									
42	Hydrogen/Methane Gen Rate													
43	Gas Gen Comp Date				Waste (kg)	Packaging (kg)	Total (kg)						CS/SB	08/31/11
44	Gross Weight	kg	90.2		57.0	33.2	90.2						CS/SB	08/31/11
45	Gross Weight Uncert	1sigma kg	2.3										CS/SB	08/31/11
46	Alpha Surf Cont	dpm/100 cm^2	19										CS/SB	08/31/11
47	Beta/Gamma Surf Cont	dpm/100 cm^2	199										CS/SB	08/31/11
48	Neutron Dose Rate	mrem/hr	20										CS/SB	08/31/11
49	Beta/Gamma Dose Rate	mrem/hr	5										CS/SB	08/31/11
50	Radionuclide		SR-90	CS-137	U-233	U-234	U-235	NP-237	PU-238	U-238	PU-239	PU-240	CS/SB	08/31/11
51	Activity	Ci	7.69E-06	7.69E-06	-1.00E+00	1.48E-03	0.00E+00	0.00E+00	8.35E+00	-1.00E+00	-1.00E+00	-1.00E+00	CS/SB	08/31/11
52	Activity Uncert	1sigma Ci	1.68E-06	1.68E-06	-1.00E+00	3.30E-04	0.00E+00	0.00E+00	1.86E+00	-1.00E+00	-1.00E+00	-1.00E+00		
53	Mass	grams	5.57E-08	8.74E-08	-1.00E+00	2.34E-01	0.00E+00	0.00E+00	4.83E-01	-1.00E+00	-1.00E+00	-1.00E+00		
54	Mass Uncert	1sigma grams	1.24E-08	1.95E-08	-1.00E+00	5.33E-02	0.00E+00	0.00E+00	1.10E-01	-1.00E+00	-1.00E+00	-1.00E+00		
55	calc Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.35E+00	0.00E+00	0.00E+00	0.00E+00		
56	calc Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E+05	0.00E+00	0.00E+00	0.00E+00		
57	calc Act	Ci	7.69E-06	7.69E-06	0.00E+00	1.48E-03	0.00E+00	0.00E+00	8.35E+00	0.00E+00	0.00E+00	0.00E+00		
58	calc Act Conc	nCi/g	1.35E-01	1.35E-01	0.00E+00	2.60E+01	0.00E+00	0.00E+00	1.46E+05	0.00E+00	0.00E+00	0.00E+00		

Drum Weight	27.8

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
59	calc Pu239 FGE	g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.45E-02	0.00E+00	0.00E+00	0.00E+00		
60	calc Pu239 Eq Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.69E+00	0.00E+00	0.00E+00	0.00E+00		
61	calc Decay Heat	watts	8.92E-09	8.51E-09	0.00E+00	4.26E-05	0.00E+00	0.00E+00	2.77E-01	0.00E+00	0.00E+00	0.00E+00		
62	uncert Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E+00	0.00E+00	0.00E+00	0.00E+00		
63	uncert Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.33E+04	0.00E+00	1.10E+03	4.04E+03		
64	uncert Act	Ci	1.71E-06	1.71E-06	0.00E+00	3.37E-04	0.00E+00	0.00E+00	1.90E+00	0.00E+00	0.00E+00	0.00E+00		
65	uncert Act Conc	nCi/g	3.01E-02	3.01E-02	0.00E+00	5.91E+00	0.00E+00	0.00E+00	3.33E+04	0.00E+00	0.00E+00	0.00E+00		
66	uncert Pu239 FGE	g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-02	0.00E+00	0.00E+00	0.00E+00		
67	uncert Pu239 Eq Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E+00	0.00E+00	0.00E+00	0.00E+00		
68	uncert Decay Heat	watts	1.99E-09	1.90E-09	0.00E+00	9.70E-06	0.00E+00	0.00E+00	6.29E-02	0.00E+00	0.00E+00	0.00E+00		
69	Shipping Calcs	g/cc*E+03	2.85E-08	1.57E-07	0.00E+00	1.48E-02	0.00E+00	0.00E+00	1.54E+03	0.00E+00	0.00E+00	0.00E+00		
70	49CFR173.433f		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	52.14%	0.00%	0.00%	0.00%		
71	Radionuclide		AM-241	PU-241	PU-242	AM-243	CM-243	CM-244	CM-245	CF-249	EU-154		CS/SB	08/31/11
72	Activity	Ci	1.80E+00	0.00E+00	2.56E-06	1.29E-03	1.45E-03	1.17E+01	8.06E-04	1.05E-06	3.76E-06		CS/SB	08/31/11
73	Activity Uncert	1sigma Ci	3.92E-01	0.00E+00	5.72E-07	6.56E-04	6.89E-04	2.54E+00	1.78E-04	2.29E-07	8.22E-07		CS/SB	08/31/11
74	Mass	grams	5.19E-01	0.00E+00	6.45E-04	6.39E-03	2.78E-05	1.43E-01	4.63E-03	2.54E-07	1.41E-08	NULL		
75	Mass Uncert	1sigma grams	1.15E-01	0.00E+00	1.47E-04	3.31E-03	1.35E-05	3.17E-02	1.04E-03	5.64E-08	3.14E-09	NULL		
76	calc Tru Alpha Act	Ci	1.80E+00	0.00E+00	2.56E-06	1.29E-03	1.45E-03	0.00E+00	8.06E-04	1.05E-06	0.00E+00	NULL		
77	calc Tru Alpha Act Conc	nCi/g	3.16E+04	0.00E+00	4.49E-02	2.26E+01	2.54E+01	0.00E+00	1.41E+01	1.84E-02	0.00E+00	NULL		
78	calc Act	Ci	1.80E+00	0.00E+00	2.56E-06	1.29E-03	1.45E-03	1.17E+01	8.06E-04	1.05E-06	3.76E-06	NULL		
79	calc Act Conc	nCi/g	3.16E+04	0.00E+00	4.49E-02	2.26E+01	2.54E+01	2.05E+05	1.41E+01	1.84E-02	6.60E-02	NULL		
80	calc Pu239 FGE	g	9.70E-03	0.00E+00	4.84E-06	8.24E-05	1.39E-04	1.29E-02	6.95E-02	1.14E-05	0.00E+00	NULL		
81	calc Pu239 Eq Act	Ci	1.80E+00	0.00E+00	2.33E-06	1.29E-03	9.95E-04	6.16E+00	8.53E-04	1.13E-06	0.00E+00	NULL		
82	calc Decay Heat	watts	6.02E-02	0.00E+00	7.54E-08	4.14E-05	5.28E-05	4.09E-01	2.67E-05	3.91E-08	3.37E-08	NULL		
83	uncert Tru Alpha Act	Ci	4.00E-01	0.00E+00	5.84E-07	6.69E-04	7.03E-04	0.00E+00	1.82E-04	2.34E-07	0.00E+00	NULL		
84	uncert Tru Alpha Act Conc	nCi/g	7.02E+03	0.00E+00	1.02E-02	1.17E+01	1.23E+01	0.00E+00	3.19E+00	4.10E-03	0.00E+00	NULL		
85	uncert Act	Ci	4.00E-01	0.00E+00	5.84E-07	6.69E-04	7.03E-04	2.59E+00	1.82E-04	2.34E-07	8.39E-07	NULL		
86	uncert Act Conc	nCi/g	7.02E+03	0.00E+00	1.02E-02	1.17E+01	1.23E+01	4.55E+04	3.19E+00	4.10E-03	1.47E-02	NULL		
87	uncert Pu239 FGE	g	2.16E-03	0.00E+00	1.10E-06	4.27E-05	6.73E-05	2.85E-03	1.57E-02	2.54E-06	0.00E+00	NULL		
88	uncert Pu239 Eq Act	Ci	3.92E-01	0.00E+00	5.20E-07	6.56E-04	4.73E-04	1.34E+00	1.88E-04	2.47E-07	0.00E+00	NULL		
89	uncert Decay Heat	watts	1.34E-02	0.00E+00	1.72E-08	2.15E-05	2.56E-05	9.06E-02	6.02E-06	8.69E-09	7.51E-09	NULL		
90	Shipping Calcs		3.33E+02	0.00E+00	4.73E-04	2.38E-01	1.79E-01	1.08E+03	1.49E-01	1.94E-04	2.79E-07	NULL		
91	49CFR173.433f		11.24%	0.00%	0.00%	0.01%	0.01%	36.60%	0.01%	0.00%	0.00%	NULL		
92	Waste Material Parameter		PP	CP	IM	AM	OI	C	PW				CS/SB	08/31/11
93	Wgt of Mat Parms	kg	1	4.4	42.5	2	1.5	4	7				CS/SB	08/31/11
94	Radio Assay Method		16IQ1	PAN, FRAM, TGS, HENC									CS/SB	08/31/11
95	Data Package Number		OR-IQ3-0190										CS/SB	08/31/11
96	Assay Date		3/3/2011										CS/SB	08/31/11
97	Charz Method ID		16RR1	RTRM, VISUAL									CS/SB	08/31/11
98	Data Package Number		OR-RTR6-0392										CS/SB	08/31/11
99	Charz Method Date		2/14/2011										CS/SB	08/31/11
100	Haz Codes		D005	D006	D007	D008	D009	D011	D019	D022	F002	F005	CS/SB	08/31/11
101	Haz Codes												CS/SB	08/31/11
102	Haz Codes													
103	Haz Codes													
104	Sample ID	Headspace Gas H/M	H-X10C9313063A										CS/SB	08/31/11
105	Sample Type		HGHM-T	HGHM									CS/SB	08/31/11
106	Layer No. Sampled		0		288.18								CS/SB	08/31/11
107	Date Sampled		3/7/2011			Sample Site							CS/SB	08/31/11
108	Method ID		16HG2	DTP-1.2-041		C6							CS/SB	08/31/11
109	Data Package Number		OR11FG11017										CS/SB	08/31/11
110	CAS #		1333-74-0	74-82-8										
111	Analyte		HYDROGEN	METHANE									CS/SB	08/31/11
112	Concentration				137.15	~~454.03~~ 3.43 NS 9/1/11							CS/SB	08/31/11
113	units	%vol			PPMV	PPMV							CS/SB	08/31/11
114	Date Analyzed		03/07/11	3/7/2011									CS/SB	08/31/11
115	B Detectable Flag													
116	D Detectable Flag													
117	E Detectable Flag													
118	J Detectable Flag													
119	U Detectable Flag			U									CS/SB	08/31/11
120	NA Detectable Flag		NA											
121														
122	Sample ID	Headspace Gas VOC	X10C9313063A								WDS Master Template.xls Rev. 4		CS/SB	08/31/11
123	Sample Type		HGVO-T	HGVO							Addendum #4, SCO #1065		CS/SB	08/31/11
124	Layer No. Sampled		0			SARP-Flammable VOCs (ppmv)		36			Excel 2003/2007 Microsoft		CS/SB	08/31/11
125	Date Sampled		3/7/2011								Windows XP		CS/SB	08/31/11
126	Method ID		16HG2	DTP-1.2-041									CS/SB	08/31/11
127	Data Package Number		OR11FG11017										CS/SB	08/31/11

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
128													CS/SB	08/31/11
129	CAS #		67-56-1	60-29-7	75-35-4	67-64-1	75-34-3	156-59-2	78-93-3	110-82-7				
130	Analyte		Methanol	Ethyl ether	1,1-Dichloroethylene	Acetone	1,1-Dichloroethane	cis-1,2-Dichloroethylene	Methyl ethyl ketone	Cyclohexane			CS/SB	08/31/11
131	Concentration		32.97	0.68	4.82	8.29	3.52	0.48	4.32	3.23			CS/SB	08/31/11
132	units	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv			CS/SB	08/31/11
133	Date Analyzed		3/7/2011	3/7/2011	3/7/2011	3/7/2011	3/7/2011	3/7/2011	3/7/2011	3/7/2011				
134	B Detectable Flag													
135	D Detectable Flag													
136	E Detectable Flag												CS/SB	08/31/11
137	J Detectable Flag		U	U	U	U	U	U	U	U				
138	U Detectable Flag													
139	NA Detectable Flag		16.485	0.34	2.41	4.145	1.76	0.24	2.16	1.615			CS/SB	08/31/11
140	SARP-Flammable Calc													
141	CAS #		71-43-2	107-06-2	71-36-3	108-10-1	108-88-3	108-90-7	100-41-4	108383/106423				
142	Analyte		Benzene	1,2-Dichloroethane	Butanol	Methyl isobutyl ketone	Toluene	Chlorobenzene	Ethyl benzene	m-Xylene/p-Xylene			CS/SB	08/31/11
143	Concentration		0.63	2.21	1.27	3.90	2.51	0.51	0.73	0.46			CS/SB	08/31/11
144	units	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv	ppmv			CS/SB	08/31/11
145	Date Analyzed		3/7/2011	3/7/2011	3/7/2011	3/7/2011	3/7/2011	3/7/2011	3/7/2011	3/7/2011				
146	B Detectable Flag													
147	D Detectable Flag													
148	E Detectable Flag												CS/SB	08/31/11
149	J Detectable Flag		U	U	U	U	U	U	U	U				
150	U Detectable Flag													
151	NA Detectable Flag		0.315	1.105	0.635	1.95	1.255	0.255	0.365	0.23			CS/SB	08/31/11
152	SARP-Flammable Calc													
153	CAS #		95-47-6	108-67-8	95-63-6									
154	Analyte		o-Xylene	1,3,5-Trimethylbenzen	1,2,4-Trimethylbenzen	NULL	NULL	NULL	NULL	NULL			CS/SB	08/31/11
155	Concentration		0.31	0.55	0.61								CS/SB	08/31/11
156	units	ppmv	ppmv	ppmv	ppmv	NULL	NULL	NULL	NULL	NULL			CS/SB	08/31/11
157	Date Analyzed		3/7/2011	3/7/2011	3/7/2011									
158	B Detectable Flag													
159	D Detectable Flag													
160	E Detectable Flag												CS/SB	08/31/11
161	J Detectable Flag		U	U	U									
162	U Detectable Flag					NA	NA	NA	NA	NA				
163	NA Detectable Flag		0.155	0.275	0.305	NULL	NULL	NULL	NULL	NULL			CS/SB	08/31/11
164	SARP-Flammable Calc													
165	CAS #													
166	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			CS/SB	08/31/11
167	Concentration												CS/SB	08/31/11
168	units	ppmv	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			CS/SB	08/31/11
169	Date Analyzed													
170	B Detectable Flag													
171	D Detectable Flag													
172	E Detectable Flag												CS/SB	08/31/11
173	J Detectable Flag													
174	U Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
175	NA Detectable Flag		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
176	SARP-Flammable Calc													
177	CAS #													
178	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
179	Concentration													
180	units	ppmv	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
181	Date Analyzed													
182	B Detectable Flag													
183	D Detectable Flag													
184	E Detectable Flag													
185	J Detectable Flag													
186	U Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
187	NA Detectable Flag		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
188	SARP-Flammable Calc													

WDS Master Template.xls Rev. 4
Addendum #4, SCO #1065
Excel 2003/2007 Microsoft
Windows XP

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
													CS/SB	08/31/11
189			type	comment										
190	Comment													
191	Comment													
192	Comment													
193	Comment													
194	Comment													
195	Comment													
196	Comment													
197	Comment													
198	Comment													
199	Comment													
200														
201			Requirements Met?											
202	Free liquids <1% by volume		YES											
203	No non-rad. pyrophorics		YES											
204	Chemical compatability		YES											
205	No explosives		YES											
206	No corrosives		YES											
207	No pressurized containers		YES											
208	No sealed Containers >4 liters		YES											
209	Liner punctured/ filtered		YES											
210	Flammable VOCs <500ppmv		Yes											
211	Container is in Approved Waste Stream Profile Form?	OR-ISTP-CH-HET	Yes											
212	Can it be established through Process Knowledge that the concentration of flammable VOCs present in the headspace of the container is <= 500 ppm?.		No	NS 9/1/11										
213														
214														
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235														

N. Sharif
CCP Certification Official

9/1/11
Date

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Addendum #4, SCO #1065
Excel 2003/2007 Microsoft Windows XP

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Radiation & Contamination Survey Form

CM-P-RP-306 Rev. 6, Radiation/Contamination Surveys

SURVEY NO: 11-SUR-00134

PAGE 1 OF 1 PAGES

Instruments Used

Instrument Type	Serial Number	Cal Due Date	Alpha Eff.	Beta Eff.
LM 12-4 / LM 42-31	215331 / 215331	03/26/11	N/A	N/A
LM-2360 / 43-93	225182 / 244530	02/22/11	N/A	N/A
LM-3 / 44-38	245320 / 260030	10/27/11	N/A	N/A
LM-3030E / LM-3030	259089 / 259088	09/22/11	35.9	26.5
LM-3030E / LM-3030	259093 / 259093	05/14/11	35.57%	26.89%
REM 500 / REM 500	410 / 410	04/23/11	N/A	N/A

LOCATION / TYPE: CHGB Drum Out

PURPOSE: Job Coverage

DATE/TIME: 01/07/11 6:27 | RWP/ALARA: 11-TRU-007

		Station #	3		2		1		3		2	
		Drum ID	NFS0479A		X10C9313063A		X10C0502628A		X10C9311795A		X10C9313089A	
Gamma Dose Rate (mR/hr)		OC	45		5		<0.1		5		9	
		30 cm	5		1		↓		1		1.5	
		1m	1		<0.1		↓		0.3		<0.1	
Neutron Dose Rate (mrem/hr)		OC	<0.5		20		<0.5		<0.5		20	
		30 cm	↓		5		↓		↓		12	
		1m	↓		<0.5		↓		↓		<0.5	
			α	β	α	β	α	β	α	β	α	β
LAS (dpm/probe)		Umbilical Cut	<100	<1K	<100	<1K	<100	<1K	<100	<1K	<100	<1K
		Tool	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Drum	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Cart	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Station	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Smears (dpm/100 cm²)		Lid	<20	<200	<20	<200	<20	<200	<20	<200	<20	<200
		Lid Ring	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Drum	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Cart	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Station	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		Sleeve Ring	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✱ On Contact (OC) or OC/30cm (#) Smear #→ LAS # Direct

REMARKS: All dose rates in mR/hr gamma and mrem/hr neutron unless otherwise noted. LAS in dpm/probe, smears in dpm/100 sq. cm.

RCT SIGNATURE: Jason Gollihet

RCO SIGNATURE:

Date: 1/11/2011

The signature(s) on this sheet are that of the responsible technician(s) who certify that the data recorded represent the readings, measurements, and/or observations at the time indicated.

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Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL-TWPC
Batch Number:	OR-RTR6-0392
Examination Date:	2/14/11
Waste Container ID:	X10C9313063A
Video/Audio Recorded Media Number:	OR-RTR6-0392 A
Procedure and Revision No.:	CCP-TP-053 Rev. 9
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 90.2 kg. Tare Wt: 33.2 kg. Net Wt: 57.0 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	90 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9313063A

Section 3: Container Inventory and Comments (Detailed descriptions)
Metal locking ring, metal lids, crushed metal cans, scrap metal, metal vice, metal electrical device, metal fittings, 30 gallon drum (open) TC 3/23/11
Aluminum respirator filters
Absorbent material, glass container
Cloth coveralls
Plastic respirator filters, plastic bags, plastic caps, plastic tubing, plastic containers

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	42.5
Aluminum-based Metals / Alloys (AM):	2.0
Other Metals (OM):	
Other Inorganic Materials (OI):	1.5
Cellulosics (C):	4.0
Rubber (R):	
Plastics (waste materials) (XPM):	7.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	57.0

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9313063A

Section 6: RTR Summary (Questions answered "YES" will be explained in the Comments block.)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of PCBs liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT-II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments: N/A

RTR Operator:

Tyson Christensen — Print Name

Tyson Christensen — Signature

2/14/11 — Date 3/23/11

********** Radioassay Data Sheet **********

Engine Version: TMU Gamma 1.5

Count Sequence Number:	188	Batch Number:	OR-IQ3-0190
Assay Instrument:	MCS IQ3	Location:	ORNL
Analysis Method:	CCP-TP-047 v 11	Software Version:	NDA 2000 V.4.0
Item ID:	X10C9313063A	Assay Start:	3/3/2011 9:11:24 AM

NID did not identify fiducial nuclide PU-239
Source of isotopics: DECLARED

Net Weight	57000.0 g		
Percent Full	90 %		
Density	0.304 kg /l		
Pu mass	4.83E-001 +-	1.71E-001	g
TRU Alpha Activity	1.01E+001 +-	1.90E+000	Ci
TRU Activity Concentration	1.78E+005 +-	3.34E+004	nCi/g
Pu-239 Equivalent Activity	1.55E+001 +-	2.19E+000	Ci
Pu-239 FGE	1.47E-001 +-	1.35E-001	g
Decay heat	7.44E-001 +-	1.09E-001	W

Nuclide	Mass g	Activity Ci	Activity Uncert. Ci	MDA Ci
SR90	5.57E-008	7.69E-006	1.68E-006	0.00E+000
CS137	8.77E-008	7.69E-006	1.68E-006	1.71E-007
EU154	1.41E-008	3.76E-006	8.22E-007	2.77E-007
U233	<LLD	<LLD	0.00E+000	1.12E-002
U234	2.34E-001	1.48E-003	3.30E-004	0.00E+000
U235	0.00E+000	0.00E+000	0.00E+000	7.76E-006
NP237	0.00E+000	0.00E+000	0.00E+000	2.32E-006
PU238	4.82E-001	8.35E+000	1.86E+000	6.60E-001
U238	<LLD	<LLD	0.00E+000	3.60E-005
PU239	<LLD	<LLD	0.00E+000	3.84E-002
PU240	<LLD	<LLD	0.00E+000	2.50E+000
AM241	5.18E-001	1.80E+000	3.92E-001	4.01E-002
PU241	0.00E+000	0.00E+000	0.00E+000	9.35E+000
PU242	6.46E-004	2.56E-006	5.72E-007	0.00E+000
AM243	6.39E-003	1.29E-003	6.56E-004	4.80E-006
CM243	2.87E-005	1.45E-003	6.89E-004	4.95E-006
CM244	1.42E-001	1.17E+001	2.54E+000	2.08E-001
CM245	4.64E-003	8.06E-004	1.78E-004	2.90E-005
CF249	2.54E-007	1.05E-006	2.29E-007	3.13E-007

Errors quoted at 1.000 sigma

Operator: Kristie Garbett Kristie Garbett Date: 5/16/11

ITR: Susan Anderson Susan Anderson Date: 5/19/11

Automated Independent Technical Review

Count Sequence Number:	188	Batch Number:	OR-IQ3-0190
Assay Instrument:	MCS IQ3	Location:	ORNL
Analysis Method:	CCP-TP-047 v 11	Software Version:	NDA 2000 V.4.0
Item ID:	X10C9313063A	Assay Start:	3/3/2011 9:05:03 AM

MGA Analysis:
Results are marked as invalid.

DISPOSITION: No MGA results available. All isotopes direct reported from measured values. U-234 and Pu-242 calculated from Pu-238 in accordance with AK Memo CCP-AK-ORNL-008.

Gamma Analysis:
Analysis Status: No errors.
Spectrum Validity Check engine has suggested data review.

DISPOSITION: Fiducial Peak Test failed: fiducial peaks are not present or have bad shape. Refit peaks throughoutthe Summed Spectrum, using IPF, to improve peak shape and uncertainty. Results acceptable.

Summed Spectrum analysis used for final results. Results acceptable.

Segment Data Review:
Segment: 1 Analysis Warnings:
Transmission Error 10: See manual for error code description.
Minimum transmission used.
Segment: 2 Analysis Warnings:
Transmission Error 10: See manual for error code description.
Minimum transmission used.
Segment: 3 Analysis Warnings:
Transmission Error 10: See manual for error code description.
Minimum transmission used.

DISPOSITION: Transmissions errors are not data-affecting since Transmission-corrected analysis not used for final analysis.

Miscellaneous:

DISPOSITION: No additional radionuclides contributing to 95% of the radiological hazard identified.

Expert Review by: Bart B. Morales Date: 5/12/11

Bart B. Morales

Attachment 4 – Flammable Gas Analysis Form

Waste Container ID: **X10C9313063A**

BDR Number: **OR11FG11017**

Sampling Date: **3/7/2011**

CAS NUMBER	COMPOUND	Measured ppmv	Reporting Flag
1333-74-0	Hydrogen	137.15	
74-82-8	Methane	151.03	U
67-56-1	Methanol	32.97	U
60-29-7	Ethyl Ether	0.68	U
75-35-4	1,1-Dichloroethylene	4.82	U
67-64-1	Acetone	8.29	U
75-34-3	1,1-Dichloroethane	3.52	U
156-59-2	cis-1,2-Dichloroethene	0.48	U
78-93-3	Methyl ethyl ketone	4.32	U
110-82-7	Cyclohexane	3.23	U
71-43-2	Benzene	0.63	U
107-06-2	1,2-Dichloroethane	2.21	U
71-36-3	1-Butanol	1.27	U
108-10-1	Methyl isobutyl ketone	3.90	U
108-88-3	Toluene	2.51	U
108-90-7	Chlorobenzene	0.51	U
100-41-4	Ethylbenzene	0.73	U
108-38-3/106-42-3	m- and p-Xylene	0.46	U
95-47-6	o-Xylene	0.31	U
108-67-8	1,3,5-Trimethylbenzene	0.55	U
95-63-6	1,2,4-Trimethylbenzene	0.61	U

CAS Number	IDENTIFIED TIC COMPOUND	Est. Amount ppmv
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Attachment 1 – Sample Container Data Form

BDR Number: OR11FG11017

	Waste Container ID	8 Filter Model Number	9 Hydrogen Diffusivity of Filter (mol/s/mf)	10 Package Configuration Group Number	11 Closure Date	12 Vent Date	13 Required DAC Value (in days)	14 Drum Age (in days)	15 Can this container be sampled?
1	X10C9311604A	NucFil®-019DS	1.85E-05	3	2/16/2010	2/16/2010	12	384	Y
2	X10C9313672A	NucFil®-019DS	1.85E-05	3	1/29/2010	1/29/2010	12	402	Y
3	X10CSATN02697G	UltraTech 9424X	1.85E-05	2	09/21/2010	09/21/2010	9	167	Y
4	X10C9309217R	NucFil®-019DS	1.85E-05	3	02/22/2010	02/22/2010	12	378	Y
5	X10C9306657A	UltraTech 9424X	1.85E-05	2	1/5/2011	1/5/2011	9	61	Y
6	X10C9310169A	UltraTech 9424X	1.85E-05	3	1/19/2010	1/19/2010	12	412	Y
7	X10C9311078A	NucFil®-019DS	1.85E-05	3	2/11/2010	2/11/2010	12	389	Y
8	X10CSATN02697I	UltraTech 9424X	1.85E-05	2	09/21/2010	09/21/2010	9	167	Y
9	X10C9312676A	NucFil®-019DS	1.85E-05	3	2/15/2010	2/15/2010	12	385	Y
10	X10C9309217U	NucFil®-019DS	1.85E-05	3	02/22/2010	02/22/2010	12	378	Y
11	X10C9313096A	UltraTech 9424X	1.85E-05	3	12/8/2010	12/8/2010	12	89	Y
12	X10C9313063A	UltraTech 9424X	1.85E-05	3	1/7/2011	1/7/2011	12	59	Y
13	X10C9400038A	UltraTech 9424X	1.85E-05	2	1/21/2010	1/21/2010	9	410	Y
14	X10C9309217W	NucFil®-019DS	1.85E-05	3	02/22/2010	02/22/2010	12	378	Y
15	X10C9311193A	UltraTech 9424X	1.85E-05	3	1/11/2010	1/11/2010	12	420	Y
16	X10C9400083A	UltraTech 9424X	1.85E-05	2	2/8/2011	2/8/2011	9	27	Y
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Operator: Kristopher Henderson
Printed Name

Signature

03-02-11
Date

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PAGE

Waste Isolation Pilot Plant
Container Data Report

Report Statistics

Report Version:	**2.3**
WDS Instance:	**prd05.wipp.carlsbad.nm.us**
Generated on:	**January 14, 2014 04:33 PM**
Generated by:	**KIRKES, CRETA**
Total Pages:	**9**

Selection Criteria

Container Number:	**X10C9313063A**

Container: X10C9313063A
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/01/2011
Waste Handling Code: CH
Disposal Date:

Current Location Site:	OR
Generator Site:	OR
Destination Site ID:	WI
Certification Program ID:	C6
Shipping Program ID:	C6

Neutron Dose Rate (mrem/hr):	20.0
Beta Gamma Dose Rate (mrem/hr):	5.0
Total Dose Rate (mrem/hr):	25.0

FGE (g):	1.47E-01
FGE Uncertainty (g):	1.35E-01
Gross Weight (kg):	90.20
Gross Weight Uncert (kg):	2.30
Decay Heat (W):	7.44E-01
Decay Heat Uncertainty (W):	1.09E-01

Certification Data Values

Waste Stream Profile Code:	OR-ISTP-CH-HET
Waste Type Code:	MTRU
IDC Code:	NONE
Waste Matrix Code:	S5400
WAC Revision Number:	7.2
Fill Factor (%):	90.00
Waste Stream BIR ID:	OR-ISTP-CH-HET
Waste Stream MWIR ID:	NONE

TRU Alpha Activity (Ci):	1.01E01
TRU Alpha Activity Uncertainty (Ci):	1.9E00
TRU Alpha Activity Concentration (Ci/g):	1.78E-04
PU-239 Equivalent Activity (PE-Ci):	1.55E01
Alpha Surface Contamination (dpm/cm^2):	19.0
Beta/Gamma Surface Contamination (dpm/cm^2):	199.0

Transportation Data Values

Closure Date:	01/07/2011
Vent Date:	01/07/2011
Process Knowledge?	N
TRUCON Code:	OR225E
Shipping Category:	3001090443
Aspiration Method:	3

Shipment Purpose:	DISPOSAL
Machine Compacted?	N
Liner Exists?	N
Liner Hole Size(mm):	
Liner Lid Present?	
Layers of Packaging	3
Aqueous Material?	N

Gas Generation Data Values

Measured FGGR (mol/s)	Measured TGRR (mol/s)	Truncated FGGR Test (Y/N)	Truncated FGGR Test Period (days)

Filters

Filter Model Number	Filter Diffusivity (mol/s/ml)	Quantity	Install Date
U9424X	1.85E-05	1	01/07/2011

Container: X10C9313063A
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/01/2011
Waste Handling Code: CH
Disposal Date:

PCB Waste? N
PCB Mass (kg):
PCB Concentration (ppm):
PCB Out of Service Date:
Be Present? Y
Be <= 1% by weight? Y
Be mass <= 100kg? Y
Separation OK?
Packing Fraction (compaction level): non-compacted

Certification Comments

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
AM-241	1.800E00	3.920E-01	5.187E-01	1.153E-01
AM-243	1.290E-03	6.560E-04	6.386E-03	3.314E-03
CF-249	1.050E-06	2.290E-07	2.536E-07	5.644E-08
CM-243	1.450E-03	6.890E-04	2.778E-05	1.347E-05
CM-244	1.170E01	2.540E00	1.430E-01	3.169E-02
CM-245	8.060E-04	1.780E-04	4.632E-03	1.044E-03
CS-137	7.690E-06	1.680E-06	8.739E-08	1.948E-08
EU-154	3.760E-06	8.220E-07	1.408E-08	3.141E-09
NP-237	.000E00	.000E00	.000E00	.000E00
PU-238	8.350E00	1.860E00	4.827E-01	1.097E-01
PU-239	<LLD	<LLD	<LLD	<LLD
PU-240	<LLD	<LLD	<LLD	<LLD

Container: X10C9313063A
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/01/2011
Waste Handling Code: CH
Disposal Date:

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
PU-241	.000E00	.000E00	.000E00	.000E00
PU-242	2.560E-06	5.720E-07	6.448E-04	1.470E-04
SR-90	7.690E-06	1.680E-06	5.572E-08	1.242E-08
U-233	<LLD	<LLD	<LLD	<LLD
U-234	1.480E-03	3.300E-04	2.342E-01	5.328E-02
U-235	.000E00	.000E00	.000E00	.000E00
U-238	<LLD	<LLD	<LLD	<LLD

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	H-X10C9313063A	HGHM-T	HEADSPACE GAS HYDROGEN AND METHANE	03/07/2011	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
1333-74-0	HYDROGEN	137.15	03/07/2011	16HG2	NA
74-82-8	METHANE	3.43	03/07/2011	16HG2	U

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	X10C9313063A	HGVO-T	HEADSPACE GAS VOC	03/07/2011	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
100-41-4	ETHYL BENZENE	0.73	03/07/2011	16HG2	U

Container: X10C9313063A
Type: 1 - 55 gal

Current Status:
Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/01/2011
Waste Handling Code: CH
Disposal Date:

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	X10C9313063A	HGVO-T	HEADSPACE GAS VOC	03/07/2011	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
107-06-2	1,2-DICHLOROETHANE	2.21	03/07/2011	16HG2	U
108-10-1	METHYL ISOBUTYL KETONE	3.9	03/07/2011	16HG2	U
108-67-8	1,3,5-TRIMETHYLBENZENE	0.55	03/07/2011	16HG2	U
108-88-3	TOLUENE	2.51	03/07/2011	16HG2	U
108-90-7	CHLOROBENZENE	0.51	03/07/2011	16HG2	U
108383/106423	M,P-XYLENE	0.46	03/07/2011	16HG2	U
110-82-7	CYCLOHEXANE	3.23	03/07/2011	16HG2	U
156-59-2	CIS-1,2-DICHLOROETHYLENE	0.48	03/07/2011	16HG2	U
60-29-7	ETHYL ETHER	0.68	03/07/2011	16HG2	U
67-56-1	METHANOL	32.97	03/07/2011	16HG2	U
67-64-1	ACETONE	8.29	03/07/2011	16HG2	U
71-36-3	BUTANOL	1.27	03/07/2011	16HG2	U
71-43-2	BENZENE	0.63	03/07/2011	16HG2	U
75-34-3	1,1-DICHLOROETHANE	3.52	03/07/2011	16HG2	U
75-35-4	1,1-DICHLOROETHYLENE	4.82	03/07/2011	16HG2	U
78-93-3	METHYL ETHYL KETONE	4.32	03/07/2011	16HG2	U
95-47-6	O-XYLENE	0.31	03/07/2011	16HG2	U
95-63-6	1,2,4-TRIMETHYLBENZENE	0.61	03/07/2011	16HG2	U

Container: X10C9313063A
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/01/2011
Waste Handling Code: CH
Disposal Date:

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	X10C9313063A	HGVO-T	HEADSPACE GAS VOC	03/07/2011	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags

Material Parameters

Material Parameter	Description	Weight (kg)
1	IRON BASE METAL ALLOYS	42.50
2	ALUMINUM BASE METAL/ALLOYS	2.00
4	OTHER INORGANIC MATERIALS	1.50
6	CELLULOSICS	4.00
8	PLASTICS	7.00
13	STEEL CONTAINER MATERIALS	27.80
14	PLASTIC/LINERS CONTAINER MATERIALS	1.00
15	CELLULOSICS PACKAGING MATERIALS	4.40
	Waste Weight:	57.00
	Packaging Weight:	33.20
	Total Material Weight:	90.20

Hazardous Codes

Hazardous Code	Description
D005	BARIUM
D006	CADMIUM

Container: X10C9313063A
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/01/2011
Waste Handling Code: CH
Disposal Date:

Hazardous Codes

Hazardous Code	Description
D007	CHROMIUM
D008	LEAD
D009	MERCURY
D011	SILVER
D019	CARBON TETRACHLORIDE
D022	CHLOROFORM
F002	SPENT HALOGENATED SOLVENTS
F005	SPENT NON-HALOGENATED SOLVENTS

Assay Methods

Labor Code	Assay Method	Description	Assay Date
C6	16IQ1	CANBERRA MOBILE DRUM COUNTER (IQ3)	03/03/2011

Non-Destructive Examination (NDE)

Labor Code	NDE Method	Description	Examination Date
C6	16RR1	RTR MCS MOBILE CHARACTERIZATION SYSTEM	02/14/2011

Edit Limit Check Results

Evaluation Date: 09/01/2011 13:29:56 Overall Status: PASS

Evaluation Code	Status	Return Code	Detailed Description
DI_CERT_ALL	PASS		
DI_CERT_BE	PASS		
DI_CERT_CERT	PASS		

Container: X10C9313063A
Type: 1 - 55 gal

Current Status

Extended Status: APPROVED CERT
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 09/01/2011
Waste Handling Code: CH
Disposal Date:

Edit Limit Check Results

Evaluation Date: 09/01/2011 13:29:56 Overall Status: PASS

Evaluation Code	Status
DI_CERT_CHARZ	PASS
DI_CERT_ED	PASS
DI_CERT_EPA	PASS
DI_CERT_PCB	PASS
DI_CERT_PERC	PASS
DI_CERT_TRAMPAC	PASS
DSA	PASS
WAC	PASS
WAP_CERT	PASS

TRAMPAC Evaluation Results

Evaluation Date: 09/01/2011 13:29:58 Overall Status: COND

Evaluation Code	Status
CE_ACT	PASS
CE_ALL	COND
CE_ASP	PASS
CE_DDH	PASS
CE_FGE	PASS
CE_FIL	PASS
CE_GVE	COND
CE_RDR	PASS
CE_TRU	PASS
CE_WGT	PASS

Return Code	Detailed Description
CE_GVE_FGR	Container exceeded the allowable flammable gas generation rate.
CE_GVE_MCT	Container is eligible for consideration as a part of a mixed category payload.
CE_GVE_TP	Container is eligible for consideration in a TRUPACT-II payload assembly.

Container: X10C9313063A
Type: 1 - 55 gal

Current Status

Extended Status:	APPROVED CERT		
Container Status:	CERTIFICATION DATA APPROVED	Waste Handling Code:	CH
Certification Date:	09/01/2011	Disposal Date:	

TRAMPAC Evaluation Results

Evaluation Date: 09/01/2011 13:29:58 Overall Status: COND

Details

Matrix Depleted Shipping Category:		Compliance Method:	MEASUREMENT
Decay Heat Limit (w):	0.0999113633068942	FGE Limit (g):	200
FGGR (mol/s):	1.2937629714627423E-8	FGGR Limit (mol/s):	1.1286681715575622E-8
Volume Model:	2	Required Aspiration Time (days):	
Total Headspace VOCs (ppm):	72.0		
Packaging Configuration:	COMMON_PACKAGING 2	DAC Scenario:	3
Closure Time (days):	0	Minimum Closure Time Applied (days):	53
Sample-Vent Time (days):	59	Min Sample-Vent Time Applied (days):	9
TFGVC in ICL (mol fr):		MLEL (mol fr):	0.05

History

Event Date/Time	Event Description	Reason
09/01/2011 13:29:58	SUCCESSFUL SUBMISSION FOR CERT	
09/01/2011 14:19:02	APPROVED FOR CERT	

WDS WCA/WCO CERTIFICATION PACKAGE

GEN12

RH ORNL - Audit

January 15, 2014

Waste Stream OR-REDS-RH-HET

1. Container Information Summary (CIS) – CCP Correlation of Container Identification Numbers to Batch Data Report Numbers
2. NCR/CAR request to QA and QAs response indicating all containers are valid for shipping with no open NCRs/CARs
3. AK Summary Report to obtain vent/closure date

RH Package for ORRH00019

1. Waste Container Data Report from WDS
2. WDS Spreadsheet
3. RAD Survey
4. RTR Data
5. NDA Data
6. Flam Gas Data

RH Package for ORRH00649

1. Waste Container Data Report from WDS
2. WDS Spreadsheet
3. RAD Survey Data
4. RTR Data
5. NDA Data
6. Flam Gas Data

RH Package for ORRH00650

1. Waste Container Data Report from WDS
2. WDS Spreadsheet
3. RAD Survey
4. RTR Data
5. NDA Data
6. Flam Gas Data

RH Package for Canister OR0073

(consisting of drums ORRH00019, ORRH00649 & ORRH00650)

1. Canister Build Sheet
2. Canister Waste Container Data Report
3. TCO Load Sheets

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PAGE

Waste Characterization Case File:

including Container Information Summary (CIS) excerpts, Waste Certification Data Entry Form (WCDEF) spreadsheet signed copies, supporting forms and data, and WWIS/WDS Waste Container Data Report for the container

ORRH00019

(a 55 gal RH debris container)

COPY

ORNL RH AUDIT - January 15, 2014

CONTAINER ID	WASTE STREAM	AK REPORT	VENT DATE	CLOSURE DATE
ORRH00019	OR-REDC-RH-HET	CCP-AK-ORNL-500	4/9/2009	4/9/2009
ORRH00649	OR-REDC-RH-HET	CCP-AK-ORNL-500	5/17/2011	5/17/2011
ORRH00650	OR-REDC-RH-HET	CCP-AK-ORNL-500	5/17/2011	5/17/2011

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CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Lot # 28

Waste Stream: # OR-REDC-RH-HET

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00646	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00647	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00648	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00649	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00650	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
→ ORRH00019	N/A	ORRHDTC09007	N/A	RHORVE090011	N/A	N/A		N/A	N/A	N/A	OR11FG4008

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

9/19/2011
Date

CIS-004

Kirkes, Creta - NWP

From: Mueller, Terry - WTS
Sent: Friday, October 07, 2011 12:19 PM
To: Bradley, Sue - WTS; Dominguez, Lena - WTS; Larson, David - WTS; Pettus, Helen - WTS; Sandate, Yoli - WTS; Soaterna, Carolina - WTS; Underwood, Luann - WTS; Valenzuela, Bobbie; Whiteaker, Roger - WTS; Ybarra, Deanna - WTS
Cc: Gomez, Chris - WTS; Walker, Mak (Maryann) - WTS; Jones, Laura - WTS
Subject: FW: NCR/CAR CHECK FOR OR-REDC-RH-HET Lot 28
Attachments: NCR_BDR_CONTAINER_CHECK_ORNL OR-REDC-RH-HET Lot 28.xls

There are no NCR or CAR dispositions that impact the acceptability of these drums, alternate drum IDs, and associated BDRs for certification and shipping as listed on the attached. This check was verified independently.

Thanks!

Terry L. Mueller
CCP QA
Washington TRU Solutions, LLC
Contractor to the Department of Energy
MS GSA-103
work (575)-234-7016
fax (575)-234-7042

COPY

From: Pettus, Helen - WTS
Sent: Friday, October 07, 2011 11:59 AM
To: Jones, Laura - WTS; Mireles, Jessica - WTS; Mueller, Terry - WTS; Walker, Mak (Maryann) - WTS
Subject: NCR/CAR CHECK FOR OR-REDC-RH-HET Lot 28

Would you please do an NCR/CAR check on OR-REDC-RH-HET Lot 28.

Thanks,

Helen Pettus
Central Characterization Project
Washington TRU Solutions LLC
Contractor for the U.S. Department of Energy
575-234-7696 (W)
helen.pettus@wipp.ws

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	RH WDS Master Template.xls Rev. 4 Addendum #4, SCO #1066 Excel 2003/2007 Microsoft Windows XP	Units	data	comments									initial	date
2	Shipper Site ID		C7	Location ID	Dest Program ID	Shipping Purpose				ORRH00019			HP/YS	10/07/11
3	Waste Stream Profile		OR-REDC-RH-HET	OR	WI	D							HP/YS	10/07/11
4	Container Number		ORRH00019										HP/YS	10/07/11
5	Container Type		RH drum-55 tbo	drum, swb, tdop, etc., see WWIS labels for valid types.					U-235 FEM	U-235 FEM Uncert	FGGR Flag	FGGR Test Period	HP/YS	10/07/11
6	WAC Rev #		7.2	0					NULL	NULL	NULL	NULL	HP/YS	10/07/11
7	WAC Ex. #						Be <=100 kg	Be <= 1%	Be Present	Aqueous Material	Be Chem/Mech Boun	Compacted Wst		
8	Cert Site		C7				Y	Y	Y	N	NULL	N	HP/YS	10/07/11
9	Cert Date		10/11/2011											
10	Waste Handling Code		RH	CH, RH									HP/YS	10/07/11
11	Waste Type Code		MTRU	TRU, MTRU									HP/YS	10/07/11
12	Waste Stream BIR ID		OR-W211				p(CI):	choose	1sigma	2sigma	95%CI		HP/YS	10/07/11
13	Waste Stream MWIR ID		NONE	default to 0 for TRU			0.6827	1sigma	1.0000	0.5000	0.5102		HP/YS	10/07/11
14	Generator Site ID		OR				0.9545	2sigma	2.0000	1.0000	1.0204		HP/YS	10/07/11
15	IDC Code		NONE	OR325M			0.9500	95%CI	1.9600	0.9800	1.0000		HP/YS	10/07/11
16	Matrix Code		S5400										HP/YS	10/07/11
17	Trucon Code		OR325M	~~OR325H~~ CK 10-11-11									HP/YS	10/07/11
18	Shipping Category						WWIS Req'd CI:	1sigma	1.0000	0.5000	0.5102			
19	Tru Alpha Act	Ci	5.05E-01		5.056E-01		Fraction of MDL Reported on HGAS		1.0000				HP/YS	10/07/11
20	Tru Alpha Act Uncert	1sigma Ci	3.11E-01	1.127E+00	Tru Alpha Act + 2sigma (Ci)								HP/YS	10/07/11
21	Tru Alpha Act Conc	nCi/g	8.97E+03		8.98E+03								HP/YS	10/07/11
22	Tru Alpha Act Conc Uncert	1sigma nCi/g	5.52E+03	2.001E+04	Tru Alpha Act Conc + 2sigma (Ci)								HP/YS	10/07/11
23	Pu239 Fiss Gm Eq	g	2.00E-01		1.973E-01								HP/YS	10/07/11
24	Pu239 Fiss Gm Eq Uncert	1sigma g	1.36E-01	4.720E-01	Pu239 Fiss Gm Eq + 2sigma (Ci)								HP/YS	10/07/11
25	Pu239 Eq Act	Ci	6.64E+00		6.629E+00								HP/YS	10/07/11
26	Decay Heat	watts	4.60E-01		4.661E-01								HP/YS	10/07/11
27	Decay Heat Uncert	1sigma watts	4.15E-01	8.75E-01	Decay Heat + 1sigma (watts)								HP/YS	10/07/11
28	Layers of Packaging		0										HP/YS	10/07/11
29	Fill Factor		95	percentage	Liner Lid Present								HP/YS	10/07/11
30	Liner Type			1 = plastic drum liner									HP/YS	10/07/11
31	Liner Punctured				Liner Hole Size		(mm)						HP/YS	10/07/11
32	PCB Conc		NULL				PCB Waste	PCB Mass (kg)	Out of Service				HP/YS	10/07/11
33	Closure Date		4/9/2009	Watt-years	Waste Gen Date		N	NULL	NULL				HP/YS	10/07/11
34	Vent Date		4/9/2009	1.148									HP/YS	10/07/11
35	Filter Install Date		4/9/2009										HP/YS	10/07/11
36	Filter Manufacturer		NFT										HP/YS	10/07/11
37	Filter Serial Number(s)												HP/YS	10/07/11
38	Filter Model Number	NF012,NF013,NF020,NF9026	NF019D										HP/YS	10/07/11
39	Number of Filters Installed		1										HP/YS	10/07/11
40	Aspiration Method ID		3										HP/YS	10/07/11
41	Gas Gen Rate			#VALUE!	<<Gas Gen Rate Calculated.		Avagdro's Number		6.022142E+23	NIST				
42	Hydrogen/Methane Gen Rate						Electron Charge		1.602176E-19	V NIST				
43	Gas Gen Comp Date				Waste (kg)	Packaging (kg)	Total (kg)							
44	Gross Weight	kg	97.000		56.3	40.70	97.00						HP/YS	10/07/11
45	Gross Weight Uncert	1sigma kg	0.5		max. reported	mda							HP/YS	10/07/11
46	Alpha Surf Cont	dpm/100 cm^2	19		19		Minimum Detectable Activity		Shipping Calcs				HP/YS	10/07/11
47	Beta/Gamma Surf Cont	dpm/100 cm^2	199		199		Minimum Detectable Activity		Total TBq	8.98E-01			HP/YS	10/07/11
48	Neutron Dose Rate	mrem/hr	34.6		34.6		Minimum Detectable Activity		Fraction	3.93E-01			HP/YS	10/07/11
49	Beta/Gamma Dose Rate	mrem/hr	2382.8		2382.8		Minimum Detectable Activity		Highway Route Control?	No			HP/YS	10/07/11
50	Radionuclide		U-233	U-234	U-235	U-236	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	Am-241	HP/YS	10/07/11
51	Activity	Ci	1.00E+00	1.00E+00	0.00E+00	1.00E+00	2.28E-01	3.44E-04	5.95E-02	1.86E+00	3.03E-03	1.28E-01	HP/YS	10/07/11
52	Activity Uncert	1sigma Ci	1.00E+00	1.00E+00	0.00E+00	1.00E+00	2.25E-01	3.93E-04	5.81E-02	2.31E+00	2.95E-03	1.42E-01	HP/YS	10/07/11
53	Mass	grams	1.00E+00	1.00E+00	0.00E+00	1.00E+00	1.32E-02	5.47E-03	2.59E-01	1.79E-02	7.63E-01	3.69E-02		
54	Mass Uncert	1sigma grams	1.00E+00	1.00E+00	0.00E+00	1.00E+00	1.30E-02	6.25E-03	2.53E-01	2.22E-02	7.43E-01	4.09E-02		
55	calc Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.28E-01	3.44E-04	5.95E-02	0.00E+00	3.03E-03	1.28E-01		
56	calc Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E+03	6.11E+00	1.06E+03	0.00E+00	5.38E+01	2.27E+03		
57	calc Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.28E-01	3.44E-04	5.95E-02	1.86E+00	3.03E-03	1.28E-01		
58	calc Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E+03	6.11E+00	1.06E+03	3.30E+04	5.38E+01	2.27E+03		

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1.19E+01 CK 10-11-11 conY

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
59	calc Pu239 FGE	g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-03	5.47E-03	5.82E-03	4.02E-02	5.72E-03	6.90E-04		
60	calc Pu239 Eq Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-01	3.44E-04	5.95E-02	3.65E-02	2.75E-03	1.28E-01		
61	calc Decay Heat	watts	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.55E-03	1.07E-05	1.85E-03	5.92E-05	8.93E-05	4.28E-03		
62	uncert Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-01	3.93E-04	5.81E-02	0.00E+00	2.95E-03	1.42E-01		
63	uncert Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E+03	6.98E+00	1.03E+03	0.00E+00	5.24E+01	2.52E+03		
64	uncert Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-01	3.93E-04	5.81E-02	2.31E+00	2.95E-03	1.42E-01		
65	uncert Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E+03	6.98E+00	1.03E+03	4.10E+04	5.24E+01	2.52E+03		
66	uncert Pu239 FGE	g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-03	6.25E-03	5.68E-03	5.00E-02	5.57E-03	7.65E-04		
67	uncert Pu239 Eq Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-01	3.93E-04	5.81E-02	4.53E-02	2.68E-03	1.42E-01		
68	uncert Decay Heat	watts	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.45E-03	1.22E-05	1.81E-03	7.35E-05	8.69E-05	4.75E-03		
69	Shipping Calcs	1.16E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.21E+01	6.36E-02	1.10E+01	6.89E+00	5.60E-01	2.37E+01		
70	49CFR173.433f		0.00%	0.00%	0.00%	0.00%	3.58%	0.01%	0.93%	0.58%	0.05%	2.01%		
71	Radionuclide		Am-243	Cm-244	Cm-245	Cm-246	Cs-137	Ba-137m	Sr-90	Y-90			HP/YS	10/07/11
72	Activity	Ci	4.26E-02	1.16E+01	1.42E-03	4.27E-02	3.64E-01	3.45E-01	6.29E+00	6.29E+00			HP/YS	10/07/11
73	Activity Uncert	1sigma Ci	4.06E-02	1.19E-01	1.33E-03	6.43E-02	1.12E-01	1.06E-01	2.70E+00	2.70E+00			HP/YS	10/07/11
74	Mass	grams	2.11E-01	1.42E-01	8.16E-03	1.37E-01	4.14E-03	6.41E-10	4.56E-02	1.16E-05	NULL	NULL		
75	Mass Uncert	1sigma grams	2.01E-01	1.45E-03	7.64E-03	2.07E-01	1.27E-03	1.97E-10	1.96E-02	4.96E-06	NULL	NULL		
76	calc Tru Alpha Act	Ci	4.26E-02	0.00E+00	1.42E-03	4.27E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
77	calc Tru Alpha Act Conc	nCi/g	7.57E+02	0.00E+00	2.52E+01	7.58E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
78	calc Act	Ci	4.26E-02	1.16E+01	1.42E-03	4.27E-02	3.64E-01	3.45E-01	6.29E+00	6.29E+00	NULL	NULL		
79	calc Act Conc	nCi/g	7.57E+02	2.06E+05	2.52E+01	7.58E+02	6.47E+03	6.13E+03	1.12E+05	1.12E+05	NULL	NULL		
80	calc Pu239 FGE	g	2.72E-03	1.28E-02	1.22E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
81	calc Pu239 Eq Act	Ci	4.26E-02	6.11E+00	1.50E-03	4.52E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
82	calc Decay Heat	watts	1.37E-03	4.06E-01	4.71E-05	1.40E-03	4.03E-04	1.36E-03	7.29E-03	3.48E-02	NULL	NULL		
83	uncert Tru Alpha Act	Ci	4.06E-02	0.00E+00	1.33E-03	6.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
84	uncert Tru Alpha Act Conc	nCi/g	7.21E+02	0.00E+00	2.36E+01	1.14E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
85	uncert Act	Ci	4.06E-02	1.19E-01	1.33E-03	6.43E-02	1.12E-01	1.06E-01	2.70E+00	2.70E+00	NULL	NULL		
86	uncert Act Conc	nCi/g	7.21E+02	2.11E+03	2.36E+01	1.14E+03	1.99E+03	1.88E+03	4.80E+04	4.80E+04	NULL	NULL		
87	uncert Pu239 FGE	g	2.59E-03	1.31E-04	1.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
88	uncert Pu239 Eq Act	Ci	4.06E-02	6.26E-02	1.41E-03	6.81E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
89	uncert Decay Heat	watts	1.30E-03	4.16E-03	4.41E-05	2.11E-03	1.24E-04	4.18E-04	3.13E-03	1.49E-02	NULL	NULL		
90	Shipping Calcs		7.87E+00	1.07E+03	2.62E-01	7.89E+00	2.70E-02	0.00E+00	2.33E+00	1.16E+00	NULL	NULL		
91	49CFR173.433f		0.67%	91.18%	0.02%	0.67%	0.00%	0.00%	0.20%	0.10%	NULL	NULL		
92	Waste Material Parameter		PW										HP/YS	10/07/11
93	Wgt of Mat Parms (kg or lbs)	kg	56.3										HP/YS	10/07/11
94	Radio Assay Method		16DTC1										HP/YS	10/07/11
95	Data Package Number		ORRHDTC09007										HP/YS	10/07/11
96	Assay Date		5/21/2009										HP/YS	10/07/11
97	Charz Method ID		16RHVE1										HP/YS	10/07/11
98	Data Package Number		RHORVE90011										HP/YS	10/07/11
99	Charz Method Date		4/9/2009										HP/YS	10/07/11
100	Haz Codes		D004	D005	D006	D007	D008	D009	D010	D011	D019	F002	HP/YS	10/07/11
101	Haz Codes		F005										HP/YS	10/07/11
102	Haz Codes													
103	Haz Codes													
104	Sample ID	Headspace Gas H/M	H-ORRH00019										HP/YS	10/07/11
105	Sample Type		HGHM-T	HGHM									HP/YS	10/07/11
106	Layer No. Sampled		0		229.29								HP/YS	10/07/11
107	Date Sampled		8/18/2011			Sample Site							HP/YS	10/07/11
108	Method ID		16HG2	DTP-1.2-041		C8							HP/YS	10/07/11
109	Data Package Number		OR11FG4008										HP/YS	10/07/11
110	CAS #		1333-74-0	74-82-8										
111	Analyte		HYDROGEN	METHANE									HP/YS	10/07/11
112	Concentration				96.03	133.26							HP/YS	10/07/11
113	units	%vol			PPMV	PPMV							HP/YS	10/07/11
114	Date Analyzed		08/18/11	8/18/2011									HP/YS	10/07/11
115	B Detectable Flag													
116	D Detectable Flag													
117	E Detectable Flag													
118	J Detectable Flag													
119	U Detectable Flag		U	U									HP/YS	10/07/11
120	NA Detectable Flag													
121														
122	Sample ID	Headspace Gas VOC											HP/YS	10/07/11
123	Sample Type			HGVO									HP/YS	10/07/11
124	Layer No. Sampled					SARP-Flammable VOCs (ppmv)		0					HP/YS	10/07/11
125	Date Sampled												HP/YS	10/07/11

kg		
lbs	0.4536	
kg	1.0000	

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
126	Method ID			DTP-1.2-041									HP/YS	10/07/11
127	Data Package Number												HP/YS	10/07/11
128	Methanol Method ID													
129	CAS #												HP/YS	10/07/11
130	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
131	Concentration												HP/YS	10/07/11
132	units	ppmv											HP/YS	10/07/11
133	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
134	B Detectable Flag													
135	D Detectable Flag													
136	E Detectable Flag													
137	J Detectable Flag													
138	U Detectable Flag												HP/YS	10/07/11
139	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
140	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
141	CAS #												HP/YS	10/07/11
142	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
143	Concentration												HP/YS	10/07/11
144	units	ppmv											HP/YS	10/07/11
145	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
146	B Detectable Flag													
147	D Detectable Flag													
148	E Detectable Flag													
149	J Detectable Flag													
150	U Detectable Flag												HP/YS	10/07/11
151	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
152	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
153	CAS #												HP/YS	10/07/11
154	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
155	Concentration												HP/YS	10/07/11
156	units	ppmv											HP/YS	10/07/11
157	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
158	B Detectable Flag													
159	D Detectable Flag													
160	E Detectable Flag													
161	J Detectable Flag													
162	U Detectable Flag												HP/YS	10/07/11
163	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
164	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
165	CAS #												HP/YS	10/07/11
166	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
167	Concentration												HP/YS	10/07/11
168	units	ppmv											HP/YS	10/07/11
169	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
170	B Detectable Flag													
171	D Detectable Flag													
172	E Detectable Flag													
173	J Detectable Flag													
174	U Detectable Flag												HP/YS	10/07/11
175	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
176	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
177	CAS #													
178	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
179	Concentration													
180	units	ppmv												
181	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
182	B Detectable Flag													
183	D Detectable Flag													
184	E Detectable Flag													
185	J Detectable Flag													
186	U Detectable Flag													
187	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
188	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
189			type	comment										
190	Comment													
191	Comment													
192	Comment													
193	Comment													
194	Comment													
195	Comment													
196	Comment													
197	Comment													
198	Comment													
199	Comment													
200														
201			Requirements Met?											
202	Free liquids <1% by volume		YES											
203	No non-rad. pyrophorics		YES											
204	Chemical compatability		YES											
205	No explosives		YES											
206	No corrosives		YES											
207	No pressurized containers		YES											
208	No sealed Containers >4 liters		YES											
209	Liner punctured/ filtered		YES											
210	Flammable VOCs <500ppmv		YES	WWIS WILL EVALUATE										
211	Container is in Approved Waste Stream Profile Form?	OR-REDC-RH-HET	YES											
212	Can it be established through Process Knowledge that the concentration of flammable VOCs present in the headspace of the container is <= 500 ppm?.		YES											
213														
214														
215														
216														
217														
218														
219			Creta Kuhles					10-11-2011						
220			CCP Certification Official					Date		Lot #				
221														
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Radiation & Contamination Survey Form

CM-P-RP-306 Rev. 4, Radiation/Contamination Surveys

SURVEY NO: 09-SUR-01204

Instruments Used

Instrument Type	Serial Number	Cal Due Date	Alpha Eff.	Beta Eff.
ASP2/2e / HP-270	1230 / 02085	01/22/10	N/A	N/A
FHT 6020 / FHT 762-V	934 / 45540 100	03/09/10	N/A	N/A
LM 12-4 / LM 42-31	215331 / 215331	03/27/10	N/A	N/A
LM-2360 / 43-93	259747 / 278240	05/06/10	23.4%	22.8%

LOCATION / TYPE: RH DTC Drum Measurement

PURPOSE: Job Coverage

DATE/TIME: 05/21/09 15:28 RWP/ALARA: 09-TRU-009R0

Drum Barcode	Measurement Location	Gamma Bkg:	Gamma mR/hr		Neutron Bkg:	Neutron mrem/hr		Total Surface Dose Rate Gamma + Neutron (mrem/hr)
		Net Gamma @ 1m (mR/hr)	Correction Factor	Calculated Gamma Surface Dose Rate (mR/hr)	Net Neutron @ 1m* (mrem/hr)	Correction Factor	Calculated Neutron Surface Dose Rate (mrem/hr)	
ORRH00019	1	148.0	16.1	2382.8	55.0	7.13	392.15	2774.95
	2	117.0	16.1	1883.7	56.0	7.13	399.28	2282.98
	3	95.0	16.1	1529.5	45.0	7.13	320.85	1850.35
	4	110.0	16.1	1771.0	49.0	7.13	349.37	2120.37
ORR H00020	1	9.45	16.1	152.1	6.1	7.13	43.5	195.6
	2	8.75	16.1	141.0	6.0	7.13	42.7	183.7
	3	9.50	16.1	153.0	6.0	7.13	42.7	195.7
	4	10.8	16.1	194.0	6.5	7.13	46.3	220.3
ORR H00024	1	20.0	16.1	322	5.0	7.13	35.6	357.6
	2	21.0	16.1	338.1	5.3	7.13	38.0	376.1
	3	19.0	16.1	306	5.0	7.13	35.6	341.6
	4	20.0	16.1	322	5.0	7.13	35.6	357.6
ORR H00028	1	11.5	16.1	185	5.0	7.13	36	221
	2	11.0	16.1	179	5.0	7.13	36	213
	3	14.5	16.1	233	5.5	7.13	39	272 5-27-09
	4	15.0	16.1	241.5	6.0	7.13	43	2864.85

*Contact WOL if neutron dose rate is greater than 40 mrem/hr at 1 meter.

NOTES: Neutron and gamma measurements are taken at 180 degrees apart (eg. Gamma measurement at location 1 and neutron measurement at location 3 are taken simultaneously). Add calculated gamma measurement at position 1.2.3.4 to calculated neutron measurement at position 1.2.3.4 respectively to obtain total surface dose rate. The gamma and neutron 1 meter to surface calculation is based on T-RH-FW-C-RP-006.

✱On Contact (OC) or OC/30cm (#)Smear #LAS #Direct

REMARKS: All dose rates in mR/hr gamma and mrem/hr neutron unless otherwise noted. LAS in dpm/probe, smears in dpm/100 sq. cm. Used NDA's gamma instrument #020571 thermo,,, All surveys in DTC were no-detectable alpha and beta-gamma

RCT SIGNATURE: R. Jennings R Jennings

RCO SIGNATURE: [signature] Date: 5-27-09

The signature(s) on this sheet are that of the responsible technician(s) who certify that the data recorded represent the readings, measurements, and/or observations at the time indicated.

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Attachment 1 – Visual Examination Data Form

Site ID and Location of Packaging Activity: OR-RHVE			
Examination Date: 04/09/09		Batch Number: RHORVE090011	
Procedure #: CCP-TP-500		Revision #: 8	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☑N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☑N/A		Final Container ☐N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00019	
Container Type:		Container Type: 55 GALLON DRUM	
Waste Matrix Code:		Waste Matrix Code: S5400	
Waste Stream:		Waste Stream: OR-REDC-RH-HET	
		Rigid Liner: ☐Y ☑N Type: N/A	Rigid Liner Lid: ☐Y ☑N
		Rigid Liner Vented or Hole Size: N/A	
		Percent Fill: 91-100%	
Layers of Confinement:	Closure Method:	Layers of Confinement: 0	Closure Method: LEVER LOCK
Comments (e.g., filter information, NCRs): Nucfil-019DS This drum was created from casks X10C0601826 (40%), X10C9402650 (60%) and was a repack of ORRH00010 NCR-RHORNL-0502-08. 90% ORGANIC 10% INORGANIC.			

Waste Description:

BAGS (P) GLOVES (R) TAPE (C) (P) STRAPS W/RINGS (R) (IM) SHEETING (P) LIDS (IM) (P) BOTTLES (P) (OIM) MASLIN (C) PAPER (C) REMINANT (P) BUNGEY CORD (R) BROKEN GLASS (OIM) FITTINGS (IM) (AM) (P) LAB WARE (R) (IM) (AM) PIN (IM) CLOTH (C) CORDS W/FITTINGS (P) (R)	ABSORBENT PADS (C) HOSE (R) TUBES (P) (IM) (R) TOOLS (AM) (P) (IM) CANS (IM) (P) VALVE BLOCKS (IM) BOTTLE STOPER (P) (R) FILTER (IM) MANIPULATER BOOTS (R) (IM) BLOCK (P) CHAIN (IM) WIRE (IM) CARDBOARD (C) BUCKETS (P) (IM) (C) BOOTIES (R) (IM) (P) HARDWARE (IM) VALVE (IM) DEBRIS (P)	

Primary Contents (check one)	☐ Concrete	☐ Steel	☑ Organic Material

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Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00019

	YES	NO	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that DOES **NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in containers with an Environmental Protection Agency Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	
Is the waste consistent with the TRUCON Code?	☑	☐	

Comments: N/A

Visual Examination Operator 1:
MITCH MCPETERS (Print Name) — Mitch McPeters (Signature) — 4-14-09 (Date)

Visual Examination Operator 2:
FRANK ANDERSON (Print Name) — (Signature) — 4/14/09 (Date)

COPY

Attachment 2 – Container Data Sheet

BDR Number: ORRHDTC09007

Date:	5-21-09
Container No.:	ORRH 00019
Probe Position:	55-GALLON
Instrument No.:	020571
Probe No.:	XC0672
Estimated Dose Rate (mR/hr):	0.7
Measured Background Dose Rate (mR/hr):	.046
Measured Background Dose Rate < 0.1 of the Estimated Dose Rate?	(YES) NO
Gross Weight (kg):	97
Dose Rate 1 (mR/hr):	148
Dose Rate 2 (mR/hr):	117
Dose Rate 3 (mR/hr):	95.0
Dose Rate 4 (mR/hr):	110
Measured Background Dose Rate <0.1 of the Measured Dose Rate.	(YES) NO

MIKE FRYBERGER — 5-21-09

Printed Name Signature Date

COPY

Waste Container Dose-to-Curie Conversion Record

ORNL DTC-Mark-HFIR, version 4, addendum 4, SCO 1000, Microsoft Excel 2003; Microsoft Windows XP Professional 2002 and 2003

Operating Procedure	CCP-TP-504 Rev.8
Date of Survey	5/21/2009
Waste Stream Designation	OR-REDC-RH-HET
Cask Number	X10C9402650
Container Number	ORRH00019
Container Gross Weight	97 kg
Estimate Fill Percentages	95 %
Container Net Weight	56.3 kg
Measured Container Dose Rate	
Quadrant #1	148 mR/hr
Quadrant #2	117 mR/hr
Quadrant #3	95 mR/hr
Quadrant #4	110 mR/hr
Calculated Average Dose Rate	118 mR/hr
Waste Material Type	Organic

Nuclide	Curie Scaling Factors	Activity (Ci)	Grams	FGE	PECi	Watts	Uncertainty	Uncertainty in Curies	Uncertainty in Grams
U-233	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00E+00
U-234	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00E+00
U-235	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00E+00
U-238	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%	0.00E+00	0.00E+00
Pu-238	6.24E-01	2.28E-01	1.32E-02	1.49E-03	2.07E-01	7.54E-03	98.70%	2.25E-01	1.30E-02
Pu-239	9.43E-04	3.44E-04	5.46E-03	5.46E-03	3.44E-04	1.07E-05	114.42%	3.93E-04	6.25E-03
Pu-240	1.63E-01	5.95E-02	2.59E-01	5.82E-03	5.95E-02	1.85E-03	97.58%	5.81E-02	2.52E-01
Pu-241	5.11E+00	1.86E+00	1.79E-02	4.03E-02	3.65E-02	5.93E-05	123.76%	2.31E+00	2.22E-02
Pu-242	8.32E-03	3.03E-03	7.63E-01	5.72E-03	2.75E-03	8.93E-05	97.38%	2.95E-03	7.43E-01
Am-241	3.51E-01	1.28E-01	3.69E-02	6.90E-04	1.28E-01	4.28E-03	110.68%	1.42E-01	4.08E-02
Am-243	1.17E-01	4.26E-02	2.13E-01	2.75E-03	4.26E-02	1.37E-03	95.19%	4.06E-02	2.03E-01
Cm-244	3.19E+01	1.16E+01	1.44E-01	1.29E-02	6.12E+00	4.00E-01	102.18%	1.19E+01	1.47E-01
Cm-245	3.91E-03	1.42E-03	8.30E-03	1.25E-01	1.52E-03	4.75E-05	93.40%	1.33E-03	7.76E-03
Cm-246	1.17E-01	4.27E-02	1.39E-01	0.00E+00	4.55E-02	1.40E-03	150.36%	6.43E-02	2.09E-01
Cs-137	1.00E+00	3.64E-01	4.14E-03	0.00E+00	0.00E+00	4.03E-04	30.64%	1.12E-01	1.27E-03
Ba-137m	9.46E-01	3.45E-01	6.41E-10	0.00E+00	0.00E+00	1.36E-03	30.64%	1.06E-01	1.96E-10
Sr-90	1.73E+01	6.29E+00	4.55E-02	0.00E+00	0.00E+00	7.29E-03	42.88%	2.70E+00	1.95E-02
Y-90	1.73E+01	6.29E+00	1.16E-05	0.00E+00	0.00E+00	3.48E-02	42.88%	2.70E+00	4.96E-06
Totals		2.73E+01	1.65E+00	2.00E-01	6.64E+00	4.60E-01			

	Value	(one Sigma)	
TRU Alpha Activity Concentration	8.97E+03	5.52E+03	nCi/g
TRU Alpha Activity	5.05E-01	3.11E-01	Ci
Total Pu-239 Equiv Activity	6.64E+00	6.31E+00	Ci
Total Pu-239 Fissile Gram Equiv	2.00E-01	1.36E-01	g
Total Decay Heat	4.60E-01	4.15E-01	W
Volume Activity	1.26E-01	6.81E-02	Ci/L

Originator MIKE FRYBERGER (Print Name)

Signed [signature] Date 5-27-09

Attachment 4 – Flammable Gas Analysis Form

COPY

Waste Container ID: **ORRH00019**

BDR Number: **OR11FG4008**

Sampling Date: **8/18/2011**

CAS NUMBER	COMPOUND	Measured ppmv	Reporting Flag
1333-74-0	Hydrogen	96.03	U
74-82-8	Methane	133.26	U

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Report Statistics

Report Version:	**2.3**
WDS Instance:	**prd05.wipp.carlsbad.nm.us**
Generated on:	**January 15, 2014 08:09 AM**
Generated by:	**KIRKES, CRETA**
Total Pages:	**7**

Selection Criteria

Container Number: **ORRH00019**

WDS
WASTE DATA SYSTEM

Waste Isolation Pilot Plant
Container Data Report

CO

Container: ORRH00019
Type: 39 - RH 55 gal TBO

Current Status
Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EM
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/11/2011

Current Location Site: WI
Generator Site: OR
Destination Site ID: WI

Certification Program ID: C7
Shipping Program ID: C7

Overpack Container: OR0073
Overpack Type: REMOVABLE-LID 72-B CANISTER
Overpack Status: CERTIFICATION DATA APPROVED

Neutron Dose Rate (mrem/hr): 34.6
Beta Gamma Dose Rate (mrem/hr): 2382.8
Total Dose Rate (mrem/hr): 2417.4

FGE (g):
FGE Uncertaint
Gross Weight (
Gross Weight U
Decay Heat (W
Decay Heat Un

Shipment Data
Payload ID: **OR0073** Assembly ID: OR105493 Payload Complete? Y
Shipment Number: ORR11009 Send Date: 11/15/2011 Receipt Date: 11/16/2011
Shipment Status: SHIPMENT RECEIVED AT DESTINATION

Emplacement Loc
Panel: 6 Room

Certification Data Values

Waste Stream Profile Code: OR-REDC-RH-HET
Waste Type Code: MTRU
IDC Code: NONE
Waste Matrix Code: S5400
WAC Revision Number: 7.2
Fill Factor (%): 95.00
Waste Stream BIR ID: OR-W211
Waste Stream MWIR ID: NONE

TRU Alpha Activity (Ci): 5.05E-01
TRU Alpha Activity Uncertainty (Ci): 3.11E-01
TRU Alpha Activity Concentration (Ci/g): 8.97E-06
PU-239 Equivalent Activity (PE-Ci): 6.64E00
Alpha Surface Contamination (dpm/cm^2): 19.0
Beta/Gamma Surface Contamination (dpm/cm^2): 199.0

Transportation Data Values

Closure Date: 04/09/2009
Vent Date: 04/09/2009
Process Knowledge? Y
Waste Gen Date:
Content Code: OR325M
U-235 FEM (g):
U-235 FEM Uncert (g):
Be chemically/ mechanically bound:

Shipm
Machir
Liner E
Liner H
Liner L
Layers
Aqueo

Gas Generation Data Values

Measured FGGR (mol/s)	Measured TGRR (mol/s)	Truncated FGC Test (Y/N)

Container: ORRH00019
Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/11/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

PCB Waste? N
PCB Mass (kg):
PCB Concentration (ppm):
PCB Out of Service Date:
Be Present? Y
Be <= 1% by weight? Y
Be mass <= 100kg? Y
Separation OK? Y
Packing Fraction (compaction level): non-compacted

Filters

Filter Model Number	Filter Diffusivity (mol/s/ml)	Quantity	Install Date
NF019D	1.85E-05	1	04/09/2009

Certification Comments

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
AM-241	1.280E-01	1.420E-01	3.689E-02	4.092E-02
AM-243	4.260E-02	4.060E-02	2.109E-01	2.010E-01
BA-137M	3.450E-01	1.060E-01	6.413E-10	1.970E-10
CM-244	1.160E01	1.192E01	1.418E-01	1.457E-01
CM-245	1.420E-03	1.330E-03	8.161E-03	7.644E-03
CM-246	4.270E-02	6.430E-02	1.373E-01	2.068E-01
CS-137	3.640E-01	1.120E-01	4.136E-03	1.273E-03
PU-238	2.280E-01	2.250E-01	1.318E-02	1.301E-02
PU-239	3.440E-04	3.930E-04	5.469E-03	6.248E-03
PU-240	5.950E-02	5.810E-02	2.587E-01	2.526E-01
PU-241	1.860E00	2.310E00	1.788E-02	2.221E-02
PU-242	3.030E-03	2.950E-03	7.632E-01	7.431E-01

Container: ORRH00019
Type: 39 - RH 55 gal TBO

Current Status
Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/11/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
SR-90	6.290E00	2.700E00	4.558E-02	1.957E-02
U-233	<LLD	<LLD	<LLD	<LLD
U-234	<LLD	<LLD	<LLD	<LLD
U-235	.000E00	.000E00	.000E00	.000E00
U-238	<LLD	<LLD	<LLD	<LLD
Y-90	6.290E00	2.700E00	1.156E-05	4.963E-06

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	H-ORRH00019	HGHM-T	HEADSPACE GAS HYDROGEN AND METHANE	08/18/2011	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
1333-74-0	HYDROGEN	96.03	08/18/2011	16HG2	U
74-82-8	METHANE	133.26	08/18/2011	16HG2	U

Material Parameters

Material Parameter	Description	Weight (kg)
8	PLASTICS	56.30
13	STEEL CONTAINER MATERIALS	40.70

Container: ORRH00019
Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/11/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

Waste Weight:	56.30
Packaging Weight:	40.70
Total Material Weight:	97.00

Hazardous Codes

Hazardous Code	Description
D004	ARSENIC
D005	BARIUM
D006	CADMIUM
D007	CHROMIUM
D008	LEAD
D009	MERCURY
D010	SELENIUM
D011	SILVER
D019	CARBON TETRACHLORIDE
F002	SPENT HALOGENATED SOLVENTS
F005	SPENT NON-HALOGENATED SOLVENTS

Assay Methods

Labor Code	Assay Method	Description	Assay Date
C7	16DTC1	DOSE-TO-CURIE	05/21/2009

Non-Destructive Examination (NDE)

Labor Code	NDE Method	Description	Examination Date

Container: ORRH00019
Type: 39 - RH 55 gal TBO

Current Status
Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Waste Handling Code: RH
Certification Date: 10/11/2011
Disposal Date: 12/01/2011

Non-Destructive Examination (NDE)

Labor Code	NDE Method	Description	Examination Date
C7	16RHVE1	VISUAL EXAMINATION	04/09/2009

Edit Limit Check Results
Evaluation Date: 10/13/2011 11:27:46 Overall Status: PASS

Evaluation Code	Status	Return Code	Detailed Description
DI_CERT_ALL	PASS		
DI_CERT_BE	PASS		
DI_CERT_CERT	PASS		
DI_CERT_CHARZ	PASS		
DI_CERT_ED	PASS		
DI_CERT_EPA	PASS		
DI_CERT_PCB	PASS		
DI_CERT_PERC	PASS		
DI_CERT_TRAMPAC	PASS		
DSA	PASS		
WAC	PASS		
WAP_CERT	PASS		

TRAMPAC Evaluation Results
Evaluation Date: Overall Status:

Evaluation Code	Status	Return Code	Detailed Description

Container: ORRH00019
Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/11/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

History

Event Date/Time	Event Description	Reason
10/13/2011 11:27:48	INSERT DATA INTO THE DATABASE	
10/13/2011 11:27:48	SUCCESSFUL SUBMISSION FOR CERT	
10/13/2011 11:30:57	APPROVED FOR CERT	
10/13/2011 11:39:11	ASSIGNED TO OVERPACK	
10/13/2011 11:40:18	ASSIGNED TO OVERPACK	
10/13/2011 11:40:54	ASSIGNED TO OVERPACK	
10/13/2011 11:40:59	ASSIGNED TO OVERPACK	

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Waste Characterization Case File:

including Container Information Summary (CIS) excerpts, Waste Certification Data Entry Form (WCDEF) spreadsheet signed copies, supporting forms and data, and WWIS/WDS Waste Container Data Report for the container

ORRH00649

(a 55 gal RH debris container)

COPY

ORNL RH AUDIT - January 15, 2014

CONTAINER ID	WASTE STREAM	AK REPORT	VENT DATE	CLOSURE DATE
ORRH00019	OR-REDC-RH-HET	CCP-AK-ORNL-500	4/9/2009	4/9/2009
ORRH00649	OR-REDC-RH-HET	CCP-AK-ORNL-500	5/17/2011	5/17/2011
ORRH00650	OR-REDC-RH-HET	CCP-AK-ORNL-500	5/17/2011	5/17/2011

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CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 28

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00646	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00647	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00648	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00649	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00650	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00019	N/A	ORRHDTC09007	N/A	RHORVE090011	N/A	N/A		N/A	N/A	N/A	OR11FG4008

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

9/19/2011
Date

CIS-004

Kirkes, Creta - NWP

From: Mueller, Terry - WTS
Sent: Friday, October 07, 2011 12:19 PM
To: Bradley, Sue - WTS; Dominguez, Lena - WTS; Larson, David - WTS; Pettus, Helen - WTS; Sandate, Yoli - WTS; Soaterna, Carolina - WTS; Underwood, Luann - WTS; Valenzuela, Bobbie; Whiteaker, Roger - WTS; Ybarra, Deanna - WTS
Cc: Gomez, Chris - WTS; Walker, Mak (Maryann) - WTS; Jones, Laura - WTS
Subject: FW: NCR/CAR CHECK FOR OR-REDC-RH-HET Lot 28
Attachments: NCR_BDR_CONTAINER_CHECK_ORNL OR-REDC-RH-HET Lot 28.xls

There are no NCR or CAR dispositions that impact the acceptability of these drums, alternate drum IDs, and associated BDRs for certification and shipping as listed on the attached. This check was verified independently.

Thanks!

Terry L. Mueller
CCP QA
Washington TRU Solutions, LLC
Contractor to the Department of Energy
MS GSA-103
work (575)-234-7016
fax (575)-234-7042

COPY

From: Pettus, Helen - WTS
Sent: Friday, October 07, 2011 11:59 AM
To: Jones, Laura - WTS; Mireles, Jessica - WTS; Mueller, Terry - WTS; Walker, Mak (Maryann) - WTS
Subject: NCR/CAR CHECK FOR OR-REDC-RH-HET Lot 28

Would you please do an NCR/CAR check on OR-REDC-RH-HET Lot 28.

Thanks,

Helen Pettus
Central Characterization Project
Washington TRU Solutions LLC
Contractor for the U.S. Department of Energy
575-234-7696 (W)
helen.pettus@wipp.ws

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	RH WDS Master Template.xls Rev. 4 Addendum #4, SCO #1066 Excel 2003/2007 Microsoft Windows XP	Units	data	comments									Initial	date
2	Shipper Site ID		C7	Location ID	Dest Program ID	Shipping Purpose					ORRH00649		HP/YS	10/07/11
3	Waste Stream Profile		OR-REDC-RH-HET	OR	WI	D							HP/YS	10/07/11
4	Container Number		ORRH00649										HP/YS	10/07/11
5	Container Type		RH drum-55 tbq	drum, swb, tdop, etc., see WWIS labels for valid types.					U-235 FEM	U-235 FEM Uncert	FGGR Flag	FGGR Test Period	HP/YS	10/07/11
6	WAC Rev #		7.2	0					NULL	NULL	NULL	NULL	HP/YS	10/07/11
7	WAC Ex. #						Be <=100 kg	Be <= 1%	Be Present	Aqueous Material	Be Chem/Mech Bound	Compacted Wst		
8	Cert Site		C7				Y	Y	Y	N	NULL	N	HP/YS	10/07/11
9	Cert Date		10/11/2011											
10	Waste Handling Code		RH	CH, RH									HP/YS	10/07/11
11	Waste Type Code		MTRU	TRU, MTRU									HP/YS	10/07/11
12	Waste Stream BIR ID		OR-W211				p(CI):	choose	1sigma	2sigma	95%CI		HP/YS	10/07/11
13	Waste Stream MWIR ID		NONE	default to 0 for TRU			0.6827	1sigma	1.0000	0.5000	0.5102		HP/YS	10/07/11
14	Generator Site ID		OR				0.9545	2sigma	2.0000	1.0000	1.0204		HP/YS	10/07/11
15	IDC Code		NONE				0.9500	95%CI	1.9600	0.9800	1.0000		HP/YS	10/07/11
16	Matrix Code		S5400										HP/YS	10/07/11
17	Trucon Code		OR325G										HP/YS	10/07/11
18	Shipping Category						WWIS Req'd CI:	1sigma	1.0000	0.5000	0.5102			
19	Tru Alpha Act	CI	3.91E+00		3.906E+00		Fraction of MDL Reported on HGAS		1.0000				HP/YS	10/07/11
20	Tru Alpha Act Uncert	1sigma CI	2.11E+00	8.130E+00	Tru Alpha Act + 2sigma (CI)								HP/YS	10/07/11
21	Tru Alpha Act Conc	nCi/g	2.40E+05		2.40E+05								HP/YS	10/07/11
22	Tru Alpha Act Conc Uncert	1sigma nCi/g	1.29E+05	4.980E+05	Tru Alpha Act Conc + 2sigma (CI)								HP/YS	10/07/11
23	Pu239 Fiss Gm Eq	g	9.38E+00		9.383E+00								HP/YS	10/07/11
24	Pu239 Fiss Gm Eq Uncert	1sigma g	9.92E+00	2.922E+01	Pu239 Fiss Gm Eq + 2sigma (CI)								HP/YS	10/07/11
25	Pu239 Eq Act	CI	3.50E+01		3.497E+01								HP/YS	10/07/11
26	Decay Heat	watts	2.17E+00		2.204E+00								HP/YS	10/07/11
27	Decay Heat Uncert	1sigma watts	2.27E+00	4.44E+00	Decay Heat + 1sigma (watts)								HP/YS	10/07/11
28	Layers of Packaging		0										HP/YS	10/07/11
29	Fill Factor		95	percentage	Liner Lid Present								HP/YS	10/07/11
30	Liner Type			1 = plastic drum liner									HP/YS	10/07/11
31	Liner Punctured				Liner Hole Size		(mm)						HP/YS	10/07/11
32	PCB Conc		NULL				PCB Waste	PCB Mass (kg)	Out of Service				HP/YS	10/07/11
33	Closure Date		5/17/2011	Watt-years	Waste Gen Date		N	NULL	NULL				HP/YS	10/07/11
34	Vent Date		5/17/2011	0.650									HP/YS	10/07/11
35	Filter Install Date		5/17/2011										HP/YS	10/07/11
36	Filter Manufacturer		NFT										HP/YS	10/07/11
37	Filter Serial Number(s)												HP/YS	10/07/11
38	Filter Model Number	NF012,NF013,NF020,NF9026	NF019D										HP/YS	10/07/11
39	Number of Filters Installed		1										HP/YS	10/07/11
40	Aspiration Method ID		3										HP/YS	10/07/11
41	Gas Gen Rate			#VALUE!	<<Gas Gen Rate Calculated.		Avagdro's Number		6.022142E+23	NIST				
42	Hydrogen/Methane Gen Rate						Electron Charge		1.602176E-19	V NIST				
43	Gas Gen Comp Date				Waste (kg)	Packaging (kg)	Total (kg)							
44	Gross Weight	kg	57.000		16.3	40.70	57.00						HP/YS	10/07/11
45	Gross Weight Uncert	1sigma kg	0.5		max. reported	mda							HP/YS	10/07/11
46	Alpha Surf Cont	dpm/100 cm^2	0		0		Minimum Detectable Activity		Shipping Calcs				HP/YS	10/07/11
47	Beta/Gamma Surf Cont	dpm/100 cm^2	0		0		Minimum Detectable Activity		Total TBq	2.81E+00			HP/YS	10/07/11
48	Neutron Dose Rate	mrem/hr	1.86		1.86		Minimum Detectable Activity		Fraction	2.06E+00			HP/YS	10/07/11
49	Beta/Gamma Dose Rate	mrem/hr	697		697		Minimum Detectable Activity		Highway Route Control?	Yes			HP/YS	10/07/11
50	Radionuclide		U-233	U-234	U-235	U-238	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	Am-241	HP/YS	10/07/11
51	Activity	CI	1.14E-08	3.04E-04	4.61E-06	7.29E-05	4.91E-01	4.61E-01	8.45E-01	6.88E+00	5.11E-04	1.53E+00	HP/YS	10/07/11
52	Activity Uncert	1sigma CI	1.56E-08	4.27E-04	6.25E-06	9.55E-05	5.56E-01	6.42E-01	8.57E-01	7.49E+00	5.81E-04	1.47E+00	HP/YS	10/07/11
53	Mass	grams	1.17E-06	4.81E-02	2.11E+00	2.14E+02	2.84E-02	7.33E+00	3.67E+00	6.62E-02	1.29E-01	4.41E-01		
54	Mass Uncert	1sigma grams	1.60E-06	6.76E-02	2.85E+00	2.81E+02	3.21E-02	1.02E+01	3.73E+00	7.20E-02	1.46E-01	4.24E-01		
55	calc Tru Alpha Act	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.91E-01	4.61E-01	8.45E-01	0.00E+00	5.11E-04	1.53E+00		
56	calc Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E+04	2.83E+04	5.18E+04	0.00E+00	3.13E+01	9.39E+04		
57	calc Act	CI	1.14E-08	3.04E-04	4.61E-06	7.29E-05	4.91E-01	4.61E-01	8.45E-01	6.88E+00	5.11E-04	1.53E+00		
58	calc Act Conc	nCi/g	6.99E-04	1.87E+01	2.83E-01	4.47E+00	3.01E+04	2.83E+04	5.18E+04	4.22E+05	3.13E+01	9.39E+04		

COPY

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
59	calc Pu239 FGE	g	1.05E-06	0.00E+00	1.35E+00	0.00E+00	3.21E-03	7.33E+00	8.27E-02	1.49E-01	9.65E-04	8.25E-03		
60	calc Pu239 Eq Act	Ci	2.92E-09	0.00E+00	0.00E+00	0.00E+00	4.46E-01	4.61E-01	8.45E-01	1.35E-01	4.65E-04	1.53E+00		
61	calc Decay Heat	watts	3.32E-10	8.75E-06	1.27E-07	1.85E-06	1.63E-02	1.43E-02	2.83E-02	2.19E-04	1.51E-05	5.11E-02		
62	uncert Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.56E-01	6.42E-01	8.57E-01	0.00E+00	5.81E-04	1.47E+00		
63	uncert Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.41E+04	3.94E+04	5.26E+04	0.00E+00	3.56E+01	9.02E+04		
64	uncert Act	Ci	1.58E-08	4.27E-04	6.25E-06	9.55E-05	5.56E-01	6.42E-01	8.57E-01	7.49E+00	5.81E-04	1.47E+00		
65	uncert Act Conc	nCi/g	9.57E-04	2.62E+01	3.83E-01	5.86E+00	3.41E+04	3.94E+04	5.26E+04	4.60E+05	3.56E+01	9.02E+04		
66	uncert Pu239 FGE	g	1.44E-06	0.00E+00	1.84E+00	0.00E+00	3.63E-03	1.02E+01	8.38E-02	1.62E-01	1.10E-03	7.92E-03		
67	uncert Pu239 Eq Act	Ci	4.00E-09	0.00E+00	0.00E+00	0.00E+00	5.05E-01	6.42E-01	8.57E-01	1.47E-01	5.28E-04	1.47E+00		
68	uncert Decay Heat	watts	4.54E-10	1.23E-05	1.72E-07	2.42E-06	1.84E-02	1.99E-02	2.67E-02	2.38E-04	1.71E-05	4.91E-02		
69	Shipping Calcs	6.19E+03	4.22E-07	1.13E-02	0.00E+00	0.00E+00	9.08E+01	8.52E+01	1.56E+02	2.55E+01	9.45E-02	2.83E+02		
70	49CFR173.433f		0.00%	0.00%	0.00%	0.00%	1.47%	1.38%	2.52%	0.41%	0.00%	4.57%		
71	Radionuclide		Am-243	Cm-244	Cm-245	Cm-246	Cs-137	Ba-137m	Sr-90	Y-90			HP/YS	10/07/11
72	Activity	Ci	5.35E-02	5.88E+01	4.50E-03	5.20E-01	1.74E-01	1.65E-01	2.99E+00	2.99E+00			HP/YS	10/07/11
73	Activity Uncert	1sigma Ci	6.97E-02	8.31E+01	4.83E-03	5.71E-01	5.29E-02	5.00E-02	1.28E+00	1.28E+00			HP/YS	10/07/11
74	Mass	grams	2.65E-01	7.19E-01	2.59E-02	1.67E+00	1.98E-03	3.07E-10	2.17E-02	5.50E-06	NULL	NULL		
75	Mass Uncert	1sigma grams	3.45E-01	7.71E-01	2.78E-02	1.84E+00	6.01E-04	9.29E-11	9.28E-03	2.35E-06	NULL	NULL		
76	calc Tru Alpha Act	Ci	5.35E-02	0.00E+00	4.50E-03	5.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
77	calc Tru Alpha Act Conc	nCi/g	3.28E+03	0.00E+00	2.76E+02	3.19E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
78	calc Act	Ci	5.35E-02	5.88E+01	4.50E-03	5.20E-01	1.74E-01	1.65E-01	2.99E+00	2.99E+00	NULL	NULL		
79	calc Act Conc	nCi/g	3.28E+03	3.61E+06	2.76E+02	3.19E+04	1.07E+04	1.01E+04	1.83E+05	1.83E+05	NULL	NULL		
80	calc Pu239 FGE	g	3.42E-03	6.47E-02	3.88E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
81	calc Pu239 Eq Act	Ci	5.35E-02	3.09E+01	4.76E-03	5.51E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
82	calc Decay Heat	watts	1.72E-03	2.06E+00	1.49E-04	1.71E-02	1.93E-04	6.50E-04	3.47E-03	1.65E-02	NULL	NULL		
83	uncert Tru Alpha Act	Ci	6.97E-02	0.00E+00	4.83E-03	5.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
84	uncert Tru Alpha Act Conc	nCi/g	4.28E+03	0.00E+00	2.96E+02	3.50E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
85	uncert Act	Ci	6.97E-02	6.31E+01	4.83E-03	5.71E-01	5.29E-02	5.00E-02	1.28E+00	1.28E+00	NULL	NULL		
86	uncert Act Conc	nCi/g	4.28E+03	3.87E+06	2.96E+02	3.50E+04	3.25E+03	3.07E+03	7.85E+04	7.85E+04	NULL	NULL		
87	uncert Pu239 FGE	g	4.45E-03	6.94E-02	4.16E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
88	uncert Pu239 Eq Act	Ci	6.97E-02	3.32E+01	5.11E-03	6.05E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
89	uncert Decay Heat	watts	2.24E-03	2.21E+00	1.60E-04	1.87E-02	5.86E-05	1.97E-04	1.48E-03	7.08E-03	NULL	NULL		
90	Shipping Calcs		9.89E+00	5.44E+03	8.32E-01	9.61E+01	1.29E-02	0.00E+00	1.11E+00	5.53E-01	NULL	NULL		
91	49CFR173.433f		0.16%	87.91%	0.01%	1.55%	0.00%	0.00%	0.02%	0.01%	NULL	NULL		
92	Waste Material Parameter		PW										HP/YS	10/07/11
93	Wgt of Mat Parms (kg or lbs)	kg	16.3										HP/YS	10/07/11
94	Radio Assay Method		16DTC1										HP/YS	10/07/11
95	Data Package Number		ORRHDTC11004										HP/YS	10/07/11
96	Assay Date		8/17/2011										HP/YS	10/07/11
97	Charz Method ID		16RHVE1										HP/YS	10/07/11
98	Data Package Number		RHORVE110004										HP/YS	10/07/11
99	Charz Method Date		5/17/2011										HP/YS	10/07/11
100	Haz Codes		D004	D005	D006	D007	D008	D009	D010	D011	D019	F002	HP/YS	10/07/11
101	Haz Codes		F005										HP/YS	10/07/11
102	Haz Codes													
103	Haz Codes													
104	Sample ID	Headspace Gas H/M	H-ORRH00649										HP/YS	10/07/11
105	Sample Type		HGHM-I	HGHM									HP/YS	10/07/11
106	Layer No. Sampled		0		229.29								HP/YS	10/07/11
107	Date Sampled		8/17/2011			Sample Site							HP/YS	10/07/11
108	Method ID		16HG2	DTP-1.2-041		C8							HP/YS	10/07/11
109	Data Package Number		OR11EG4002										HP/YS	10/07/11
110	CAS #		1333-74-0	74-82-8										
111	Analyte		HYDROGEN	METHANE									HP/YS	10/07/11
112	Concentration				96.03	133.26							HP/YS	10/07/11
113	units	%vol			PPMV	PPMV							HP/YS	10/07/11
114	Date Analyzed		08/17/11	8/17/2011									HP/YS	10/07/11
115	B Detectable Flag													
116	D Detectable Flag													
117	E Detectable Flag													
118	J Detectable Flag													
119	U Detectable Flag		U	U									HP/YS	10/07/11
120	NA Detectable Flag													
121														
122	Sample ID	Headspace Gas VOC											HP/YS	10/07/11
123	Sample Type			HGVO									HP/YS	10/07/11
124	Layer No. Sampled					SARP-Flammable VOCs (ppmv)		0					HP/YS	10/07/11
125	Date Sampled												HP/YS	10/07/11

	kg
lbs	0.4536
kg	1.0000

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Addendum #4, SCO #1066
Excel 2003/2007 Microsoft Windows XP

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
126	Method ID			DTP-1 2-041									HP/YS	10/07/11
127	Data Package Number												HP/YS	10/07/11
128	Methanol Method ID													
129	CAS #												HP/YS	10/07/11
130	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
131	Concentration												HP/YS	10/07/11
132	units	ppmv											HP/YS	10/07/11
133	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
134	B Detectable Flag													
135	D Detectable Flag													
136	E Detectable Flag													
137	J Detectable Flag													
138	U Detectable Flag												HP/YS	10/07/11
139	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
140	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
141	CAS #												HP/YS	10/07/11
142	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
143	Concentration												HP/YS	10/07/11
144	units	ppmv											HP/YS	10/07/11
145	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
146	B Detectable Flag													
147	D Detectable Flag													
148	E Detectable Flag													
149	J Detectable Flag													
150	U Detectable Flag												HP/YS	10/07/11
151	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
152	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
153	CAS #												HP/YS	10/07/11
154	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
155	Concentration												HP/YS	10/07/11
156	units	ppmv											HP/YS	10/07/11
157	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
158	B Detectable Flag													
159	D Detectable Flag													
160	E Detectable Flag													
161	J Detectable Flag													
162	U Detectable Flag												HP/YS	10/07/11
163	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
164	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
165	CAS #												HP/YS	10/07/11
166	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
167	Concentration												HP/YS	10/07/11
168	units	ppmv											HP/YS	10/07/11
169	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
170	B Detectable Flag													
171	D Detectable Flag													
172	E Detectable Flag													
173	J Detectable Flag													
174	U Detectable Flag												HP/YS	10/07/11
175	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
176	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
177	CAS #													
178	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
179	Concentration													
180	units	ppmv												
181	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
182	B Detectable Flag													
183	D Detectable Flag													
184	E Detectable Flag													
185	J Detectable Flag													
186	U Detectable Flag													
187	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
188	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
189			type	comment										
190	Comment													
191	Comment													
192	Comment													
193	Comment													
194	Comment													
195	Comment													
196	Comment													
197	Comment													
198	Comment													
199	Comment													
200														
201			Requirements Met?											
202	Free liquids <1% by volume		YES											
203	No non-rad. pyrophorics		YES											
204	Chemical compatability		YES											
205	No explosives		YES											
206	No corrosives		YES											
207	No pressurized containers		YES											
208	No sealed Containers >4 liters		YES											
209	Liner punctured/ filtered		YES											
210	Flammable VOCs <500ppmv		YES											
211	Container is in Approved Waste Stream Profile Form?	OR-REDC-RH-HET	YES											
212	Can it be established through Process Knowledge that the concentration of flammable VOCs present in the headspace of the container is <= 500 ppm?.		YES											
213														
214														
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236														

Creta Kuhles
CCP Certification Official

10-11-2011
Date

Lot #

RH WDS Master Template.xls Rev. 4
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Radiation & Contamination Survey Form

CM-P-RP-306 Rev. 7, Radiation/Contamination Surveys

SURVEY NO: 11-SUR-04175

Instruments Used

Instrument Type	Serial Number	Cal Due Date	Alpha Eff.	Beta Eff.
ASP2/2e / HP-270	1229 / 02084	04/26/12	N/A	N/A
FHT 6020 / FHZ 512	936 / 42540 925	03/22/12	N/A	N/A
FHT 6020 / FHT 762-V	936 / 42540 103	03/22/12	N/A	N/A

LOCATION / TYPE: RH DTC Drum Measurement

PURPOSE: Job Coverage

DATE/TIME: 08/17/11 8:14

RWP/ALARA: 11-TRU-009

Drum Barcode	Measurement Location	Gamma			Neutron			Total Surface Dose Rate Gamma + Neutron (mrem/hr)
		Gamma Bkg: 0.077 mR/hr			Neutron Bkg: 0.155 mrem/hr			
		Net Gamma @ 1m (mR/hr)	Correction Factor	Calculated Gamma Surface Dose Rate (mR/hr)	Net Neutron @ 1m* (mrem/hr)	Correction Factor	Calculated Neutron Surface Dose Rate (mrem/hr)	
ORRH00646	1	59.22	16.1	953	0.665	7.13	4.67	958
	2	56.72	16.1	913	0.621	7.13	4.42	917
	3	57.42	16.1	924	0.655	7.13	4.67	929
	4	63.22	16.1	1017	0.685	7.13	4.88	1022
ORRH00647	1	32.22	16.1	518	0.426	7.13	3.03	521
	2	29.32	16.1	472	0.435	7.13	3.10	475
	3	36.72	16.1	591	0.446	7.13	3.16	594
	4	36.22	16.1	583	0.470	7.13	3.35	586
ORRH00648	1	35.43	16.1	570	0.360	7.13	2.56	572
	2	36.52	16.1	587	0.309	7.13	2.20	590
	3	35.62	16.1	573	0.333	7.13	2.37	575
	4	35.72	16.1	575	0.349	7.13	2.48	577
ORRH00649	1	30.82	16.1	496	0.261	7.13	1.86	498
	2	40.12	16.1	645	0.227	7.13	1.61	647
	3	43.32	16.1	697	0.225	7.13	1.60	699
	4	34.52	16.1	555	0.224	7.13	1.59	557

*Contact WOL if neutron dose rate is greater than 40 mrem/hr at 1 meter.

NOTES: Neutron and gamma measurements are taken at 180 degrees apart (eg. Gamma measurement at location 1 and neutron measurement at location 3 are taken simultaneously). Add calculated gamma measurement at position 1,2,3,4 to calculated neutron measurement at position 1,2,3,4 respectively to obtain total surface dose rate. The gamma and neutron 1 meter to surface calculation is based on T-RH-FW-C-RP-006.

*On Contact (OC) or OC/30cm (#)Smear #LAS #Direct

UNITS: If performed, dose rates are in mR/hr γ and mrem/hr n, LAS in dpm/probe, smears and direct measurements in dpm/100 cm² (unless otherwise annotated). REMARKS: Gamma Dose rates were taken with CCP instrument XCO677, Cal due 4/14/12.

RCT SIGNATURE: Joshua Hensley

RCO SIGNATURE:

Date: 8/17/2011

The signature(s) on this sheet are that of the responsible technician(s) who certify that the data recorded represent the readings, measurements, and/or observations at the time indicated.

Attachment 1 – Visual Examination Data Form

Site ID: RH-DRNL			
Examination Date: 5/17/11		Batch Number: RHDRNE110004	
Procedure #: CCP-TP-500		Revision #: 11	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☑N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☑N/A		Final Container ☐N/A	
Container or Package ID Number:		Container or Package ID Number: DRRH00649	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: 55400	
Waste Stream:		Waste Stream: DR-REDC-RH-HET	
		Rigid Liner: ☐Y ☑N Type: N/A	Rigid Liner Lid: ☐Y ☑N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 95%	Percent Organic Waste: 80%
Layers of Confinement:	Closure Method:	Layers of Confinement: 0	Closure Method: N/A

Comments (e.g., filter information, NCRs):
NUCFIL-019DS This drum contains waste from CASK X10CSATN02665 80% and drum DRRH00351 20% (CASK X10CSATN01878)

Waste Description:

Liner (Supersack) (P)
Cardboard Insert (C)
Bottles (DIm) (P)
Pieces (DIm) (C) (P)
Manoles (Im)
Steing (C)
Tubing (P)
Poly Block (P)
manipulator Tool (Im)
Lios (P)
Fittings (P) (Im)
LABWARE (DIm)
Cloth (C)
Wire (Im)
Connector (Im) (Om) (P)
Stopper (R)
Floorsweepings (C) (DIm) (R) (Im)
Rags (C)
Sheeting (P)
Tape (P)
Cheese Cloth (C)
Cardboard (C)
Dynameter (Im) (Om) (Am)
Wood (C)

009

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number IRRH00649

Prohibited Item(s) Summary	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☑	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☐	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☑	
Does the container have observable liquid containing PCBs?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
RH-72B Criteria			
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	
Is the waste consistent with the TRUCON Code?	☑	☐	

Comments: N/A

Visual Examination Operator 1:
JAMES TAMIRA (Print Name) — James Tamira (Signature) — Date: 05/17/11

Visual Examination Operator 2:
Rita Littleton (Print Name) — Rita Littleton (Signature) — Date: 5-17-11

Attachment 2 – Container Data Sheet

BDR Number: ORRHDTC11004

Date:	8/17/2011
Container No.:	ORRH00649
Probe Position:	55-GALLON
Instrument No.:	020571
Probe No.:	XC0677
Measured Background Dose Rate (mR/hr):	.061
Gross Weight (kg):	57
Dose Rate 1 (mR/hr):	30.9
Dose Rate 2 (mR/hr):	40.2
Dose Rate 3 (mR/hr):	43.4
Dose Rate 4 (mR/hr):	34.6
Highest measured dose rate is greater than three times the measured background.	(YES) NO

RONALD WHITSON — Printed Name

Signature

8/17/2011 — Date

COPY

Waste Container Dose-to-Curie Conversion Record

SCO 1043 ORNL DTC-SETF Rev.1 Addendum 2 Microsoft Excel 2003 and 2007 Microsoft Windows XP Professional 2002 and 2003

Operating Procedure	CCP-TP-504 REV. 11
Date of Survey	8/17/2011
Waste Stream Designation	OR-REDC-RH-HET
Cask ID	X10CSATN02665
Container Number	ORRH00649
Container Gross Weight	57 kg
Estimate Fill Percentages	95 %
Container Net Weight	16.3 kg

Measured Container Dose Rate		Background
Quadrant #1	30.9 mR/hr	0.061 mR/hr
Quadrant #2	40.2 mR/hr	
Quadrant #3	43.4 mR/hr	
Quadrant #4	34.6 mR/hr	
Average Dose Rate Minus Background	37 mR/hr	

Nuclide	Curie Scaling Factors	Activity (Ci)	Grams	FGE	PECi	Watts	Uncertainty	Uncertainty in Curies	Uncertainty in Grams
U-233	6.15E-08	1.14E-08	1.16E-06	1.05E-06	2.92E-09	3.31E-10	136.84%	1.56E-08	1.59E-06
U-234	1.65E-03	3.04E-04	4.81E-02	0.00E+00	0.00E+00	8.76E-06	140.33%	4.27E-04	6.75E-02
U-235	2.50E-05	4.61E-06	2.11E+00	1.35E+00	0.00E+00	1.27E-07	135.44%	6.25E-06	2.85E+00
U-238	3.95E-04	7.29E-05	2.14E+02	0.00E+00	0.00E+00	1.85E-06	131.02%	9.55E-05	2.81E+02
Pu-238	2.66E+00	4.91E-01	2.84E-02	3.21E-03	4.46E-01	1.63E-02	113.20%	5.56E-01	3.21E-02
Pu-239	2.49E+00	4.61E-01	7.32E+00	7.32E+00	4.61E-01	1.43E-02	139.46%	6.42E-01	1.02E+01
Pu-240	4.57E+00	8.45E-01	3.68E+00	8.27E-02	8.45E-01	2.63E-02	101.44%	8.57E-01	3.73E+00
Pu-241	4.22E+01	6.88E+00	6.61E-02	1.49E-01	1.35E-01	2.19E-04	108.83%	7.49E+00	7.20E-02
Pu-242	2.77E-03	5.11E-04	1.29E-01	9.65E-04	4.64E-04	1.51E-05	113.63%	5.81E-04	1.46E-01
Am-241	8.29E+00	1.53E+00	4.41E-01	8.25E-03	1.53E+00	5.12E-02	96.30%	1.47E+00	4.25E-01
Am-243	2.89E-01	5.35E-02	2.68E-01	3.45E-03	5.35E-02	1.72E-03	130.27%	6.97E-02	3.49E-01
Cm-244	3.52E+02	5.88E+01	7.27E-01	6.55E-02	3.10E+01	2.02E+00	107.33%	6.31E+01	7.81E-01
Cm-245	2.44E-02	4.50E-03	2.62E-02	3.93E-01	4.79E-03	1.50E-04	107.27%	4.83E-03	2.81E-02
Cm-246	2.81E+00	5.20E-01	1.69E+00	0.00E+00	5.53E-01	1.71E-02	109.95%	5.71E-01	1.86E+00
Cs-137	1.00E+00	1.74E-01	1.98E-03	0.00E+00	0.00E+00	1.93E-04	30.38%	5.29E-02	6.01E-04
Ba-137m	9.46E-01	1.65E-01	3.06E-10	0.00E+00	0.00E+00	6.49E-04	30.38%	5.00E-02	9.30E-11
Sr-90	1.73E+01	2.99E+00	2.17E-02	0.00E+00	0.00E+00	3.47E-03	42.70%	1.28E+00	9.25E-03
Y-90	1.73E+01	2.99E+00	5.50E-06	0.00E+00	0.00E+00	1.65E-02	42.70%	1.28E+00	2.35E-06
Totals		7.59E+01	2.31E+02	9.38E+00	3.50E+01	2.17E+00			

	Value	(one Sigma)	
TRU Alpha Activity Concentration	2.40E+05	1.29E+05	nCi/g
TRU Alpha Activity	3.91E+00	2.11E+00	Ci
Total Pu-239 Equiv Activity	3.50E+01	3.50E+01	Ci
Total Pu-239 Fissile Gram Equiv	9.38E+00	9.92E+00	g
Total Decay Heat	2.17E+00	2.27E+00	W
Volume Activity	3.51E-01	3.13E-01	Ci/L

Originator Ronald Whitson (Print Name)

Signed [signature] Date 8/20/2011

Attachment 4 – Flammable Gas Analysis Form

COPY

Waste Container ID: **ORRH00649**

BDR Number: **OR11FG4007**

Sampling Date: **8/17/2011**

CAS NUMBER	COMPOUND	Measured ppmv	Reporting Flag
1333-74-0	Hydrogen	96.03	U
74-82-8	Methane	133.26	U

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PAGE

Waste Isolation Pilot Plant
Container Data Report

COPY

Report Statistics

Report Version:	**2.3**
WDS Instance:	**prd05.wipp.carlsbad.nm.us**
Generated on:	**January 15, 2014 08:09 AM**
Generated by:	**KIRKES, CRETA**
Total Pages:	**7**

Selection Criteria

Container Number: **ORRH00649**

Container: ORRH00649
Type: 39 - RH 55 gal TBO

Current Status
Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Waste Handling Code: RH
Certification Date: 10/11/2011
Disposal Date: 12/01/2011

Current Location Site:	WI	Neutron Dose Rate (mrem/hr):	1.86	FGE (g):	9.38E00
Generator Site:	OR	Beta Gamma Dose Rate (mrem/hr):	697.0	FGE Uncertainty (g):	9.92E00
Destination Site ID:	WI	Total Dose Rate (mrem/hr):	698.86	Gross Weight (kg):	57.00
Certification Program ID:	C7			Gross Weight Uncert (kg):	0.50
Shipping Program ID:	C7			Decay Heat (W):	2.17E00
Overpack Container:	OR0073			Decay Heat Uncertainty (W):	2.27E00
Overpack Type:	REMOVABLE-LID 72-B CANISTER				
Overpack Status:	CERTIFICATION DATA APPROVED				

Shipment Data

Payload ID: **OR0073** Assembly ID: OR105493 Payload Complete? Y
Shipment Number: ORR11009 Send Date: 11/15/2011 Receipt Date: 11/16/2011
Shipment Status: SHIPMENT RECEIVED AT DESTINATION

Emplacement Location

Panel: 6 Room: 5 Borehole: 038

Certification Data Values

Waste Stream Profile Code:	OR-REDC-RH-HET
Waste Type Code:	MTRU
IDC Code:	NONE
Waste Matrix Code:	S5400
WAC Revision Number:	7.2
Fill Factor (%):	95.00
Waste Stream BIR ID:	OR-W211
Waste Stream MWIR ID:	NONE

TRU Alpha Activity (Ci):	3.91E00
TRU Alpha Activity Uncertainty (Ci):	2.11E00
TRU Alpha Activity Concentration (Ci/g):	2.4E-04
PU-239 Equivalent Activity (PE-Ci):	3.5E01
Alpha Surface Contamination (dpm/cm^2):	0.0
Beta/Gamma Surface Contamination (dpm/cm^2):	0.0

Transportation Data Values

Closure Date:	05/17/2011	Shipment Purpose:	DISPOSAL
Vent Date:	05/17/2011	Machine Compacted?	N
Process Knowledge?	Y	Liner Exists?	N
Waste Gen Date:		Liner Hole Size(mm):	
Content Code:	OR325G	Liner Lid Present?	
U-235 FEM (g):		Layers of Packaging	0
U-235 FEM Uncert (g):		Aqueous Material?	N
Be chemically/ mechanically bound:			

Gas Generation Data Values

Measured FGGR (mol/s)	Measured TGRR (mol/s)	Truncated FGGR Test (Y/N)	Truncated FGGR Test Period (days)

Container: ORRH00649
Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Waste Handling Code: RH
Certification Date: 10/11/2011
Disposal Date: 12/01/2011

PCB Waste? N
PCB Mass (kg):
PCB Concentration (ppm):
PCB Out of Service Date:
Be Present? Y
Be <= 1% by weight? Y
Be mass <= 100kg? Y
Separation OK? Y
Packing Fraction (compaction level): non-compacted

Filters

Filter Model Number	Filter Diffusivity (mol/s/ml)	Quantity	Install Date
NF019D	1.85E-05	1	05/17/2011

Certification Comments

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
AM-241	1.530E00	1.470E00	4.409E-01	4.236E-01
AM-243	5.350E-02	6.970E-02	2.649E-01	3.450E-01
BA-137M	1.650E-01	5.000E-02	3.067E-10	9.294E-11
CM-244	5.880E01	6.310E01	7.188E-01	7.714E-01
CM-245	4.500E-03	4.830E-03	2.586E-02	2.776E-02
CM-246	5.200E-01	5.710E-01	1.672E00	1.836E00
CS-137	1.740E-01	5.290E-02	1.977E-03	6.011E-04
PU-238	4.910E-01	5.560E-01	2.838E-02	3.214E-02
PU-239	4.610E-01	6.420E-01	7.329E00	1.021E01
PU-240	8.450E-01	8.570E-01	3.674E00	3.726E00
PU-241	6.880E00	7.490E00	6.615E-02	7.202E-02
PU-242	5.110E-04	5.810E-04	1.287E-01	1.463E-01

Container: ORRH00649
Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Waste Handling Code: RH
Certification Date: 10/11/2011
Disposal Date: 12/01/2011

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
SR-90	2.990E00	1.280E00	2.167E-02	9.275E-03
U-233	1.140E-08	1.560E-08	1.168E-06	1.598E-06
U-234	3.040E-04	4.270E-04	4.810E-02	6.756E-02
U-235	4.610E-06	6.250E-06	2.105E00	2.854E00
U-238	7.290E-05	9.550E-05	2.144E02	2.809E02
Y-90	2.990E00	1.280E00	5.496E-06	2.353E-06

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	H-ORRH00649	HGHM-T	HEADSPACE GAS HYDROGEN AND METHANE	08/17/2011	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
1333-74-0	HYDROGEN	96.03	08/17/2011	16HG2	U
74-82-8	METHANE	133.26	08/17/2011	16HG2	U

Material Parameters

Material Parameter	Description	Weight (kg)
8	PLASTICS	16.30
13	STEEL CONTAINER MATERIALS	40.70

Container: ORRH00649
Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Waste Handling Code: RH
Certification Date: 10/11/2011
Disposal Date: 12/01/2011

Waste Weight:	16.30
Packaging Weight:	40.70
Total Material Weight:	57.00

Hazardous Codes

Hazardous Code	Description
D004	ARSENIC
D005	BARIUM
D006	CADMIUM
D007	CHROMIUM
D008	LEAD
D009	MERCURY
D010	SELENIUM
D011	SILVER
D019	CARBON TETRACHLORIDE
F002	SPENT HALOGENATED SOLVENTS
F005	SPENT NON-HALOGENATED SOLVENTS

Assay Methods

Labor Code	Assay Method	Description	Assay Date
C7	16DTC1	DOSE-TO-CURIE	08/17/2011

Non-Destructive Examination (NDE)

Labor Code	NDE Method	Description	Examination Date

Container: ORRH00649
Type: 39 - RH 55 gal TBO

Current Status
Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Waste Handling Code: RH
Certification Date: 10/11/2011
Disposal Date: 12/01/2011

Non-Destructive Examination (NDE)

Labor Code	NDE Method	Description	Examination Date
C7	16RHVE1	VISUAL EXAMINATION	05/17/2011

Edit Limit Check Results
Evaluation Date: 10/12/2011 12:03:59 Overall Status: PASS

Evaluation Code	Status	Return Code	Detailed Description
DI_CERT_ALL	PASS		
DI_CERT_BE	PASS		
DI_CERT_CERT	PASS		
DI_CERT_CHARZ	PASS		
DI_CERT_ED	PASS		
DI_CERT_EPA	PASS		
DI_CERT_PCB	PASS		
DI_CERT_PERC	PASS		
DI_CERT_TRAMPAC	PASS		
DSA	PASS		
WAC	PASS		
WAP_CERT	PASS		

TRAMPAC Evaluation Results
Evaluation Date: Overall Status:

Evaluation Code	Status	Return Code	Detailed Description

Container: ORRH00649
Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Waste Handling Code: RH
Certification Date: 10/11/2011
Disposal Date: 12/01/2011

History

Event Date/Time	Event Description	Reason
10/12/2011 12:03:59	INSERT DATA INTO THE DATABASE	
10/12/2011 12:03:59	SUCCESSFUL SUBMISSION FOR CERT	
10/12/2011 12:12:40	APPROVED FOR CERT	
10/13/2011 11:39:11	ASSIGNED TO OVERPACK	
10/13/2011 11:40:18	ASSIGNED TO OVERPACK	
10/13/2011 11:40:54	ASSIGNED TO OVERPACK	
10/13/2011 11:40:59	ASSIGNED TO OVERPACK	

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Waste Characterization Case File:

including Container Information Summary (CIS) excerpts, Waste Certification Data Entry Form (WCDEF) spreadsheet signed copies, supporting forms and data, and WWIS/WDS Waste Container Data Report for the container

ORRH00650

(a 55 gal RH debris container)

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ORNL RH AUDIT - January 15, 2014

CONTAINER ID	WASTE STREAM	AK REPORT	VENT DATE	CLOSURE DATE
ORRH00019	OR-REDC-RH-HET	CCP-AK-ORNL-500	4/9/2009	4/9/2009
ORRH00649	OR-REDC-RH-HET	CCP-AK-ORNL-500	5/17/2011	5/17/2011
ORRH00650	OR-REDC-RH-HET	CCP-AK-ORNL-500	5/17/2011	5/17/2011

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CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 28

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00646	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00647	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00648	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00649	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00650	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00019	N/A	ORRHDTC09007	N/A	RHORVE090011	N/A	N/A		N/A	N/A	N/A	OR11FG4008

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

9/19/2011
Date

CIS-004

Kirkes, Creta - NWP

From: Mueller, Terry - WTS
Sent: Friday, October 07, 2011 12:19 PM
To: Bradley, Sue - WTS; Dominguez, Lena - WTS; Larson, David - WTS; Pettus, Helen - WTS; Sandate, Yoli - WTS; Soaterna, Carolina - WTS; Underwood, Luann - WTS; Valenzuela, Bobbie; Whiteaker, Roger - WTS; Ybarra, Deanna - WTS
Cc: Gomez, Chris - WTS; Walker, Mak (Maryann) - WTS; Jones, Laura - WTS
Subject: FW: NCR/CAR CHECK FOR OR-REDC-RH-HET Lot 28
Attachments: NCR_BDR_CONTAINER_CHECK_ORNL OR-REDC-RH-HET Lot 28.xls

There are no NCR or CAR dispositions that impact the acceptability of these drums, alternate drum IDs, and associated BDRs for certification and shipping as listed on the attached. This check was verified independently.

Thanks!

Terry L. Mueller
CCP QA
Washington TRU Solutions, LLC
Contractor to the Department of Energy
MS GSA-103
***work* (575)-234-7016**
***fax* (575)-234-7042**

COPY

From: Pettus, Helen - WTS
Sent: Friday, October 07, 2011 11:59 AM
To: Jones, Laura - WTS; Mireles, Jessica - WTS; Mueller, Terry - WTS; Walker, Mak (Maryann) - WTS
Subject: NCR/CAR CHECK FOR OR-REDC-RH-HET Lot 28

Would you please do an NCR/CAR check on OR-REDC-RH-HET Lot 28.

Thanks,

Helen Pettus
Central Characterization Project
Washington TRU Solutions LLC
Contractor for the U.S. Department of Energy
575-234-7696 (W)
helen.pettus@wipp.ws

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PAGE

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	RH WDS Master Template.xls Rev. 4 Addendum #4, SCO #1066 Excel 2003/2007 Microsoft Windows XP	Units	data	comments									initial	date
2	Shipper Site ID		C7	Location ID	Dest Program ID	Shipping Purpose					ORRH00650		HP/YS	10/07/11
3	Waste Stream Profile		OR-REDC-RH-HET	OR	WI	D							HP/YS	10/07/11
4	Container Number		ORRH00650										HP/YS	10/07/11
5	Container Type		RH drum-55 tdo	drum, swb, tdop, etc., see WWIS labels for valid types.					U-235 FEM	U-235 FEM Uncert	FGGR Flag	FGGR Test Period	HP/YS	10/07/11
6	WAC Rev #		7.2	0					NULL	NULL	NULL	NULL	HP/YS	10/07/11
7	WAC Ex. #						Be <=100 kg	Be <= 1%	Be Present	Aqueous Material	Be Chem/Mech Bound	Compacted Wst		
8	Cert Site		C7				Y	Y	Y	N	NULL	N	HP/YS	10/07/11
9	Cert Date		10/12/2011											
10	Waste Handling Code		RH	CH, RH									HP/YS	10/07/11
11	Waste Type Code		MTRU	TRU, MTRU									HP/YS	10/07/11
12	Waste Stream BIR ID		OR.W211				p(CI):	choose	1sigma	2sigma	95%CI		HP/YS	10/07/11
13	Waste Stream MWIR ID		NONE	default to 0 for TRU			0.6827	1sigma	1.0000	0.5000	0.5102		HP/YS	10/07/11
14	Generator Site ID		OR				0.9545	2sigma	2.0000	1.0000	1.0204		HP/YS	10/07/11
15	IDC Code		NONE				0.9500	95%CI	1.9600	0.9800	1.0000		HP/YS	10/07/11
16	Matrix Code		S5400										HP/YS	10/07/11
17	Trucon Code		OR325G										HP/YS	10/07/11
18	Shipping Category						WWIS Req'd CI:	1sigma	1.0000	0.5000	0.5102			
19	Tru Alpha Act	CI	3.48E+00		3.477E+00		Fraction of MDL Reported on HGAS		1.0000				HP/YS	10/07/11
20	Tru Alpha Act Uncert	1sigma CI	1.88E+00	7.240E+00	Tru Alpha Act + 2sigma (CI)								HP/YS	10/07/11
21	Tru Alpha Act Conc	nCi/g	1.56E+05		1.56E+05								HP/YS	10/07/11
22	Tru Alpha Act Conc Uncert	1sigma nCi/g	8.45E+04	3.250E+05	Tru Alpha Act Conc + 2sigma (Ci)								HP/YS	10/07/11
23	Pu239 Fiss Gm Eq	g	8.36E+00		8.365E+00								HP/YS	10/07/11
24	Pu239 Fiss Gm Eq Uncert	1sigma g	8.84E+00	2.604E+01	Pu239 Fiss Gm Eq + 2sigma (Ci)								HP/YS	10/07/11
25	Pu239 Eq Act	CI	3.12E+01		3.116E+01								HP/YS	10/07/11
26	Decay Heat	watts	1.94E+00		1.964E+00								HP/YS	10/07/11
27	Decay Heat Uncert	1sigma watts	2.03E+00	3.97E+00	Decay Heat + 1sigma (watts)								HP/YS	10/07/11
28	Layers of Packaging		0										HP/YS	10/07/11
29	Fill Factor		95	percentage	Liner Lid Present								HP/YS	10/07/11
30	Liner Type			1 = plastic drum liner									HP/YS	10/07/11
31	Liner Punctured				Liner Hole Size		(mm)						HP/YS	10/07/11
32	PCB Conc		NULL				PCB Waste	PCB Mass (kg)	Out of Service				HP/YS	10/07/11
33	Closure Date		5/17/2011	Watt-years	Waste Gen Date		N	NULL	NULL				HP/YS	10/07/11
34	Vent Date		5/17/2011	0.760									HP/YS	10/07/11
35	Filter Install Date		5/17/2011										HP/YS	10/07/11
36	Filter Manufacturer		NFT										HP/YS	10/07/11
37	Filter Serial Number(s)												HP/YS	10/07/11
38	Filter Model Number	NF012,NF013,NF020,NF9026	NF019D										HP/YS	10/07/11
39	Number of Filters Installed		1										HP/YS	10/07/11
40	Aspiration Method ID		3										HP/YS	10/07/11
41	Gas Gen Rate			#VALUE!	<<Gas Gen Rate Calculated.		Avagdro's Number	6.022142E+23	NIST					
42	Hydrogen/Methane Gen Rate						Electron Charge	1.602176E-19	V NIST					
43	Gas Gen Comp Date				Waste (kg)	Packaging (kg)	Total (kg)							
44	Gross Weight	kg	63.000		22.3	40.70	63.00						HP/YS	10/07/11
45	Gross Weight Uncert	1sigma kg	0.5		max. reported	mda							HP/YS	10/07/11
46	Alpha Surf Cont	dpm/100 cm^2	0		0		Minimum Detectable Activity		Shipping Calcs				HP/YS	10/07/11
47	Beta/Gamma Surf Cont	dpm/100 cm^2	0		0		Minimum Detectable Activity			Total TBq	2.51E+00		HP/YS	10/07/11
48	Neutron Dose Rate	mrem/hr	4.02		4.02		Minimum Detectable Activity			Fraction	1.84E+00		HP/YS	10/07/11
49	Beta/Gamma Dose Rate	mrem/hr	568		568		Minimum Detectable Activity			Highway Route Control?	Yes		HP/YS	10/07/11
50	Radionuclide		U-233	U-234	U-235	U-238	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	Am-241	HP/YS	10/07/11
51	Activity	CI	1.01E-08	2.71E-04	4.11E-06	6.50E-05	4.38E-01	4.11E-01	7.53E-01	6.13E+00	4.55E-04	1.36E+00	HP/YS	10/07/11
52	Activity Uncert	1sigma CI	1.39E-08	3.80E-04	5.57E-06	8.52E-05	4.95E-01	5.73E-01	7.65E-01	6.68E+00	5.18E-04	1.32E+00	HP/YS	10/07/11
53	Mass	grams	1.03E-06	4.29E-02	1.88E+00	1.91E+02	2.53E-02	6.53E+00	3.27E+00	5.89E-02	1.15E-01	3.92E-01		
54	Mass Uncert	1sigma grams	1.42E-06	6.01E-02	2.54E+00	2.51E+02	2.86E-02	9.11E+00	3.33E+00	8.42E-02	1.30E-01	3.80E-01		
55	calc Tru Alpha Act	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.38E-01	4.11E-01	7.53E-01	0.00E+00	4.55E-04	1.36E+00		
56	calc Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E+04	1.84E+04	3.38E+04	0.00E+00	2.04E+01	6.10E+04		
57	calc Act	CI	1.01E-08	2.71E-04	4.11E-06	6.50E-05	4.38E-01	4.11E-01	7.53E-01	6.13E+00	4.55E-04	1.36E+00		
58	calc Act Conc	nCi/g	4.53E-04	1.22E+01	1.84E-01	2.91E+00	1.96E+04	1.84E+04	3.38E+04	2.75E+05	2.04E+01	6.10E+04		

CURY

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
59	calc Pu239 FGE	g	9.31E-07	0.00E+00	1.21E+00	0.00E+00	2.86E-03	6.53E+00	7.37E-02	1.33E-01	8.60E-04	7.39E-03		
60	calc Pu239 Eq Act	Ci	2.59E-09	0.00E+00	0.00E+00	0.00E+00	3.98E-01	4.11E-01	7.53E-01	1.20E-01	4.14E-04	1.36E+00		
61	calc Decay Heat	watts	2.94E-10	7.80E-06	1.13E-07	1.65E-06	1.45E-02	1.27E-02	2.34E-02	1.95E-04	1.34E-05	4.55E-02		
62	uncert Tru Alpha Act	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.95E-01	5.73E-01	7.65E-01	0.00E+00	5.18E-04	1.32E+00		
63	uncert Tru Alpha Act Conc	nCi/g	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.22E+04	2.57E+04	3.43E+04	0.00E+00	2.32E+01	5.92E+04		
64	uncert Act	Ci	1.39E-08	3.90E-04	5.57E-06	8.52E-05	4.95E-01	5.73E-01	7.65E-01	6.68E+00	5.18E-04	1.32E+00		
65	uncert Act Conc	nCi/g	6.23E-04	1.70E+01	2.50E-01	3.82E+00	2.22E+04	2.57E+04	3.43E+04	3.00E+05	2.32E+01	5.92E+04		
66	uncert Pu239 FGE	g	1.28E-06	0.00E+00	1.64E+00	0.00E+00	3.23E-03	9.11E+00	7.48E-02	1.45E-01	9.79E-04	7.11E-03		
67	uncert Pu239 Eq Act	Ci	3.56E-09	0.00E+00	0.00E+00	0.00E+00	4.50E-01	5.73E-01	7.65E-01	1.31E-01	4.71E-04	1.32E+00		
68	uncert Decay Heat	watts	4.04E-10	1.09E-05	1.54E-07	2.16E-06	1.64E-02	1.78E-02	2.38E-02	2.13E-04	1.53E-05	4.41E-02		
69	Shipping Calcs	5.52E+03	3.74E-07	1.00E-02	0.00E+00	0.00E+00	8.10E+01	7.60E+01	1.39E+02	2.27E+01	8.41E-02	2.51E+02		
70	49CFR173.433f		0.00%	0.00%	0.00%	0.00%	1.47%	1.38%	2.52%	0.41%	0.00%	4.56%		
71	Radionuclide		Am-243	Cm-244	Cm-245	Cm-246	Cs-137	Ba-137m	Sr-90	Y-90			HP/YS	10/07/11
72	Activity	Ci	4.77E-02	5.24E+01	4.01E-03	4.63E-01	1.55E-01	1.47E-01	2.67E+00	2.67E+00			HP/YS	10/07/11
73	Activity Uncert	1sigma Ci	6.21E-02	5.63E+01	4.30E-03	5.10E-01	4.74E-02	4.49E-02	1.14E+00	1.14E+00			HP/YS	10/07/11
74	Mass	grams	2.36E-01	6.41E-01	2.30E-02	1.49E+00	1.76E-03	2.73E-10	1.93E-02	4.91E-06	NULL	NULL		
75	Mass Uncert	1sigma grams	3.07E-01	6.88E-01	2.47E-02	1.54E+00	5.39E-04	8.35E-11	8.26E-03	2.10E-06	NULL	NULL		
76	calc Tru Alpha Act	Ci	4.77E-02	0.00E+00	4.01E-03	4.63E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
77	calc Tru Alpha Act Conc	nCi/g	2.14E+03	0.00E+00	1.80E+02	2.08E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
78	calc Act	Ci	4.77E-02	5.24E+01	4.01E-03	4.63E-01	1.55E-01	1.47E-01	2.67E+00	2.67E+00	NULL	NULL		
79	calc Act Conc	nCi/g	2.14E+03	2.35E+06	1.80E+02	2.08E+04	6.95E+03	6.59E+03	1.20E+05	1.20E+05	NULL	NULL		
80	calc Pu239 FGE	g	3.05E-03	5.77E-02	3.46E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
81	calc Pu239 Eq Act	Ci	4.77E-02	2.76E+01	4.25E-03	4.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
82	calc Decay Heat	watts	1.53E-03	1.83E+00	1.33E-04	1.52E-02	1.72E-04	5.79E-04	3.10E-03	1.48E-02	NULL	NULL		
83	uncert Tru Alpha Act	Ci	6.21E-02	0.00E+00	4.30E-03	5.10E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
84	uncert Tru Alpha Act Conc	nCi/g	2.78E+03	0.00E+00	1.93E+02	2.29E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
85	uncert Act	Ci	6.21E-02	5.63E+01	4.30E-03	5.10E-01	4.74E-02	4.49E-02	1.14E+00	1.14E+00	NULL	NULL		
86	uncert Act Conc	nCi/g	2.78E+03	2.52E+06	1.93E+02	2.29E+04	2.13E+03	2.01E+03	5.11E+04	5.11E+04	NULL	NULL		
87	uncert Pu239 FGE	g	3.97E-03	6.19E-02	3.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
88	uncert Pu239 Eq Act	Ci	6.21E-02	2.96E+01	4.55E-03	5.40E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NULL	NULL		
89	uncert Decay Heat	watts	2.00E-03	1.97E+00	1.43E-04	1.67E-02	5.25E-05	1.77E-04	1.32E-03	8.31E-03	NULL	NULL		
90	Shipping Calcs		8.82E+00	4.85E+03	7.41E-01	8.56E+01	1.15E-02	0.00E+00	9.89E-01	4.94E-01	NULL	NULL		
91	49CFR173.433f		0.16%	87.92%	0.01%	1.55%	0.00%	0.00%	0.02%	0.01%	NULL	NULL		
92	Waste Material Parameter		PW										HP/YS	10/07/11
93	Wgt of Mat Parms (kg or lbs)	kg	22.3										HP/YS	10/07/11
94	Radio Assay Method		16GTC1										HP/YS	10/07/11
95	Data Package Number		ORRHDTC11004										HP/YS	10/07/11
96	Assay Date		8/17/2011										HP/YS	10/07/11
97	Charz Method ID		16RHVE1										HP/YS	10/07/11
98	Data Package Number		RHORVE110004										HP/YS	10/07/11
99	Charz Method Date		5/17/2011										HP/YS	10/07/11
100	Haz Codes		D004	D005	D006	D007	D008	D009	D010	D011	D019	F002	HP/YS	10/07/11
101	Haz Codes		F005										HP/YS	10/07/11
102	Haz Codes													
103	Haz Codes													
104	Sample ID	Headspace Gas H/M	H-ORRH00650										HP/YS	10/07/11
105	Sample Type		HGHM-T	HGHM									HP/YS	10/07/11
106	Layer No. Sampled		0		229.29								HP/YS	10/07/11
107	Date Sampled		8/17/2011			Sample Site							HP/YS	10/07/11
108	Method ID		16HG2	DTP-1 2-041		C8							HP/YS	10/07/11
109	Data Package Number		OR11FG4007										HP/YS	10/07/11
110	CAS #		1333-74-0	74-82-8										
111	Analyte		HYDROGEN	METHANE									HP/YS	10/07/11
112	Concentration				96.03	133.26							HP/YS	10/07/11
113	units	%vol			PPMV	PPMV							HP/YS	10/07/11
114	Date Analyzed		08/17/11	8/17/2011									HP/YS	10/07/11
115	B Detectable Flag													
116	D Detectable Flag													
117	E Detectable Flag													
118	J Detectable Flag													
119	U Detectable Flag		U	U									HP/YS	10/07/11
120	NA Detectable Flag													
121														
122	Sample ID	Headspace Gas VOC											HP/YS	10/07/11
123	Sample Type			HGVO									HP/YS	10/07/11
124	Layer No. Sampled												HP/YS	10/07/11
125	Date Sampled												HP/YS	10/07/11

	kg
lbs	0.4536
kg	1.0000

SARP-Flammable VOCs (ppmv)	0

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
126	Method ID			DTP-1.2-041									HP/YS	10/07/11
127	Data Package Number												HP/YS	10/07/11
128	Methanol Method ID													
129	CAS #												HP/YS	10/07/11
130	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
131	Concentration												HP/YS	10/07/11
132	units	ppmv											HP/YS	10/07/11
133	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
134	B Detectable Flag													
135	D Detectable Flag													
136	E Detectable Flag													
137	J Detectable Flag													
138	U Detectable Flag												HP/YS	10/07/11
139	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
140	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
141	CAS #												HP/YS	10/07/11
142	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
143	Concentration												HP/YS	10/07/11
144	units	ppmv											HP/YS	10/07/11
145	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
146	B Detectable Flag													
147	D Detectable Flag													
148	E Detectable Flag													
149	J Detectable Flag													
150	U Detectable Flag												HP/YS	10/07/11
151	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
152	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
153	CAS #												HP/YS	10/07/11
154	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
155	Concentration												HP/YS	10/07/11
156	units	ppmv											HP/YS	10/07/11
157	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
158	B Detectable Flag													
159	D Detectable Flag													
160	E Detectable Flag													
161	J Detectable Flag													
162	U Detectable Flag												HP/YS	10/07/11
163	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
164	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
165	CAS #												HP/YS	10/07/11
166	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
167	Concentration												HP/YS	10/07/11
168	units	ppmv											HP/YS	10/07/11
169	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL			HP/YS	10/07/11
170	B Detectable Flag													
171	D Detectable Flag													
172	E Detectable Flag													
173	J Detectable Flag													
174	U Detectable Flag												HP/YS	10/07/11
175	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				
176	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
177	CAS #													
178	Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
179	Concentration													
180	units	ppmv												
181	Date Analyzed		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
182	B Detectable Flag													
183	D Detectable Flag											RH WDS Master Template.xls Rev. 4			
184	E Detectable Flag											Addendum #4, SCO #1066			
185	J Detectable Flag											Excel 2003/2007 Microsoft Windows			
186	U Detectable Flag											XP			
187	NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
188	SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL				
189			type	comment										
190	Comment													
191	Comment													
192	Comment													
193	Comment													
194	Comment													
195	Comment													
196	Comment													
197	Comment													
198	Comment													
199	Comment													
200														
201			Requirements Met?											
202	Free liquids <1% by volume		YES											
203	No non-rad. pyrophorics		YES											
204	Chemical compatability		YES											
205	No explosives		YES											
206	No corrosives		YES											
207	No pressurized containers		YES											
208	No sealed Containers >4 liters		YES											
209	Liner punctured/ filtered		YES											
210	Flammable VOCs <500ppmv		YES											
211	Container is in Approved Waste Stream Profile Form?	OR-REDC-RH-HET	YES											
212	Can it be established through Process Knowledge that the concentration of flammable VOCs present in the headspace of the container is <= 500 ppm?.		YES											
213														
214														
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Creta Knuckles
CCP Certification Official

10-12-2011
Date

Lot #

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Radiation & Contamination Survey Form

SURVEY NO: 11-SUR-04178

Instruments Used

Instrument Type	Serial Number	Cal Due Date	Alpha Eff	Beta Eff.
ASP2/2e / HP-270	1229 / 02084	04/26/12	N/A	N/A
FHT 6020 / FHZ 612	936 / 42540 925	03/22/12	N/A	N/A
FHT 6020 / FHT 762-V	936 / 42540 103	03/22/12	N/A	N/A

LOCATION / TYPE: RH DTC Drum Measurement

PURPOSE: Job Coverage

DATE/TIME: 08/17/11 8:15 RWP/ALARA: 11-TRU-009

Drum Barcode	Measurement Location	Gamma Bkg: 0.077 mR/hr Net Gamma @ 1m (mR/hr)	Correction Factor	Calculated Gamma Surface Dose Rate (mR/hr)	Neutron Bkg: 0.155 mrem/hr Net Neutron @ 1m* (mrem/hr)	Correction Factor	Calculated Neutron Surface Dose Rate (mrem/hr)	Total Surface Dose Rate Gamma + Neutron (mrem/hr)
ORRH00650	1	35.3	16.1	568	0.459	7.13	3.27	571
	2	32.6	16.1	524	0.449	7.13	3.20	528
	3	26.8	16.1	431	0.565	7.13	4.02	435
	4	35.3	16.1	568	0.500	7.13	3.56	571
N/A	1		16.1			7.13		
	2		16.1			7.13		
	3		16.1			7.13		
	4		16.1			7.13		
	1		16.1			7.13		
	2		16.1			7.13		
	3		16.1			7.13		
	4		16.1			7.13		
	1		16.1			7.13		
	2		16.1			7.13		
	3		16.1			7.13		
N/A	4		16.1			7.13		

*Contact WOL if neutron dose rate is greater than 40 mrem/hr at 1 meter.

NOTES: Neutron and gamma measurements are taken at 180 degrees apart (eg. Gamma measurement at location 1 and neutron measurement at location 3 are taken simultaneously). Add calculated gamma measurement at position 1,2,3,4 to calculated neutron measurement at position 1,2,3,4 respectively to obtain total surface dose rate. The gamma and neutron 1 meter to surface calculation is based on T-RH-FW-C-RP-006.

*On Contact (OC) or OC/30cm (#) Smear #LAS #Direct

UNITS: If performed, dose rates are in mR/hr γ and mrem/hr n, LAS in dpm/probe, smears and direct measurements in dpm/100 cm² (unless otherwise annotated). REMARKS: Gamma Dose rates were taken with CCP instrument XCO677. Cal due 4/14/12.

RCT SIGNATURE: Joshua Hensley

RCO SIGNATURE:

Date: 8/17/2011

The signature(s) on this sheet are that of the responsible technician(s) who certify that the data recorded represent the readings, measurements, and/or observations at the time indicated.

Attachment 1 – Visual Examination Data Form

Site ID: RH-ORNL			
Examination Date: 5-17-11	Batch Number: RHORVE110004		
Procedure #: CCP-TP-500	Revision #: 11	Video Number: N/A	
Recording Equipment Check: ☐SAT ☐UNSAT ☑N/A	Recording Start: N/A	Recording Stop: N/A	
Initial Container ☑N/A	Final Container ☐N/A		
Container or Package ID Number:	Container or Package ID Number: DRRHD0650		
Container Type:	Container Type: 55 Gallon Drum		
Waste Matrix Code:	Waste Matrix Code: 55400		
Waste Stream:	Waste Stream: DR-REDC-RH-HET		
	Rigid Liner: ☐Y ☑N Type: N/A	Rigid Liner Lid: ☐Y ☑N	
	Rigid Liner Vented or Hole Size: N/A		
Percent Fill: / Percent Organic Waste:	Percent Fill: 95%	Percent Organic Waste: 80%	
Layers of Confinement: / Closure Method:	Layers of Confinement: 0	Closure Method: N/A	

Comments (e.g., filter information, NCRs):
NUCFIL-0190S This drum was created from CASK X10CSATN02665 90% and drum DRRH00351 10% (CASK X10CSATN01825

Waste Description:

Liner (supersack) (P)
Cardboard Insert (C)
Bottles (P) (DIm)
Hardware (Im)
Gauze (C)
Tubing (P) (Dm)
Fittings (P)
Lids (P)
Breached Bags (P)
Glove (R) (P)
Labware (DIm) (Im)
Pieces (C) (P) (DIm) (Im)
Floor Sweepings (DIm) (Im) (P) (C)
OPEN Buckets (P)
Glove Box Gloves (R)
O Rings (R)
Sheeting (P)
Tape (C)
Cheesecloth (C)
Bootie (R)
Absorbent Pads (C)
Labels (C)
Dust Pan (Im)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number DRRH00650

Prohibited Item(s) Summary	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☑	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☑	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☑	
Does the container have observable liquid containing PCBs?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
RH-72B Criteria			
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	
Is the waste consistent with the TRUCON Code?	☑	☐	

Comments: N/A

Visual Examination Operator 1:
JAMES IWAMURA (Print Name) James Iwamura (Signature) 05/17/11 (Date)

Visual Examination Operator 2:
Rita Littleton (Print Name) Rita Littleton (Signature) 5-17-11 (Date)

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Attachment 2 – Container Data Sheet

BDR Number: ORRHDTC11004

Date:	8/17/2011
Container No.:	ORRH00650
Probe Position:	55-GALLON
Instrument No.:	020571
Probe No.:	XC0677
Measured Background Dose Rate (mR/hr):	.065
Gross Weight (kg):	63
Dose Rate 1 (mR/hr):	35.4
Dose Rate 2 (mR/hr):	32.7
Dose Rate 3 (mR/hr):	26.9
Dose Rate 4 (mR/hr):	35.4
Highest measured dose rate is greater than three times the measured background.	(YES) NO

RONALD WHITSON	[signature]	8/17/2011
Printed Name	Signature	Date

COPY

Waste Container Dose-to-Curie Conversion Record

SCO 1043 ORNL DTC-SETF Rev.1 Addendum 2 Microsoft Excel 2003 and 2007 Microsoft Windows XP Professional 2002 and 2003

Operating Procedure	CCP-TP-504 REV. 11
Date of Survey	8/17/2011
Waste Stream Designation	OR-REDC-RH-HET
Cask ID	X10CSATN02665
Container Number	ORRH00650
Container Gross Weight	63 kg
Estimate Fill Percentages	95 %
Container Net Weight	22.3 kg
Measured Container Dose Rate	Background
Quadrant #1	35.4 mR/hr 0.065 mR/hr
Quadrant #2	32.7 mR/hr
Quadrant #3	26.9 mR/hr
Quadrant #4	35.4 mR/hr
Average Dose Rate Minus Background	33 mR/hr

Nuclide	Curie Scaling Factors	Activity (Ci)	Grams	FGE	PECi	Watts	Uncertainty	Uncertainty in Curies	Uncertainty in Grams
U-233	6.15E-08	1.01E-08	1.04E-06	9.34E-07	2.60E-09	2.95E-10	136.89%	1.39E-08	1.42E-06
U-234	1.65E-03	2.71E-04	4.29E-02	0.00E+00	0.00E+00	7.80E-06	140.38%	3.80E-04	6.02E-02
U-235	2.50E-05	4.11E-06	1.88E+00	1.21E+00	0.00E+00	1.13E-07	135.49%	5.57E-06	2.54E+00
U-238	3.95E-04	6.50E-05	1.91E+02	0.00E+00	0.00E+00	1.65E-06	131.07%	8.52E-05	2.51E+02
Pu-238	2.66E+00	4.38E-01	2.53E-02	2.86E-03	3.98E-01	1.45E-02	113.25%	4.95E-01	2.86E-02
Pu-239	2.49E+00	4.11E-01	6.53E+00	6.53E+00	4.11E-01	1.27E-02	139.51%	5.73E-01	9.11E+00
Pu-240	4.57E+00	7.53E-01	3.28E+00	7.37E-02	7.53E-01	2.35E-02	101.51%	7.65E-01	3.32E+00
Pu-241	4.22E+01	6.13E+00	5.89E-02	1.33E-01	1.20E-01	1.95E-04	108.89%	6.68E+00	6.42E-02
Pu-242	2.77E-03	4.55E-04	1.15E-01	8.60E-04	4.14E-04	1.34E-05	113.69%	5.18E-04	1.30E-01
Am-241	8.29E+00	1.36E+00	3.93E-01	7.35E-03	1.36E+00	4.56E-02	96.37%	1.32E+00	3.79E-01
Am-243	2.89E-01	4.77E-02	2.39E-01	3.08E-03	4.77E-02	1.54E-03	130.32%	6.21E-02	3.11E-01
Cm-244	3.52E+02	5.24E+01	6.48E-01	5.83E-02	2.76E+01	1.80E+00	107.39%	5.63E+01	6.96E-01
Cm-245	2.44E-02	4.01E-03	2.34E-02	3.50E-01	4.27E-03	1.34E-04	107.33%	4.30E-03	2.51E-02
Cm-246	2.81E+00	4.63E-01	1.51E+00	0.00E+00	4.93E-01	1.52E-02	110.00%	5.10E-01	1.66E+00
Cs-137	1.00E+00	1.55E-01	1.76E-03	0.00E+00	0.00E+00	1.72E-04	30.60%	4.74E-02	5.39E-04
Ba-137m	9.46E-01	1.47E-01	2.73E-10	0.00E+00	0.00E+00	5.78E-04	30.60%	4.49E-02	8.34E-11
Sr-90	1.73E+01	2.67E+00	1.93E-02	0.00E+00	0.00E+00	3.09E-03	42.85%	1.14E+00	8.28E-03
Y-90	1.73E+01	2.67E+00	4.90E-06	0.00E+00	0.00E+00	1.47E-02	42.85%	1.14E+00	2.10E-06
Totals		6.77E+01	2.06E+02	8.36E+00	3.12E+01	1.94E+00			

	Value	(one Sigma)	
TRU Alpha Activity Concentration	1.56E+05	8.45E+04	nCi/g
TRU Alpha Activity	3.48E+00	1.88E+00	Ci
Total Pu-239 Equiv Activity	3.12E+01	3.12E+01	Ci
Total Pu-239 Fissile Gram Equiv	8.36E+00	8.84E+00	g
Total Decay Heat	1.94E+00	2.03E+00	W
Volume Activity	3.12E-01	2.80E-01	Ci/L

Originator Ronald Whitson (Print Name)

Signed [signature] Date 8/20/2011

Attachment 4 – Flammable Gas Analysis Form

COPY

Waste Container ID: **ORRH00650**

BDR Number: **OR11FG4007**

Sampling Date: **8/17/2011**

CAS NUMBER	COMPOUND	Measured ppmv	Reporting Flag
1333-74-0	Hydrogen	96.03	U
74-82-8	Methane	133.26	U

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PAGE

Waste Isolation Pilot Plant
Container Data Report

COPY

Report Statistics

Report Version:	**2.3**
WDS Instance:	**prd05.wipp.carlsbad.nm.us**
Generated on:	**January 15, 2014 08:10 AM**
Generated by:	**KIRKES, CRETA**
Total Pages:	**7**

Selection Criteria

Container Number:	**ORRH00650**

Container: ORRH00650
Type: 39 - RH 55 gal TBO

Current Status
Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Waste Handling Code: RH
Certification Date: 10/12/2011
Disposal Date: 12/01/2011

Current Location Site:	WI	Neutron Dose Rate (mrem/hr):	4.02	FGE (g):	8.36E00
Generator Site:	OR	Beta Gamma Dose Rate (mrem/hr):	568.0	FGE Uncertainty (g):	8.84E00
Destination Site ID:	WI	Total Dose Rate (mrem/hr):	572.02	Gross Weight (kg):	63.00
Certification Program ID:	C7			Gross Weight Uncert (kg):	0.50
Shipping Program ID:	C7			Decay Heat (W):	1.94E00
Overpack Container:	OR0073			Decay Heat Uncertainty (W):	2.03E00
Overpack Type:	REMOVABLE-LID 72-B CANISTER				
Overpack Status:	CERTIFICATION DATA APPROVED				

Shipment Data

Payload ID: **OR0073** Assembly ID: OR105493 Payload Complete? Y
Shipment Number: ORR11009 Send Date: 11/15/2011 Receipt Date: 11/16/2011
Shipment Status: SHIPMENT RECEIVED AT DESTINATION

Emplacement Location

Panel: 6 Room: 5 Borehole: 038

Certification Data Values

Waste Stream Profile Code:	OR-REDC-RH-HET
Waste Type Code:	MTRU
IDC Code:	NONE
Waste Matrix Code:	S5400
WAC Revision Number:	7.2
Fill Factor (%):	95.00
Waste Stream BIR ID:	OR-W211
Waste Stream MWIR ID:	NONE

TRU Alpha Activity (Ci):	3.48E00
TRU Alpha Activity Uncertainty (Ci):	1.88E00
TRU Alpha Activity Concentration (Ci/g):	1.56E-04
PU-239 Equivalent Activity (PE-Ci):	3.12E01
Alpha Surface Contamination (dpm/cm^2):	0.0
Beta/Gamma Surface Contamination (dpm/cm^2):	0.0

Transportation Data Values

Closure Date:	05/17/2011	Shipment Purpose:	DISPOSAL
Vent Date:	05/17/2011	Machine Compacted?	N
Process Knowledge?	Y	Liner Exists?	N
Waste Gen Date:		Liner Hole Size(mm):	
Content Code:	OR325G	Liner Lid Present?	
U-235 FEM (g):		Layers of Packaging	0
U-235 FEM Uncert (g):		Aqueous Material?	N
Be chemically/ mechanically bound:			

Gas Generation Data Values

Measured FGGR (mol/s)	Measured TGRR (mol/s)	Truncated FGGR Test (Y/N)	Truncated FGGR Test Period (days)

Container: ORRH00650
Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Waste Handling Code: RH
Certification Date: 10/12/2011
Disposal Date: 12/01/2011

PCB Waste? N
PCB Mass (kg):
PCB Concentration (ppm):
PCB Out of Service Date:
Be Present? Y
Be <= 1% by weight? Y
Be mass <= 100kg? Y
Separation OK? Y
Packing Fraction (compaction level): non-compacted

Filters

Filter Model Number	Filter Diffusivity (mol/s/ml)	Quantity	Install Date
NF019D	1.85E-05	1	05/17/2011

Certification Comments

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
AM-241	1.360E00	1.320E00	3.919E-01	3.804E-01
AM-243	4.770E-02	6.210E-02	2.361E-01	3.074E-01
BA-137M	1.470E-01	4.490E-02	2.732E-10	8.346E-11
CM-244	5.240E01	5.630E01	6.406E-01	6.883E-01
CM-245	4.010E-03	4.300E-03	2.305E-02	2.471E-02
CM-246	4.630E-01	5.100E-01	1.489E00	1.640E00
CS-137	1.550E-01	4.740E-02	1.761E-03	5.386E-04
PU-238	4.380E-01	4.950E-01	2.532E-02	2.861E-02
PU-239	4.110E-01	5.730E-01	6.534E00	9.110E00
PU-240	7.530E-01	7.650E-01	3.274E00	3.326E00
PU-241	6.130E00	6.680E00	5.894E-02	6.423E-02
PU-242	4.550E-04	5.180E-04	1.146E-01	1.305E-01

Container: ORRH00650
Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/12/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
SR-90	2.670E00	1.140E00	1.935E-02	8.261E-03
U-233	1.010E-08	1.390E-08	1.035E-06	1.424E-06
U-234	2.710E-04	3.800E-04	4.288E-02	6.013E-02
U-235	4.110E-06	5.570E-06	1.877E00	2.543E00
U-238	6.500E-05	8.520E-05	1.912E02	2.506E02
Y-90	2.670E00	1.140E00	4.908E-06	2.096E-06

Samples

Labor Code	Sample ID	Sample Type Code	Sample Type Description	Sample Date	Layer Sampled
C6	H-ORRH00650	HGHM-T	HEADSPACE GAS HYDROGEN AND METHANE	08/17/2011	0

Unique Samples

CAS Number	Analyte Description	Concentration (ppm)	Analysis Date	Analysis Method	Reporting Flags
1333-74-0	HYDROGEN	96.03	08/17/2011	16HG2	U
74-82-8	METHANE	133.26	08/17/2011	16HG2	U

Material Parameters

Material Parameter	Description	Weight (kg)
8	PLASTICS	22.30
13	STEEL CONTAINER MATERIALS	40.70

Container: ORRH00650
Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/12/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

Waste Weight:	22.30
Packaging Weight:	40.70
Total Material Weight:	63.00

Hazardous Codes

Hazardous Code	Description
D004	ARSENIC
D005	BARIUM
D006	CADMIUM
D007	CHROMIUM
D008	LEAD
D009	MERCURY
D010	SELENIUM
D011	SILVER
D019	CARBON TETRACHLORIDE
F002	SPENT HALOGENATED SOLVENTS
F005	SPENT NON-HALOGENATED SOLVENTS

Assay Methods

Labor Code	Assay Method	Description	Assay Date
C7	16DTC1	DOSE-TO-CURIE	08/17/2011

Non-Destructive Examination (NDE)

Labor Code	NDE Method	Description	Examination Date

Container: ORRH00650
Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/12/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

Non-Destructive Examination (NDE)

Labor Code	NDE Method	Description	Examination Date
C7	16RHVE1	VISUAL EXAMINATION	05/17/2011

Edit Limit Check Results

Evaluation Date: 10/12/2011 12:04:00 Overall Status: PASS

Evaluation Code	Status	Return Code	Detailed Description
DI_CERT_ALL	PASS		
DI_CERT_BE	PASS		
DI_CERT_CERT	PASS		
DI_CERT_CHARZ	PASS		
DI_CERT_ED	PASS		
DI_CERT_EPA	PASS		
DI_CERT_PCB	PASS		
DI_CERT_PERC	PASS		
DI_CERT_TRAMPAC	PASS		
DSA	PASS		
WAC	PASS		
WAP_CERT	PASS		

TRAMPAC Evaluation Results

Evaluation Date: Overall Status:

Evaluation Code	Status	Return Code	Detailed Description

Container: ORRH00650

Type: 39 - RH 55 gal TBO

Current Status

Extended Status: APPROVED CERT IN APPROVED CERT CANISTER EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/12/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

History

Event Date/Time	Event Description	Reason
10/12/2011 12:04:00	INSERT DATA INTO THE DATABASE	
10/12/2011 12:04:00	SUCCESSFUL SUBMISSION FOR CERT	
10/12/2011 12:12:40	APPROVED FOR CERT	
10/13/2011 11:39:11	ASSIGNED TO OVERPACK	
10/13/2011 11:40:18	ASSIGNED TO OVERPACK	
10/13/2011 11:40:54	ASSIGNED TO OVERPACK	
10/13/2011 11:40:59	ASSIGNED TO OVERPACK	

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PAGE

Waste Characterization Case File:

including Canister Content Report, RH canister loading supporting forms, and WWIS/WDS Canister Data Report for the container

OR0073

(an RH canister)

(This canister is loaded with the three 55 gal debris containers ORRH00019, ORRH00649, and ORRH00650.)

Generated: 1/15/14 8:09 AM

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Canister #: OR0073

Canister Gross Weight + Error

759.87 kg

1,675.52 lbs

Canister Content Code/Governing Shipping Period (days): OR325M / 60

Canister Filters

Filter Model	Quantity
NF019D	1

Inner Containers

Container Number	GrossWgt+Err (kg)	(lbs)	PCB Waste?	Be Present?	Total Dose Rate (mrem/hr)	Content Code	Waste Stream Profile	Filter Model	Qty
ORRH00019	97.50	214.99	N	Y	2417.40	OR325M	OR-REDC-RH-HET	NF019D	1
ORRH00650	63.50	140.02	N	Y	572.02	OR325G	OR-REDC-RH-HET	NF019D	1
ORRH00649	57.50	126.79	N	Y	698.86	OR325G	OR-REDC-RH-HET	NF019D	1

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Attachment 1 – RLC Loading Form

RLC Inspection

RLC Canister ID: ORO073
RLC Serial Number: 090041

Filter Type Number	Filter Serial Numbers	Date Filter Installed
1 Nucfil-019DS	1 FK-743	1 09/07/11
2 N/A	2 N/A	2 N/A
3 N/A	3 N/A	3 N/A
4 N/A	4 N/A	4 N/A

Pintle Cap Screws
Torque Wrench Serial Number: N/A Cal Due Date: N/A

Filters/Pipe Plugs
Torque Wrench Serial Number: 508025 9074 Cal Due Date: 04/26/12

Maintenance/Inspections Complete
Canister Loading Operator
Printed Name James Iwamura Signature James Iwamura Date 09/07/11

Dunnage Container is empty? YES ☐ NO ☐ NA ☒

Dunnage Container is dry? YES ☐ NO ☐ NA ☒

Dunnage Container vent port plug removed? YES ☐ NO ☐ NA ☒

Dunnage Container Weight in pounds (lbs) : N/A

RH Waste Container Numbers	Operator Initials	Peer Verifier Initials
ORRH00649	CWL ~~RMS~~ RMJ 9-7-11	JCB
ORRH00650	CWL ~~RMS~~ RMJ 9-7-11	JCB
ORRH00019	CWL ~~RMS~~ RMJ 9-7-11	JCB

Peer Verifier – Waste containers loaded into RLC match RH Waste Container Numbers listed above.
Printed Name Jason Brown Signature Jason Brown Date 9-7-11

RLC Closure Date: 9-8-11

Gross Weight in pounds (lbs) : 1674.5
Load Cell Serial Number: See attached Calibration Due Date: see attached

Canister Loading Operator
Printed Name CRAIG LAMOUREUX Signature [signature] Date 9-7-2011

Supervisor
Printed Name Martin Jones Signature [signature] Date 9-7-2011

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Attachment C: Removable Lid Canister Traveler

RLC Container ID: OR0073

RLC Lid Serial Number: 090041 **RLC Body Serial Number:** 090041

Section 1 – RLC Tracking

Initial/Date	Action
JCB / 9-7-11	RLC loaded in RLC Bogie and Lid Removed
JCB / 9-7-11	RLC preparation for loading are complete. RLC at Load Station, staged for loading. (i.e., interface to Hot Cell sleeving attached)
JCB / 9-7-11	RLC loaded as directed by CCP-TP-505.
JCB / 9-8-11	RLC sleeve cut complete (Remnant verified to contain filter).
JCB / 9-8-11	RLC lid installed and locked.
KE / 9-8-11	Radiological surveys complete.
JCB / 9-8-11	RLC moved to Room 222, Storage Location: # 5

Section 2- RLC Loaded Weight

RLC Empty (Tare) Weight 1190 lbs.
Load Cell Serial Number: WIPP 147

JCB / 9-7-11 Cal Due Date: 8-9-11
Drum #1 ID #: ORRH00649 Drum Weight: 126 lbs.
Load Cell SN#: WIPP 155 Cal Due Date: 5-11-12

JCB / 9-7-11 DTC BDR#: ORRHDTC 11004
Drum #2 ID #: ORRH00650 Drum Weight: 139 lbs.
Load Cell SN#: WIPP 155 Cal Due Date: 5-11-12

JCB / 9-7-11 DTC BDR#: ORRHDTC 11004
Drum #3 ID #: ORRH00019 Drum Weight: 213
Load Cell SN#: WIPP 120 Cal Due Date: 2-12-10

JCB / 9-7-11 DTC BDR#: ORRHDTC 09009

RLC Empty (Tare)Weight	1190	lbs
Drum #1	126	lbs
Drum #2	139	lbs
Drum #3	213	lbs
Bag/Sleeve weight	6.5	lbs
TOTAL: RLC Gross Weight	1674.5	lbs

Reviewed By: Jason Brown (Print Name) Jason Brown (Signature) 9-8-11 (Date:)

Verified By: Martin Jones (Print Name) Martin Jones (Signature) 9.8.11 (Date:)

Distribution: Original to RLC Traveler folder.

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Radiation & Contamination Survey Form

CM-P-RP-306 Rev. 7, Radiation/Contamination Surveys

SURVEY NO: 11-SUR-04565 | PAGE | OF | PAGES

Instruments Used

Instrument Type	Serial Number	Cal Due Date	Alpha Eff.	Beta Eff.
LM-3030 / LM-3030	259093 / 259093	06/21/12	34.4%	25.87%
LM-3030E / LM-3030E	271313 / 271313	06/27/12	34.12%	26.94%
LM-78 / LM-78	257686 / 257686	08/09/12	N/A	N/A
LM-2360 / 43-93	202432 / 226046	05/27/12	21.74%	16.96%
LM 12-4 / LM 42-31	215335 / 215335	09/16/11	N/A	N/A

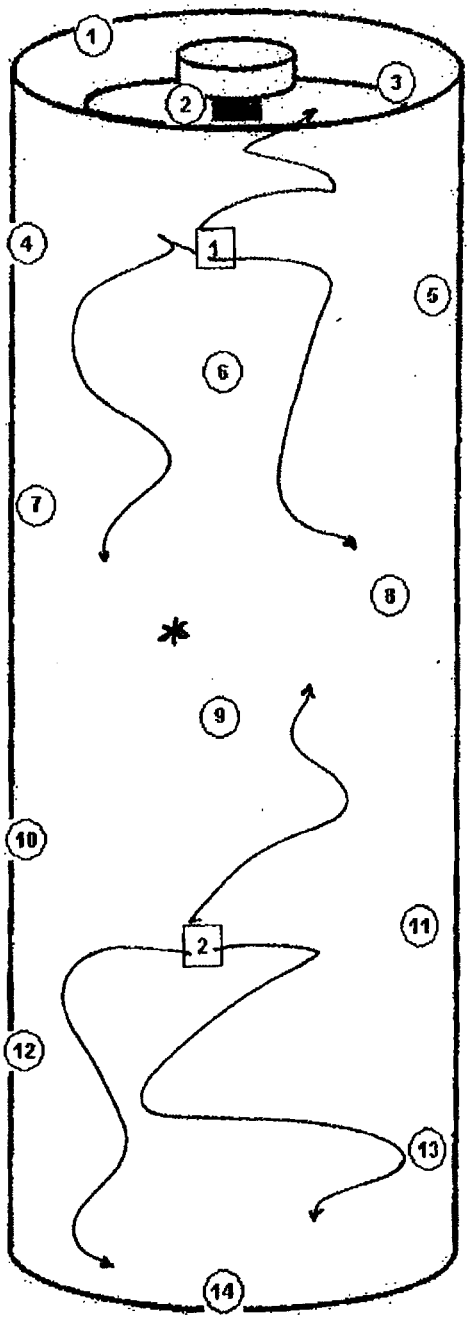
LOCATION / TYPE: RH 72-B Canister

PURPOSE: Job Coverage

DATE/TIME: 09/08/11 3:14 | RWP/ALARA: 11-TRU-012

Smears	alpha	beta-gamma
1	< 20	< 200
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14	< 20	< 200
15		
16		
17		
18		
19		
20		
21		
22		
23	N/A	
24		
25		
26		
27		
28		
29		
30		

LAS	alpha	beta-gamma
1	< 100	< 11C
2	< 100	< 11C
3		
4		
5		
6	N/A	
7		
8		
9		
10		



72-B Canister
ORO073

Highest gamma dose rate
1000 mR/hr

Highest neutron dose rate
175 mRem/hr

Total gamma+neutron
1175 mRem/hr

* On Contact (OC) or 30cm (#) Smear # LAS # Direct

UNITS: If performed, dose rates are in mR/hr γ and mrem/hr n, LAS in dpm/probe, smears and direct measurements in dpm/100 cm² (unless otherwise annotated).

REMARKS:

RCT SIGNATURE: Kirk Summers

RCO SIGNATURE: Date: 9/8/11

The signature(s) on this sheet are that of the responsible technician(s) who certify that the data recorded represent the readings, measurements, and/or observations at the time indicated.

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Waste Isolation Pilot Plant
Canister Data Report

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Report Statistics

Report Version:	**2.3**
WDS Instance:	**prd05.wipp.carlsbad.nm.us**
Generated on:	**January 15, 2014 08:09 AM**
Generated by:	**KIRKES, CRETA**
Total Pages:	**7**

Selection Criteria

Container Number:	**OR0073**

Container: OR0073
Type: 11 - 72-B Removable Lid OP

Current Status
Extended Status: APPROVED CERT EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/13/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

Current Location Site: WI
Generator Site: OR
Destination Site ID: WI

Certification Program ID: C7
Shipping Program ID: C7

Neutron Dose Rate (mrem/hr): 175.0
Beta Gamma Dose Rate (mrem/hr): 1000.0
Total Dose Rate (mrem/hr): 1175.0

FGE (g): 1.794E01
FGE Uncertainty (g): 1.329E01

Gross Weight (kg): 734.01
Gross Weight Uncert (kg): 25.86

Decay Heat (W): 4.57E00
Decay Heat Uncertainty (W): 3.073E00

Shipment Data
Payload ID: **OR0073** Assembly ID: OR105493 Payload Complete? Y
Shipment Number: ORR11009 Send Date: 11/15/2011 Receipt Date: 11/16/2011
Shipment Status: SHIPMENT RECEIVED AT DESTINATION

Emplacement Location
Panel: 6 Room: 5 Borehole: 038

Certification Data Values

Waste Stream Profile Code: OR-REDC-RH-HET
Waste Type Code: MTRU
IDC Code: NONE
Waste Matrix Code: S5400
WAC Revision Number: 7.2
Fill Factor (%): 67.25

TRU Alpha Activity (Ci): 7.895E00
TRU Alpha Activity Uncertainty (Ci): 2.843E00
TRU Alpha Activity Concentration (Ci/g): 8.319E-05
PU-239 Equivalent Activity (PE-Ci): 7.284E01
Alpha Surface Contamination (dpm/cm^2): 19.0
Beta/Gamma Surface Contamination (dpm/cm^2): 199.0

Transportation Data Values

Closure Date: 09/08/2011
Vent Date: 09/08/2011
Shipment Purpose: DISPOSAL
Machine Compacted? N

Waste Gen Date:
Content Code: OR325M
U-235 FEM (g):
U-235 FEM Uncert (g):
Be chemically/ mechanically bound:

Filters

Filter Model Number	Filter Diffusivity (mol/s/ml)	Quantity	Install Date

Container: OR0073
Type: 11 - 72-B Removable Lid OP

Current Status
Extended Status: APPROVED CERT EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/13/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

PCB Waste? N
PCB Mass (kg):
PCB Concentration (ppm):
PCB Out of Service Date:
Be Present? Y
Be <= 1% by weight? Y

Governing Packing Fraction (compaction level): non-compacted

Filters

Filter Model Number	Filter Diffusivity (mol/s/ml)	Quantity	Install Date
NF019D	1.85E-05	1	09/08/2011

Certification Comments

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
AM-241	3.018E00	1.981E00	8.697E-01	5.708E-01
AM-243	1.438E-01	1.018E-01	7.119E-01	5.040E-01
BA-137M	6.570E-01	1.255E-01	1.221E-09	2.333E-10
CM-244	1.228E02	8.540E01	1.501E00	1.044E00
CM-245	9.930E-03	6.602E-03	5.707E-02	3.794E-02
CM-246	1.026E00	7.683E-01	3.298E00	2.470E00
CS-137	6.930E-01	1.326E-01	7.875E-03	1.507E-03
PU-238	1.157E00	7.777E-01	6.688E-02	4.495E-02
PU-239	8.723E-01	8.605E-01	1.387E01	1.368E01
PU-240	1.658E00	1.150E00	7.207E00	5.001E00
PU-241	1.487E01	1.030E01	1.430E-01	9.902E-02
PU-242	3.996E-03	3.051E-03	1.007E00	7.685E-01

Container: OR0073
Type: 11 - 72-B Removable Lid OP

Current Status
Extended Status: APPROVED CERT EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/13/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

Radionuclides

Radionuclide	Activity (Ci)	Activity Uncert (Ci)	Mass (g)	Mass Uncert (g)
SR-90	1.195E01	3.198E00	8.659E-02	2.317E-02
U-233	2.150E-08	2.089E-08	2.203E-06	2.141E-06
U-234	5.750E-04	5.716E-04	9.098E-02	9.044E-02
U-235	8.720E-06	8.372E-06	3.982E00	3.823E00
U-238	1.379E-04	1.280E-04	4.056E02	3.764E02
Y-90	1.195E01	3.198E00	2.197E-05	5.879E-06

Material Parameters

Material Parameter	Description	Weight (kg)
1	IRON BASE METAL ALLOYS	122.10
8	PLASTICS	94.90
13	STEEL CONTAINER MATERIALS	517.01
	Waste Weight:	217.00
	Packaging Weight:	517.01
	Total Material Weight:	734.01

Hazardous Codes

Hazardous Code	Description
D004	ARSENIC
D005	BARIUM
D006	CADMIUM
D007	CHROMIUM

Container: OR0073
Type: 11 - 72-B Removable Lid OP

Current Status
Extended Status: APPROVED CERT EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/13/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

Hazardous Codes

Hazardous Code	Description
D008	LEAD
D009	MERCURY
D010	SELENIUM
D011	SILVER
D019	CARBON TETRACHLORIDE
F002	SPENT HALOGENATED SOLVENTS
F005	SPENT NON-HALOGENATED SOLVENTS

Edit Limit Check Results
Evaluation Date: 10/13/2011 11:40:59 Overall Status: PASS

Evaluation Code	Status	Return Code	Detailed Description
DI_CERT_ALL	PASS		
DI_CERT_BE	PASS		
DI_CERT_CERT	PASS		
DI_CERT_CHARZ	PASS		
DI_CERT_ED	PASS		
DI_CERT_EPA	PASS		
DI_CERT_PCB	PASS		
DI_CERT_PERC	PASS		
DI_CERT_TRAMPAC	PASS		
DSA	PASS		
WAC	PASS		

Container: OR0073
Type: 11 - 72-B Removable Lid OP

Current Status
Extended Status: APPROVED CERT EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/13/2011
Waste Handling Code: RH
Disposal Date: 12/01/2011

Edit Limit Check Results
Evaluation Date: 10/13/2011 11:40:59 Overall Status: PASS

Evaluation Code	Status
WAP_CERT	PASS

TRAMPAC Evaluation Results
Evaluation Date: 10/13/2011 11:40:59 Overall Status: PASS

Evaluation Code	Status	Return Code	Detailed Description
CANISTER_72B_ALL	PASS		
CANISTER_72B_ASP	PASS		
CANISTER_72B_CONT	PASS		
CANISTER_72B_FIL	PASS		
CANISTER_72B_GVE	PASS		
CANISTER_72B_NUC	PASS		
CANISTER_72B_PDH	PASS		
CANISTER_72B_RDR	PASS		
CANISTER_72B_WGT	PASS		

Inner Containers

Container Number	Type Code	Content Code	Gross Weight + Error	FGE + 2x Error	Waste Stream
ORRH00019	39 - RH 55 gal TBO	OR325M	97.50	4.72E-01	OR-REDC-RH-HET
ORRH00649	39 - RH 55 gal TBO	OR325G	57.50	2.922E01	OR-REDC-RH-HET
ORRH00650	39 - RH 55 gal TBO	OR325G	63.50	2.604E01	OR-REDC-RH-HET

History

Event Date/Time	Event Description	Reason

Container: OR0073
Type: 11 - 72-B Removable Lid OP

Current Status

Extended Status: APPROVED CERT EMPLACED
Container Status: CERTIFICATION DATA APPROVED
Certification Date: 10/13/2011

Waste Handling Code: RH
Disposal Date: 12/01/2011

History

Event Date/Time	Event Description	Reason
10/13/2011 11:39:11	INSERT DATA INTO THE DATABASE	
10/13/2011 11:41:19	SUCCESSFUL SUBMISSION FOR CERT	
10/13/2011 12:24:06	APPROVED FOR CERT	
10/23/2011 11:22:57	ASSIGNED TO PAYLOAD	

GEN13

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 1 of 76

3. Organization Unit (Creating or Custodial Unit)	4. Date
Nuclear Waste Partnership (NWP)/Central Characterization Project (CCP)/National TRU Program Certification (NTPC)/Contact Handled (CH) for All Sites **4021 National Parks Highway GSA 212** **Carlsbad, New Mexico 88220**	06/24/2013

COPY

5. Signatures (of Appropriate Personnel)

Sheila Pearcy	8/1/13	N/A	
Prepared By Sheila Pearcy	Date	Records Liaison Officer	Date
for DEC	8/1/13	for	8/1/13
Approved By Ed Gulbransen	Date	Records Officer Approval Michael Fox	Date

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1	**CCP TRAINING DOCUMENTATION FILES** Documentation pertaining to the training and qualification of CCP Personnel.			

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 2 of 76

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1a	<u>CCP CH Employee Individual Training/Qualification Documentation</u> Contractor employee individual folders that contain item 1.29.1a records AND also contain: attendance/completion records of training courses or sessions that include subjects dealing with hazardous materials directly applicable to the employee's job or position. Documents the training and qualification and requalification of CCP CH Personnel. May include but not limited to the following: appointment letters; qualification letters; correspondence; On-the-Job (OJT) records; completed exams; completed qualification cards; certificates of completion; test drum data sheets; training drum evaluation data sheets; resumes; and Waste Acceptance Plan (WAP) briefings. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **PRIVACY ACT** **Quality Assurance (QA) Records/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alphabetically Inclusive Dates: 2000 to Present Location: CCP Records – Skeen Whitlock Building (SWB) and/or Waste Isolation Pilot Plant (WIPP) Records Archive (WRA)	ADM 1.29.1.b	Cut off at the time of separation or transfer of the employee. Screen out and destroy all item 1.29.1a(4) records. Transfer folders with remaining documents to the local Federal Records Center. Destroy 75 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 3 of 76

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1b	Employee Individual Medical Examination Contractor employee individual folders that contain only pass/fail and restrictions results of medical examinations. Documentation pertaining to the eye examinations performed on the Nondestructive Examination (NDE), Helium Leak Detector (HLD), and Pressure Change Leak Testing (PCLT) personnel on an annual basis. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **EPIDEMIOLOGICAL** **PRIVACY ACT** **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alphabetically Inclusive Dates: 2000 to Present Location: CCP Records – SWB and/or WRA	ADM 1.29.1a.(4)	Cut off at the time of separation or transfer of the employee. Screen out and destroy all item 1.29.1a(4) records. Transfer folders with remaining documents to the local Federal Records Center. Destroy 4 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 4 of 76

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1c	<u>CCP Test Drum Audio/Video Media of Test Drum Qualification</u> Contractor employee individual folders that contain item 1.29.1a records AND also contain: attendance/completion records of training courses or sessions that include subjects dealing with hazardous materials directly applicable to the employee's job or position. Documents CCP audio/video media of qualification test performed by NDE personnel. This audio/video media of qualification test is performed by NDE personnel and is the second piece of the qualification. It supports the documentation captured on the supporting hard copy record(s). May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **PRIVACY ACT** **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Audio/Video Tape or DVD (Primary and Backup) Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ADM 1.29.1.b	Cut off at the time of separation or transfer of the employee. Screen out and destroy all item 1.29.1a.(4) records. Transfer folders with remaining documents to the local Federal Records Center. Destroy 75 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1d	CCP NDE Test Drum Inventories Documentation pertaining to the assembly of NDE test and training drums which are used to qualify radiography operators per CCP-PO-001, CCP Transuranic (TRU) Waste Characterization QA Project Plan (QAPjP) and CCP-QP-002, CCP Qualification and Training Plan. The drum assembly is representative of the Waste Matrix Codes (WMCS) for Waste Stream Profile Forms. CCP NDE Test Drum Inventory Sheet has the Test Drum Identification Number, Date, Summary Category Group, if it has a plastic liner and the contents of the drum. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronologically Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending National Archives and Records Administration (NARA) Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
1e	List of Qualified Individuals (LOQI) LOQI is a document that confirms and establishes to the field personnel who is to perform different areas of operations. It is updated each time there is a change to the qualifications of the project personnel. No longer generated as record see Item No. 1f. **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronologically Inclusive Dates: January 2003 to September 2008 Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 6 of 76

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1f	LOQI – Non-record LOQIis a document that confirms and establishes to the field personnel who is to perform different areas of operations. It is updated each time there is a change to the qualifications of the project personnel. Record is captured in the individual personnel's training files. Media Type: Electronic Filing Order: Chronologically Inclusive Dates: September 2008 to Present Location: CCP Records - SWB and/or WRA	Non-Record	Not Applicable	Retain in Office until completion of characterization process for each site or when no longer needed in project files to support daily functions. Screen and purge as needed.
2	**QA SUMMARY REPORTING, ASSESSMENT/AUDIT, AND SURVEILLANCE DOCUMENTATION** QA documentation pertaining to the reporting, assessment/audit, and surveillance activities of the CCP QA program. Includes the identification, classification, control, and correction of conditions adverse to quality and nonconforming items, activities, and processes associated with the CCP – all sites.			

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 7 of 76

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
2a	CCP CH Nonconformance Reports (NCRs) Audit and investigative case files and reports that pertain to environmental, health, and safety topics, cases or concerns. NCRs created for the CCP CH sites which document the process for identifying, documenting, controlling, evaluating, and dispositioning nonconforming items. May include Carlsbad Field Office (CBFO) notifications and supporting documentation such as copies of applicable procedures, etc. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ADM 22.4	Cut off upon completion of audit or investigation. Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
2b	NCR Log Reconciliation Report NCR Log Reconciliation Report documents and verifies that all NCR numbers at the end of each calendar year are reconciled against the Master Log and in the Nonconformance Report Module (NCRM). Includes as attachment the information from NCR logs. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronologically Inclusive Dates: 2004 to Present Location: CCP Records – SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 8 of 76

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
2c	CCP Corrective Action Reports (CARs) Audit and investigative case files and reports that pertain to environmental, health, and safety topics, cases or concerns. CARs created for All CH Sites which document the process for identifying, documenting, controlling, evaluating, dispositioning, and verifying completion of corrective actions for conditions adverse to quality related to failures, malfunctions, deficiencies, and technical inadequacies. May include but not limited to supporting documentation such as copies of applicable procedures and/or Deficiency Evaluation Form if applicable, as well as the CAR Logs. May also include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ADM 22.4	Cut off upon completion of audit or investigation. Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 9 of 76

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
2d	CCP Surveillance Program Documentation Audit and investigative case files and reports that pertain to environmental, health, and safety topics, cases or concerns. Documentation pertaining to the planning, performing, documenting, and reporting independent surveillances of TRU CCP all sites waste characterization activities. Includes but not limited to surveillance plan formats, surveillance reports, surveillance checklists and surveillance logs. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ADM 22.4	Cut off upon completion of audit or investigation. Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
2e	QA Trend Reports Audit and investigative case files and reports that pertain to environmental, health, and safety topics, cases or concerns. QA Trend Reports document trending and analyses of item characteristics and reliability, process implementation, and other quality-related information. It is used to identify items, services, activities, and processes that need improvements. **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	ADM 22.4	Cut off upon completion of audit or investigation. Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 10 of 76

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
3	**TEST PLAN/PROCEDURE DOCUMENTATION** Test plan/procedure documentation provides the method for test control of items that are considered to impact the quality of the characterization, certification, packaging, or transportation of waste for the CCP. The documents address requirements and responsibilities for testing activities performed to ensure items related to CCP activities meet established design, performance, and quality requirements. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2003 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 11 of 76

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
4	**CCP CH TRU SOFTWARE QA (SQA) Documentation** Database system development records and documentation records which support the maintenance and operation of tracking systems. CCP CH TRU SQA documentation pertains to the development, procurement, maintenance, and use of computer software that is important to the waste characterization and certification for the CCP CH. Includes but not limited to the following documentation for: Exempt Software; Commercial Off the Shelf (COTS) Software; Application within COTS; Qualified Supplier Software; Non-Qualified Supplier Software; and CCP Software. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site and Alphabetically by Software Name Inclusive Dates: 2000 to Present Location: CCP Records – SWB and/or WRA	ENV 1.g.(3)(b)	Destroy or delete upon authorized deletion of related system.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 12 of 76

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
5	**OPERATION LOGBOOKS** Logbooks listing significant action, daily surveillances and maintenance activities occurring during normal operations of applicable facility. Logbooks, log sheets (data record sheets) which are used for CCP personnel to document technical work processes and that are obtained during gathering activities. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/ Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ENV 1.e(6)	Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
6	**CCP CH NONDESTRUCTIVE ASSAY (NDA) DOCUMENTATION** NDA is a series of measurement techniques that are applied to nuclear fuel and nuclear weapons materials. The techniques measure radiation induced or emitted spontaneously from the nuclear material. The measurements are nondestructive in that they do not alter the physical or chemical state of the material.			

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐ DOE X Contractor	2. Page 13 of 76

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6a	CCP CH NDA Batch Data Reports (BDRs) Records indicating type (classification) and degree of contamination date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. NDA BDRs are the documentation that pertains to a series of measurement techniques that are applied to nuclear fuel and nuclear weapons materials. The techniques measure radiation induced or emitted spontaneously from the nuclear material. The measurements are nondestructive in that they do not alter the physical or chemical state of the material. The documentation in each BDR is from data generation level through the project level Verification & Validation (V&V) and includes Project Level Checklists. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6b	CCP CH NDA – Analytical Raw Data Analytical raw data generated during the NDA process on the systems software. It is captured on CDs and a primary and back up CD is created. This includes the Radioassay Raw Data Sheet Information. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Electronic – CDs Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED - Do Not Destroy -	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6c	NDA Total Measurement Uncertainty (TMU) Reports TMU reports estimate the potential error in measurements taken by an assay system on a waste container within the waste stream. An NDA measurement of a waste container may deviate from the true value as a result of bias, random error, or a combination of the two. The TMU is composed of bias and random errors and is typically expressed as an interval extending below and above the measured value. TMU is used to determine whether the radioactivity of individual waste containers may exceed specific criteria. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6d	<u>NDA Calibration Verification and Calibration and Validation Reports</u> NDA Calibration and Validation Reports document the results of qualification testing of the Mobile Assay System for all CH sites. New active and passive calibrations are described together with results of testing using uranium, californium and plutonium sources. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6e	NDA Six-Month Interfering Matrix Reports Reports documenting waste management activities for required compliance reports, dumpster violations, dangerous waste reports, and decay heat reports. The Six Month Summary of Weekly Interfering Matrix Report documents the requirements of the CH TRU Waste Acceptance Criteria (WAC) for the WIPP. It demonstrates that over the past six-month period, the operating range of the assay system has been tested in each applicable surrogate waste matrix and the instrument performance has been acceptable. The report is done every six months. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **EPIDEMIOLOGICAL** **QA Record/Nonpermanent/Validated by authorized signature and date** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ENV 1.d.(10)(c)	Destroy 5 years after final closure of facility.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6f	NDA Hardware and Software Settings Form(s) NDA Hardware and Software Settings Form are used to document the hardware and software settings for the Drum Waste Assay System. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6g	NDA Performance Demonstration Plan (PDP) Documentation Waste management reports documenting waste management activities including hazardous waste reports, hazardous substance reports, waste characterization reports and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)/Resource Conservation and Recovery Act (RCRA) unit reports. Documentation pertaining to the CCP NDA PDP is to demonstrate the capability of each participating measurement facility to meet the data quality objectives stated in Department of Energy (DOE)/WIPP-02-3122, CH TRU WAC for the WIPP for assay of TRU waste. The PDP is used by CBFO to assess and approve characterization services for TRU waste. This is an annual requirement. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric for Cycle Inclusive Dates : 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6h	Detector Dewar Fill Log Operating logbooks listing significant action, daily surveillances and maintenance activities occurring during normal operations of applicable facility. Detector Dewar Fill Log is used to document each time that the detector dewar is filled with Liquid Nitrogen (LN) as required. Fill date, initials of operator and comments if applicable are noted on the log. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized initials and date.** Media Type: Hard Copy Filing Order: Chronologically Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 1.e.6	Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6i	Mobile Imaging Passive Action Neutron (IPAN)/Gamma Energy Assay (GEA) Maintenance Checklist Operating logbooks listing significant action, daily surveillances and maintenance activities occurring during normal operations of applicable facility. Maintenance record CCP mobile IPAN/GEA Checklist is used to document weekly and/or monthly maintenance checks on the IPAN/GEA system which performs the NDA process. No longer generated at this time. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Equipment and Date Inclusive Dates: 2001 to 2006 Location: CCP Records - SWB and/or WRA	ENV 1.e.6	Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
7	**CCP CH NDE** NDE (Radiography) is a nondestructive qualitative and quantitative technique that involves x-ray scanning of waste containers to identify and verify waste container contents. NDE is used to examine every waste container to verify its physical form. It can detect prohibited items. NDE is also used to confirm that the physical form of the waste matches its waste stream description.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
7a	<u>CCP CH NDE BDRs</u> Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP NDE BDRs processed on the Real Time Radiography (RTR) systems. NDE (Radiography) is a nondestructive qualitative and quantitative technique that involves x-ray scanning of waste containers to identify and verify waste container contents. NDE is used to examine every waste container to verify its physical form. It can detect prohibited items. NDE is also used to confirm that the physical form of the waste matches its waste stream description. BDR may include but not limited to the following: Cover Sheet, Batch Narrative, Independent Technical Review (ITR) Checklist, Independent Technical Supervisor (TS) Checklist, Radiography Data Sheet, Measurement Control Report, copies of NCR(s) if applicable and Site Project Manager (SPM) Checklists. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
7b	Audio/Visual Media of The Radiography Scans Audio/Visual Media captured on DVDs while performing NDE of CH TRU waste containers using the RTR system. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date on supporting BDR.** Media Type: Audio/Visual VHS Tapes or DVDs Filing Order: Alpha-Numeric Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
7c	CCP Radiography System Safety Checks CCP Radiography System Safety checks or Pre-Operational Checklists are completed during the actions for startup, daily operational safety checks, operations, and shutdown of RTR System that is used to perform RTR. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
7d	NDE Fast Scanning Documentation NDE fast scanning documentation is done to screen candidate containers to determine if they qualify for the extensive formal certification process. Screening is defined as a preliminary check to determine if a drum contains obvious prohibited items such as free liquids. This process is not used to certify waste. Includes both the RTR Measurement Control Report and the RTR Drum Quick Screening Log Sheet. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
7e	RTR Batch Weight Records CCP RTR Batch Weight Record is used to document the drum numbers, gross weight, tare weight, net weight, and percent fill of each drum being processed in a BDR in the NDE operations. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2002 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
7f	CCP CH NDE Quarterly Reports Environmental monitoring reports provided to identify the progress on the environmental monitoring plans or on other related subjects. NDE quarterly reports pertain to the quarterly review performed on randomly selected data completed through SPM review, within the last 3 months time frame. The reports give information regarding the report of data generation level review, V&V performed on a minimum of one randomly chosen waste container each quarter. The SPM uses this information to document that the data generation level data review is being performed according to procedures. This includes the request and results correspondence. **QA Record/Lifetime/Validated by authorized signature and date on memorandum.** Media Type: Hard Copy Filing Order: Chronological and Quarter Number Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	ENV 1.d.8.a	Destroy when 75 years old. Cutoff when reports are superseded, obsolete, or canceled.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
8	**HEADSPACE GAS (HSG) BDRs** HSG BDRs are combined information derived from the HSG sampling process and preliminary sampling preparation activities, or from the HSG analytical process and post-analytical activities. Each BDR is for a batch of up to 20 HSG samples and may also include QA/Quality Control (QC) samples analytical only.			
8a	CCP HSG BDRs – Online Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP HSG Sampling and analytical	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
	BDRs are derived from the HSG sampling or analytical processes and include preliminary sampling preparation activities (sampling only) or follow-up data processing activities for the Online system. CCP HSG BDRs are for combined information of analytical data from the analysis of TRU-mixed waste for a batch of up to 20 HSG or homogenous waste samples. These BDRs may include but are not limited to the following: Cover page, Table of Contents, Case Narrative, Operator's Checklist, ITR Checklist, TS Checklist, Form 1A Volatile Organic Analysis Data Sheet, Form 1A Duplicate Volatile Organic Analysis Data Sheet, Form 1E Volatile Organic Analysis Data Sheet Tentatively Identified Compounds (TIC), Form 3A On-line Control Sample (OCS) Accuracy Form, Form 3A Duplicate OCS Accuracy Form, Form 3B OCS/OCS Duplicate Precision Form, Form 3C Sample/Sample Duplicate Precision Form, Form 4A Volatile Organic Method Blank Summary, Form 5A Volatile Instrument Performance Check Bromofluorobenzene (BDB), Form 6A Volatile Organic Initial Calibration (ICAL) Data, Form 7A Volatile Organic Continuing Calibration Check, Form 8A Volatile Organic Internal Standard Report Area and Retention Time (RT) Summary, CCP HSG Drum Age Criteria (DAC) Form, Temperature Log, Freezer Temperature Data Log, and SPM Project Level Checklists. No longer generating new online data. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2001 to 2007 Location: CCP Records - SWB and/or WRA			functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8b	CCP HSG ICAL Documentation ICAL documentation pertaining to both Gas Analysis and Solid Analysis processes in an analysis of analytical standards for series of different specified concentrations; used to define the linearity and dynamic range of instruments. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
8c	CCP HSG Method Detection Limits (MDL) Documentation MDL documentation for both Gas Analysis and Solids Analysis processes which documents the data defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the value is above zero. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8d	CCP HSG Method Performance Documentation (MPD) These data packages consist of documentation generated during transport and receipt of field samples, sample movement in the laboratory, preparation for analysis, laboratory analyses output, raw and processed data, analytical results, reanalysis, QC sample results and instrument calibration data, plus a summary of final results for each batch. CCP HSG MPD is an analytical method that demonstrates through documented system and instrument tests, and participation in the HSG instrument tests and HGS PDP analysis of blind samples. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ENV 5.c(1)	Destroy in 75 years.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8e	CCP Needle Blank Documentation These records consist of control records pertaining to work performed in analytical laboratories. Documentation pertains to the process of taking 10 percent of the needles and performing a check to assure cleanliness. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	ENV 5.d	Destroy when 10 years old.	Retain in CCP Records. Destroy when 10 years old. Screen and purge annually.
8f	CCP Equipment Blanks Documentation These records consist of control records pertaining to work performed in analytical laboratories. Documentation pertains to the process of taking 10 percent of the equipment and performing a check to assure cleanliness. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	ENV 5.d	Destroy when 10 years old.	Retain in CCP Records. Destroy when 10 years old. Screen and purge annually.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8g	HSG – Analytical Raw Data Analytical raw data generated during the HSG process on the Online System software. It is captured on CDs - primary and backup CD is created. **QA Record/Nonpermanent/Validated by authorized signature/initial and date.** Media Type: CD Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
8h	Container Filter Change Out Forms Container Filter Change Out Forms are used to document when a filter is replaced on a characterization drum. It identifies the container number, filter install date, filter model number, filter manufacturer date, filter serial number, filter torque value, and calibration information of torque wrench used to perform replacement. This form used to be called Drum Filter Change Out Form. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8i	CCP CH HSG BDRs – Summa Sampling Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP CH HSG – Summa BDRs are reports that document the manual sampling of HSG in TRU waste containers. The sampling is done using a side port needle attached to a SUMMA canister. After sampling the canisters are sealed and prepared for shipment/transport to a laboratory for analysis. The BDR may include but is not limited to the following: Cover Sheet, Table of Contents, ITR Checklist, TS Review Checklist, Facility Quality Assurance Officer (FQAO) Review Checklist, 72-Hour Temperature Equilibration Plots, copies of NCRs if applicable, Chain of Custody/Canister Tag, Sample Drum Data Form, Shipment Request (or equivalent), and SPM Project Level Checklist. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8j	CCP CH Analysis of Gas Samples BDRs – Environmental Chemistry Laboratory (ECL) Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP CH Analysis of Gas Samples BDRs are reports that document the analysis of gas samples of Volatile Organic Compound (VOC) in HSG samples contained in SUMMA® canisters. May include but not limited to the following: Data Report cover page and Table of Contents, Sample Identification Table/Analysis Request Form, Sample Custody Documents and Sample Tags, Sample Results, QA Measurement Results, Calibration Results, and Data Review Checklists and SPM Project Level Checklist. This includes BDRs for external sites such as Hanford and Advanced Mixed Waste TRU Program (AMWTP). May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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8k	CCP CH Analysis of Gas Samples BDRs – Raw Data Supporting Data Packages – ECL CCP CH Analysis of Gas Samples BDRs raw data supporting data packages that document the analysis of gas samples of VOC HSG samples contained in SUMMA® canisters. These packages may contain but are not limited to the following: Raw Data/Instrument Printouts and copies of applicable pages of logbooks. This includes supporting documents to BDRs for external sites such as Hanford and AMWTP. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
81	CCP CH HSG Quarterly Reports Environmental monitoring reports provided to identify the progress on the environmental monitoring plans or on other related subjects. HSG quarterly reports pertain to the quarterly review performed on randomly selected data completed through SPM review, within the last 3 months time frame. The reports give information regarding the repeat of data generation level review, V&V performed on a minimum of one randomly chosen waste container each quarter. The SPM uses this information to document that the data generation level data review is being performed according to procedures. This includes the request and results correspondence. **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological and Quarter Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	ENV 1.d.8.a	Destroy when 75 years old. Cutoff when reports are superseded, obsolete, or canceled.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8m	HSG PDP Documentation Hazardous waste reports, hazardous substance reports, waste characterization reports, CERCLA/RCRA unit reports. Documentation pertaining to the CCP HSG PDP is to demonstrate the capability of each participating measurement facility to meet the data quality objectives stated in DOE/WIPP-02-3122, CH TRU WAC for the WIPP for assay of TRU waste. The PDP is used by CBFO to assess and approve characterization services for TRU waste. This is an annual requirement. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: PDP Number and Process Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
8n	HSG Random Sample Selection Memorandums HSG Random Sample Memorandums document the random selection for HSG sampling and analysis. It includes at a minimum a memorandum identifying the random selection with attached HSG Random Sample Selection Listing. **QA Record/Nonpermanent/Validated by authorized signature and date on memorandum.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
9	**FLAMMABLE GAS ANALYSIS (FGA) DOCUMENTATION** FGA documentation pertains to the process to establish the concentration of flammable gas/ VOCs, hydrogen and methane in a waste container intended for shipment.			
9a	FGA BDRs Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. FGA BDRs are generated at all CH sites to establish the concentration of flammable gas/VOCs, hydrogen, and methane in a waste container intended for shipment. Procedure used is DOE/WIPP-06-3345. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2005 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
9b	CCP FGA ICAL Documentation CCP FGA ICAL documentation is an analysis of analytical standards for series of different specified concentrations; used to define the linearity and dynamic range of the response of the mass spectrometer or electron capture detector to the target compounds. Procedure used is DOE/WIPP-06-3345. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2005 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
9c	CCP FGA MDL Documentation CCP FGA MDL documentation pertains to and is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the value is above zero. Procedure used is DOE/WIPP-06-3345. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2005 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
10	**SOLIDS SAMPLING BDRs** Documentation pertaining to the process of Solids Sampling which is the random sample collection and sample data collection.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10a	Solids Sampling BDRs Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. Documentation pertaining to the process of Solids Sampling which is the random sample collection and sample data collection. The BDR may include but is not limited to the following: Sample Tracking Form, Sample Chain-of-Custody Form, Sampling ITR Checklist, Sampling TS Review Checklist, Sampling FQAO Review Checklist, Sampling BDR – Table of Contents, Solids Sampling BDR – Cover Sheet, Copy of CCP Waste Visual Examination (VE) Technique Data Form, Copy of NCR(s) if applicable, Temperature Data Logger Sheets, Certification of Cleanliness for Sampling Equipment, and V&V Checklists. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10 b	Solids Analysis BDRs – Analytical Laboratories Department (ALD) Data packages consisting of documentation generated during transport and receipt of field samples, sample movement in the laboratory, preparation for analysis, laboratory analyses output, raw and processed data, analytical results, reanalysis, QC sample results and instrument calibration data, plus a summary of final results for each batch. CCP CH Analysis of Solid Sample BDRs are reports that document the analysis of solid samples of VOC, non-halogenated volatile compounds (NHVOC), semi-volatile compounds (SVOC), and Metals. May include but not limited to the following: Data Report, Cover Page, Table of Contents, Sample Custody Documents, Sample Results, QC Results, Calibration Results, Data Review Checklists and SPM Project Level Checklist. This includes BDRs for external sites. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	ENV 5.c.1	Destroy in 75 years.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10c	<u>CCP Solid Analysis BDRs – Raw Data Supporting Data Package (ALD)</u> CCP CH Solid Analysis BDRs raw data supporting data packages that document the analysis of VOC, NHVOC, SVOC and Metals in solid analysis. These packages may contain but are not limited to the following: Raw Data/Instrument Printouts, copies of applicable pages of Digestion Record and copies of applicable pages of logbooks. This is supporting documents to all solids analysis BDRs for external sites such as Hanford and AMWTP. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
10d	<u>Solids Sampling Random Selection Memorandum</u> Solids Sampling Random Selection Memorandums document the random selection for solids sampling and analysis. It includes at a minimum a memorandum identifying the random selection with attached Solids Random Sample List/Waste Stream Container List. **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10e	Instrument Detection Limit (IDL) Determination Files IDL determination files pertain to the documentation of the detection limits of the equipment. It is performed every six months. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2007 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
10f	Interelement Interference Correction Factor (IECF) Determination Files IECF determination files document that Inductively Coupled Plasma (ICP) wavelengths of the metal is used to determine the concentration of metals. Metals have several wavelengths and overlap/interfere with other metals; therefore a correction factor must be determined. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2007 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10g	Documented Linear Range (DLR) Determination Files DLR Determination Files pertain to the concentration of the high calibration standard and are applicable only for a specific analyte, instrument, and set of operating conditions. A DLR may be used for up to six months after its determination date. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2007 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10h	Completed Chain-of-Custody Forms Data packages consisting of documentation generated during transport and receipt of field samples, sample movement in the laboratory, preparation for analysis, laboratory analyses output, raw and processed data, analytical results, reanalysis, QC sample results and instrument calibration data, plus a summary of final results for each batch. Chain-of-Custody Forms which have been completed document all transfers of sample custody from collection to disposal. The form contains at a minimum, the sample numbers, the date and times of transfers, and the signatures of the relinquishing and accepting parties. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2007 to Present Location: CCP Records - SWB and/or WRA	ENV 5.c.1	Destroy in 75 years.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10i	Solid PDP Documentation Hazardous waste reports, hazardous substance reports, waste characterization reports, CERCLA/RCRA unit reports. Documentation pertaining to the CCP solid PDP is to demonstrate the capability of each participating measurement facility to meet the data quality objectives stated in DOE/CBFO-95-1077 Performance Program Plan for RCRA Constituent Analysis of Solidified Waste. The PDP is used by CBFO to assess and approve characterization services for TRU waste. This is an annual requirement. Procedure used is DOE/CBFO-95-1077. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: PDP Number and Process Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
11	**PRECISION and ACCURACY (P&A) DEMONSTRATION FILES** P&A Demonstration Files pertain to the demonstration of the method performance before analyzing any samples. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
12	**RT WINDOW DETERMINATION FILES** The RT window is crucial to the identification of target compounds. The window is determined by using +/- three times the standard deviation of the mean RT. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2007 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
13	**GAS GENERATION TESTING (GGT) DOCUMENTATION** Documentation on the GGT which is used to collect off-gases generated from a waste drum, and to analyze the Hydrogen/Methane (H_2/CH_4) generation rate and the total gas generation of the drum.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
13 a	GGT BDRs Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. GGT BDRs are data compiled to generate characterization data and data reviews on the GGT process of collecting off-gases generated from the waste drums being processed through the characterization process. Includes Cover Sheet, Table of Contents, Case Narrative, Continuing Calibration Verification (CCV) Report, Sample Duplicate Report, Blank Report, Drum Data Sheets, Gas Generation Testing Program (GGTP), ITR Form, Raw Data, GGTP Drum Selection and Batching, GGTP Isolation Checklist, Copy of NCRs – if applicable, and the SPM Checklist Form. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2005 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
13b	GGT Hydrogen ICAL GGT ICAL is documentation of analysis of analytical standards for series of different specified concentrations; used to define the linearity and dynamic range of the response of the mass spectrometer or electron capture detector to the target compounds. Includes but not limited to the following: Raw Data printouts and Calibration Report. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2005 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
13c	GGT MDL Documentation GGT MDL is documentation that pertains and is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the value is above zero. Includes but is not limited to the following: Raw Data print outs and Determination of MDLs, Corresponding %R and %RSD form Attachment 1. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2005 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
13d	GGT CCP Unified Flammable Gas Test Procedure (UFGTP) Reports GGT CCP UFGTP Report pertains to whether a test category payload container demonstrates compliance with the FG/VOC limits. The long-term objective of the UFGTP is to improve waste shipability for specific populations of waste arriving at more realistic gas generation rates based on the results of measurement and testing. Includes the following: Cover page, Long-Term Objective Population Identification Report or equivalent, Long-Term Objective Subpopulation Selection Report or equivalent, Long-Term Objective Subpopulation Data Compilation Report or equivalent, Long-Term Objective Subpopulation Data Evaluation Report or equivalent, and Long-term Objective Summary Report. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2005 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
14	**VE BDRs** VE constitutes opening a container and physically examining its contents and verifying its physical form. VE is also used to confirm that the physical form of the waste matches its waste stream description. Removal of prohibited items can be performed in this process.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
14a	CCP CH VE BDRs Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP CH VE BDRs is documentation regarding the process of opening a container and physically examining its contents and verifying its physical form. VE is also used to confirm that the physical form of the waste matches its waste stream description. Removal of prohibited items can be performed in this process. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
14b	Audio/Visual Recording Tapes or DVDs of VE Audio/Visual recordings created while performing VE of CH TRU waste containers. These Audio/Visual recordings are matched to an associated VE BDR. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date on associated BDR.** Media Type: Audio/Visual Tapes and DVDs Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
14c	Prohibited Items Removal Checklist Prohibited Items Removal Checklist is a form utilized to document the removal of prohibited items found in characterization drums. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Date Inclusive Dates: 2003 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
14d	Remediation Data Forms Remediation Data Forms used during the CCP Standardized Prohibited Item Remediation process performed in CCP-TP-036. This is a VE activity. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2005 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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14e	CCP CH VE Quarterly Reports Environmental monitoring reports provided to identify the progress on the environmental monitoring plans or on other related subjects. VE quarterly reports pertain to the quarterly review performed on randomly selected data completed through SPM review, within the last 3 months. The reports give information regarding the repeat of data generation level review, V&V performed on a minimum of one randomly chosen waste container each quarter. The SPM uses this information to document that the data generation level data review is being performed according to procedures. This includes the request and results correspondence. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date on memorandum.** Media Type: Hard Copy Filing Order: Chronological and Quarter Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	ENV 1.d(8)(a)	Destroy when 75 years old. Cutoff when reports are superseded, obsolete, or canceled.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
15	**CCP ACCEPTABLE KNOWLEDGE (AK) DOCUMENTATION** AK documentation supports the knowledge used for waste characterization, which is based on the materials and processes used to generate waste. AK includes information about the physical form of the waste, the base materials composing the waste (especially hazardous and radioactive materials) and the process that generated the waste. AK is used to define waste streams, assign summary categories, assign United States Environmental Protection Agency (EPA) hazardous waste numbers, estimate the weight fraction of cellulose, plastic, and rubber (CPR), and estimated isotopic ratios.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
15a	CCP CH AK Documentation Records indicating type (classification) and degree of contamination, date of disposal method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. AK documentation is compiled, reviewed, evaluated, confirmed and reported. It supports the related AK Summary Report. The following documentation may include but is not limited to: AK Documentation Checklist; Record of Communication; AK Source Document Summary - Attachments 3- may included attached CCP generated source documents – prior to 11/01/2010 the Attachment 3's included as attachment both the site generated and CCP generated source documents; AK Source Document Reference List; Hazardous Constituents Waste Form(s); Waste Form, Waste Material Parameters, Prohibited Items and Packaging Forms with Waste Material Parameter Evaluation Memorandum; Radionuclides Forms – may include Nondestructive Assay (NDA) Memorandum; Waste Containers List – may have additional Memorandums as addendums to the Attachment 8; Acceptable Knowledge Re-evaluation Checklist; AK Source Document Discrepancy Resolution – includes AK Source Document Source Summary Forms as attachments; CCP Waste Stream Characterization Checklist; CCP TRU Waste Correlation and Surrogate Summary Form; AK Sufficiency Determination Request - memorandum and SPM notifications (emails, letters, memorandums, etc.), as applicable. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature/initial and date.**	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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	Media Type: Hard Copy Filing Order: Site and AK Report or AK Library and/or Waste Stream Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA			
15b	AK Historical Source Documents Records indicating type (classification) and degree of contamination, date of disposal method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. AK historical source documents are external records that have been generated by the waste generating sites. Copies are collected and submitted to support the listing of AK source documents referenced in the correlating AK Summary Report. They may be categorized as follows: Correspondence; Documents; Miscellaneous; Procedures and Published Documents; Discrepancy Resolution; and Unpublished Documents. These records must be maintained in parallel to the correlating AK Document Summaries and CCP source documents. Media Type: Electronic - PDF files, databases, video Filing Order: Site, AK Report or AK Library Inclusive Dates: November 2010 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer with related AK Record Set. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
15c	Reconciliation with Data Objective Reports Records indicating type (classification) and degree of contamination, date of disposal method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. Reconciliation with Data Objective Reports includes the Data Reconciliation and Reporting Routing Sheet, Reconciliation with Data Objective, WIPP Waste Stream Profile, and Characterization Information Summary. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site, AK Report and Waste Stream Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b.	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
15d	HSG Summary Data Report Records indicating type (classification) and degree of contamination, date of disposal method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. HSG Summary Data Report includes the Correlation of Container ID Numbers to HSG Sample ID Number Form, UCL_{90} Evaluation Form, Data Evaluation Narrative, Waste Stream Lot TIC and SPM Narrative. It may also include the Radiography/VE Comparison Report (with copy of trending chart) and Miscertification Rate Calculations. **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site AK Report and Waste Stream Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
15e	Solids Summary Data Reports Records indicating type (classification) and degree of contamination, date of disposal method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. Solids Summary Data Report include but are not limited to the Inter-Office Correspondence, Correlation of Container ID Numbers to Solid Sample ID Numbers, CCP Totals analysis VOC UCL_{90} Evaluation Form, CCP Totals Analysis SVOC, UCL_{90} Evaluation Form, CCP Totals Analysis Metals UCL_{90} Evaluation Form, CCP Data Evaluation Narrative (VOC), CCP Data Evaluation Narrative (SVOC), CCP Data Evaluation Narrative (Metals), Waste Stream Lot TIC and SPM Evaluation Narrative. **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site and Waste Stream Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
15f	Miscertification Rate Calculations Records indicating type (classification) and degree of contamination, date of disposal method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. Miscertification Rate Calculations documentation pertains to data from the VE that is used to determine the percentage of miscertified waste containers from radiographic examination. The miscertification rate is used to calculate the number of waste containers that shall be visually examined. The site-specific miscertification rate is applied to each Summary Category Group. The site-specific miscertification rate is reassessed annually. **This is no longer performed in the program since the permit change of November 16, 2006.** **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site and Waste Stream Inclusive Dates: 2001 to 2006 Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
15g	VE Random Selections Records indicating type (classification) and degree of contamination, date of disposal method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. VE random selection documentation pertains to a statistically selected portion of the certified waste containers that will be opened and visually examined as a QC check on the radiographic examination of waste containers. Data obtained from VE is used to verify the matrix parameter category, waste material parameter weights, and absence of prohibited items determined by radiography. Random selection is reassessed annually. **This is no longer performed in the program since the permit change of November 16, 2006.** **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site and Waste Stream Inclusive Dates: 2001 to 2006 Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
15h	<u>AK Summary Reports</u> Hazardous waste reports, hazardous substance reports, waste characterization reports, CERCLA/RCRA unit reports. AK Summary Reports are documentation which supports the knowledge used for waste characterization, which is based on the materials and processes used to generate a waste. AK reports include information about the physical form of the waste, the base materials composing the waste (especially hazardous and radioactive materials) and the process that generated the waste. AK reports define waste streams, assign summary categories, assign EPA hazardous waste numbers, estimate the weight fraction of CPR, and estimated isotopic ratios. May include but is not limited to the following record: Final document; Documentation that demonstrates approval by designated individuals; Comments and comment resolution (attachments, Document Review Resolution (DRR), emails, letter, etc.); Document revision requests (i.e., initial markup) and DOE/CBFO submittal email within five days of project level review. **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site and Waste Stream Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ENV 1.d.10.a	Permanent. Cutoff when waste is disposed of. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
15i	AK Accuracy Report Records indicating type (classification) and degree of contamination, date of disposal method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. AK Accuracy Reports document that the AK accuracy is evaluated either on a lot or waste stream basis. The report documents the results of the evaluation for containers in a waste stream. It may include but is not limited to Inter-Office Correspondence with attached CCP AK Accuracy Report and CCP Correlation of Container Identification Numbers to BDR Numbers. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site, AK Report and Waste Stream Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
15j	CCP CH AK Container Tracking Spreadsheet Waste management system which tracks waste from creation through transportation, processing, storage; and reporting tracking records. AK Container Tracking Spreadsheet is a spreadsheet that identifies the following minimum criterion for each container listed in the waste stream: Container ID, Waste Stream ID, generation date, vent date, change reason, new closure date, new vent date, container type. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Electronic Filing Order: N/A Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	ENV 1.g.(3)(a)	Delete or destroy when related records are destroyed, or 75 years from creation, whichever occurs later.	Print out after completion of waste stream shipment to WIPP. Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
16	**WASTE DATA SYSTEM (WDS) FORMERLY WIPP WASTE INFORMATION SYSTEM (WWIS) DOCUMENTATION** The WDS is an on-line database system used to document information pertaining to waste, including but not limited to waste container characterization and certification data, produce reports, record shipment configuration details, disposal locations and disposal dates.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
16a	CCP WDS Documentation CCP WDS packages are created during the process of entering data into the WDS and reporting data on TRU waste. The WDS is a database system that requires input from waste generator sites for shipment of TRU waste payload containers and payload assemblies that are intended for disposal at WIPP. CCP represents the generator sites as the generator and provides input to WDS on behalf of generator sites. These CCP WDS packages contain, but are not limited to, spreadsheets, reports, and correspondence associated with data CCP submits to WDS electronically. **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site and Batch Number Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
16b	Overpack Loading Forms Documentation pertaining to 55 gallon drums that are overpacked in ten-drum overpack (TDOP)'s and standard waste boxes. Forms include information such as container ID's, surface dose rates, and filter information. Data from these forms is required for data input into WDS. The forms are the TDOP Loading form and the standard waste boxes Loading Form. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site and Batch Number Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
16c	Radiological Surveys Radiological Surveys are performed to document levels of radiation, contamination conditions of the containers going through the characterization process for CCP CH. These are external records generated by the generator sites. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Drum or Rad Survey Number Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
17	**CCP TRANSPORTATION DOCUMENTATION** Transuranic shipment records includes records prepared by the waste generator and other related documentation. CCP transportation packages created during the preparation and transport of drums for burial at the WIPP. May include but not limited to: Payload Container Transportation Certification Document, Uniform Hazardous Waste Manifest, Public Burden Statement, Straight Bill of Lading – Short Form, Land Disposal Restriction Exemption Notification, Dunnage Certification Statement, Container Integrity Checklist, and Varian Porta-Test Leak Detector Calibration Record. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **EPIDEMIOLOGICAL** **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	ENV 2.d.(4)	Destroy after 5 years.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
18	**CCP PROCEDURES, PLANS and REPORTS** CCP Procedures, plans, and reports document record packages may include but is not limited to the following record: Final document; Documentation that demonstrates approval by designated individuals; Comments and comment resolution (attachments, DRR, emails, letter, etc.); Document revision requests (i.e., initial markup) and DOE/CBFO submittal email within five days of project level review. This line item is separate from AK Summary Reports. **QA Record/Nonpermanent/Validated by authorized signature and date for hard copy file and login and password of authorized personnel.** Media Type: Hard Copy/Electronic Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
19	**CONFIGURATION MANAGEMENT DOCUMENTATION for EQUIPMENT** Configuration management documentation for equipment pertains to the control and oversight of all CCP Mobile Characterization Equipment (MCE) and transportation equipment.			

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19a	Measuring and Test Equipment (M&TE) Documentation M&TE pertains to documents that ensures equipment used for inspection and testing are properly controlled, calibrated, and maintained. This includes but is not limited to the following: Notice of Deficiency, Manufacturer's Certificate of Calibrations, Calibration Interval Documentation, Exemptions and Temporary Extensions and Evaluations/Impact Studies using Out-of-Tolerance Evaluations, as applicable. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Equipment and Date Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
19b	<u>EPA Tier 1 and Tier 2 Documentation</u> Tier 1 and Tier 2 documentation pertains to the characterization change authorization of the EPA approved waste characterization processes for NDA and VE. Tier changes are documented by memorandum which is the notification of the required change to the waste characterization process. May include various documents. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by appropriate authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
19c	Radioactive Sources Certificates of Compliance Radioactive Material Packing and Shipping Records include the Certificates of Compliance. Certificates of Compliance for radioactive sources used to calibrate the NDA systems or when performing a function where a source is required to be used in the process. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **EPIDEMIOLOGICAL** **QA Record/Nonpermanent/Validated by Manufacturer's signature and date.** Media Type: Hard Copy Filing Order: Equipment and Date Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	ADM 18.48	Destroy 5 years after Certificate of Compliance has terminated, unless information is received indicating that renewed use is definitely anticipated.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
20	**CCP CH PROCUREMENT RECORDS** Procurement records generated in the acquisition of goods and non-personnel services.			

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20 a	<u>CCP CH Procurement Documentation</u> CCP procurement records that were generated in the acquisition of goods and non-personnel services for CH generator sites. Includes but not limited to the following: Purchase Requisitions/Change Notices; Purchase Orders/Change Notices; Statements of Work; Specifications/Drawings; Qualified Suppliers List (QSL) and attachments; Approval/Variation Requests, and copies of the QA Grading Level Determination Checklist. This is for Quality Level 1 and 2 procurement only. This is held by NWP until completion. **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Purchase Order Number Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA and NWP Procurement	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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20b	CCP CH Receipt Inspection Verification Sheets (RIVS) RIVS and supporting documentation (certificates of analysis/conformance/compliance, calibration certificates, etc.) pertaining to quality source and receipt activities in support of the CCP CH's waste characterization mission. This was named Source Receipt Inspection Verification Sheets (SRIVS) but is now called as titled above (RIVS). May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric - Purchase Order Inclusive Dates: 2002 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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21	**STANDING ORDERS** Documentation that is a means for management to communicate short-term direction to operators and the documented quarterly review of standing orders. Information such as special operations, data collection, plotting process parameters and other similar short-term matters may be included in standing orders. Standing orders are not used to deviate from procedures but supplement procedures until the procedure can be revised. Includes Standing Order Log. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in office until completion of characterization process for each site. Transmit to CCP Records to be maintained until no longer needed to support audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
22	**OPERATOR AIDS** Documentation that is used to provide information useful to operators in performing their duties and the semi-annual review of operator aids are still necessary and current. Operator aids may be in many forms such as the latest revision pages out of procedures, handwritten notes, and information tags. Operator aids are viewed as a convenience to the operator, not administrative/technical requirements and or direction. Operator aids that are assigned unique numbers may supplement approved procedures, but shall not be used in lieu of approved procedures. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in office until completion of characterization process for each site. Transmit to CCP Records to be maintained until no longer needed to support audits. Transfer to the WRA within one year for storage and retention.
23	**CONTAINER MANAGEMENT DOCUMENTATION** Container management documentation pertains to the CCP management control and tracking of TRU waste containers during the characterization process.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
23a	CCP Daily Container Management Forms Documentation which helps in the CCP management, control and tracking of TRU waste containers during the characterization process. Daily Container Management Forms pertain to the inspection of a TRU waste container to determine if the drum can be safety handled and whether repackaging will be required prior to CCP waste characterization or shipment. These forms may have different titles such as Container Inspection Reports, Container Integrity Reports and Daily Production Reports. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronologically Inclusive Dates: 2000 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
23b	CCP Scale Calibration Check and Container Weight Information Documentation used to perform a check on the scale used during handling of the drum to acquire the weight of each drum to be processed through the characterization process. Also captures the drums weight and who performed the task. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronologically Inclusive Dates: 2001 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval.	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
23c	CCP Container Travelers Supporting documentation includes but is not limited to miscellaneous worksheets, recorder sheets, other data sheets, and correspondence from where applicable information has been transcribed or summarized in other documentation. CCP Container Travelers are a form that shows the management, control and tracking of waste containers during the characterization process. Form shows the container ID number, waste stream, weight, external temperature and the initials and dates of various NDE, NDA, HSG, VE and GGT personnel. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **EPIDEMIOLOGICAL** **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2004 to Present Location: CCP Records - SWB and/or WRA	ENV 6.c	Destroy when 1 year old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
24	**WEEKLY CONDUCT of OPERATIONS – WALK-DOWN CHECKLIST** Records which notify or support worker protection and safety. Weekly Conduct of Operations – Walk-Down Checklists are performed on a weekly basis to provide a walk-down of the equipment and area around the equipment. Documents general safety, housekeeping, procedures, radiological controls, basic and conduct of operations. This is done for all characterization equipment at the Idaho National Laboratory (INL) Site. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **EPIDEMIOLOGICAL** **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: February 2008 to Present Location: CCP Records - SWB and/or WRA	ENV 1.b.(5)(a)	Destroy after 5 years.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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3. Organization Unit (Creating or Custodial Unit)	4. Date
Nuclear Waste Partnership (NWP)/Central Characterization Project (CCP)/National TRU Program Certification (NTPC)/Remote Handled (RH) for All Sites **4021 National Parks Highway, GSA 212** **Carlsbad, New Mexico 88220**	06/15/2013

5. Signatures (of Appropriate Personnel)

Prepared By	Sheila Pearcy – Lead Records Custodian	Sheila Pearcy 7/23/13 Date	N/A Records Liaison Officer	Date
Approved By	Ed Gulbransen CCP Manager	7/23/13 Date	Records Officer Approval Michael Fox	7/23/13 Date

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1	**CCP RH TRAINING DOCUMENTATION FILES** Documentation pertaining to the training and qualification of CCP RH Personnel.			

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Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐DOE X Contractor	2. Page 2 of 45

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1(a)	<u>CCP RH Employee Individual Training/Qualification Documentation</u> Contractor employee individual folders that contain item 29.1.a records AND also contain: attendance/completion records of training courses or sessions that include subjects dealing with hazardous materials directly applicable to the employee's job or position. Documents the training and qualification and re-qualification of CCP RH Personnel. May include but not limited to the following: appointment letters; qualification letters; correspondence; On-the-Job (OJT) records; completed exams; completed qualification cards; certificates of completion; test drum data sheets; training drum evaluation data sheets; resumes; and Waste Acceptance Plan (WAP) briefings. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **PRIVACY ACT** **Quality Assurance (QA) Records/Nonpermanent/ Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alphabetically Inclusive Dates: 2005 to Present Location: CCP Records – Skeen Whitlock Building (SWB) and/or Waste Isolation Pilot Plant (WIPP) Records Archive (WRA)	ADM 1.29.1.b	Cut off at the time of separation or transfer of the employee. Screen out and destroy all item 1.29.1.a.(4) records. Transfer folders with remaining documents to the local Federal Records Center. Destroy 75 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1(b)	Employee Individual Medical Examination Contractor employee individual training folders containing ONLY the following, results of medical examinations (only pass/fail and restrictions); balance of results are to be retained in the medical file. Documentation pertaining to the eye examinations performed on the Nondestructive Examination (NDE), Helium Leak Detector (HLD), and Pressure Change Leak Testing (PCLT) personnel on an annual basis. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **EPIDEMIOLOGICAL** **PRIVACY ACT** **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alphabetically Inclusive Dates: 2005 to Present Location: CCP Records – SWB and/or WRA	ADM 1.29.1.a.4	Cut off at the time of separation or transfer of the employee. Screen out and destroy all item 1.29.1.a.(4) records. Transfer folders with remaining documents to the local Federal Records Center. Destroy 4 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1(c)	<u>CCP Test Drum Audio/Video Media of Test Drum Qualification</u> Contractor employee individual folders that contain item 29.1.a records AND also contain: attendance/completion records of training courses or sessions that include subjects dealing with hazardous materials directly applicable to the employee's job or position. Contains CCP audio/video media of qualification test performed by NDE personnel. This audio/video media of qualification test is performed by NDE personnel and is the second piece of the qualification. It supports the documentation captured on the supporting hard copy record(s). May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **PRIVACY ACT** **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Audio/Video Tape or DVD (Primary and Backup) Filing Order: Alpha-Numeric Inclusive Dates: 2005 to Present Location: CCP Records - SWB and/or WRA	ADM 1.29.1.b	Cut off at the time of separation or transfer of the employee. Screen out and destroy all item 1.29.1.a.(4) records. Transfer folders with remaining documents to the local Federal Records Center. Destroy 75 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1(d)	CCP NDE Test Drum Inventories Documentation pertaining to the assembly of NDE test and training drums which are used to qualify radiography operators per CCP-PO-001, CCP Transuranic (TRU) Waste Characterization QA Project Plan (QAPjP) and CCP-QP-002, CCP Qualification and Training Plan. The drum assembly is representative of the Waste Matrix Codes (WMCs) for Waste Stream Profile Forms. CCP NDE Test Drum Inventory Sheet has the Test Drum Identification Number, Date, Summary Category Group, if it has a plastic liner and the contents of the drum. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronologically Inclusive Dates: 2005 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending National Archives and Records Administration (NARA) Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
1(e)	List of Qualified Individuals (LOQI) List of Qualified Individuals is a document that confirms and establishes to the field personnel who is to perform different areas of operations. It is updated each time there is a change to the qualifications of the project personnel. No longer generated as record. **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronologically Inclusive Dates: 2002 to September 2008 Location: CCP Records - SWB and/or WRA	Disposition Authority Pending National Archives and Records Administration (NARA) Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
1(f)	LOQI – Non-Record List of Qualified Individuals is a document that confirms and establishes to the field personnel who is to perform different areas of operations. It is updated each time there is a change to the qualifications of the project personnel. Record is captured in the individual personnel's qualification training files. Media Type: Hard Copy Filing Order: Chronologically Inclusive Dates: September 2008 to Present Location: CCP Records - SWB and/or WRA	Non-Record	Not applicable.	Retain in CCP Record until completion of characterization process for each site or when no longer needed in project files to support daily functions. Screen and purge as needed.
2	**CCP RH CORRECTIVE ACTION MANAGEMENT DOCUMENTATION** Documentation pertaining to the identification, classification, control, and correction of conditions adverse to quality and nonconforming items, activities, and processes associated with the CCP RH – All Sites.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
2(a)	CCP RH Nonconformance Reports (NCRs) Audit and investigative case files and reports that pertain to environmental, health, and safety topics, cases or concerns. NCRs created for the CCP RH sites which document the process for identifying, documenting, controlling, evaluating, and dispositioning nonconforming items. May include Carlsbad Field Office (CBFO) notifications and supporting documentation such as copies of applicable procedures, etc. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ADM 22.4	Cutoff upon completion of audit or investigation. Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention
2(b)	NCR Log Reconciliation Report NCR Log Reconciliation Report documents and verifies that all NCR numbers at the end of each calendar year are reconciled against the Master Log and in the Nonconformance Report Module (NCRM). Includes as attachment the information from NCR logs. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronologically Inclusive Dates: 2005 to Present Location: CCP Records – SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process or when no longer needed in project files to support daily functions or audits. Transfer to the WRA for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
2(c)	CCP RH Corrective Action Reports (CARs) Audit and investigative case files and reports that pertain to environmental, health, and safety topics, cases or concerns. CCP RH CARs created for all RH sites which document the process for identifying, documenting, controlling, evaluating, dispositioning, and verifying completion of corrective actions for conditions adverse to quality related failures, malfunctions, deficiencies, and technical inadequacies. May include supporting documentation such as copies of applicable procedures and/or Deficiency Evaluation Form if applicable, Corrective Action Plan and CBFO Notifications. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ADM 22.4	Cut off upon completion of audit or investigation. Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
2(d)	CCP RH CAR Log Indexes, lists, registers, and other finding aids used only to provide access to records authorized for destruction. CAR log is a document that is used to assign unique CAR numbers. It identifies the numbers assigned for both issued and voided CARs. The numbering system helps to identify the individual CAR number, facility and facility designee number and the calendar year issued. **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy/Electronic Filing Order: Chronologically Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ADM 23.9	Destroy or delete with the related records.	Print out at the end of each calendar year. Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
2(e)	CCP RH Trend Reports Audit and investigative case files and reports that pertain to environmental, health, and safety topics, cases or concerns. CCP RH Trend Reports are a review and evaluation of NCRs and CARs generated during the designated reporting period. Reports show negative trends such as quantities of NCRs or CARs generated by site, quantities and types of NCRs/CARs by process, identification of types of nonconformance by process, and programmatic noncompliance by trend codes. **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronologically Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ADM 22.4	Cut off upon completion of audit or investigation. Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
3	**CCP RH OPERATION LOGBOOKS** Logbooks listing significant action, daily surveillances and maintenance activities occurring during normal operations of applicable facility. Operational Logbooks are used for CCP RH personnel to document technical work processes and daily activities during characterization activities. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 1.e.(6)	Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
4	**CCP QA SUMMARY REPORTING, ASSESSMENT/AUDIT, AND SURVEILLANCE DOCUMENTATION** QA documentation pertaining to the reporting, assessment/audit, and surveillance activities of the CCP RH QA program.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
4(a)	CCP RH Surveillance Program Documentation Audit and investigative case files and reports that pertain to environmental, health, and safety topics, cases, or concerns. Documentation pertaining to the planning, performing, documenting, and reporting independent surveillances of TRU CCP RH waste characterization activities. Includes surveillance plan formats, surveillance reports, and surveillance checklists. May include supporting documentation. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ADM 22.4	Cut off upon completion of audit or investigation. Destroy when 75 years old.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐DOE X Contractor	2. Page 12 of 45

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
4(b)	CCP RH Surveillance Log Indexes, lists, registers, and other finding aids used only to provide access to records authorized for destruction, EXCLUDING records containing abstracts or other information that can be used as an information source apart from the related records. CCP RH Surveillance log is a document that is used to assign unique surveillance numbers. The numbering system helps to identify the individual surveillance number, facility and facility designee number and the calendar year issued. **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy/Electronic Filing Order: Chronologically Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ADM 23.9	Destroy or delete with the related records.	Print out at the end of each calendar year. Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐DOE X Contractor	2. Page 13 of 45

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
5	**CCP RH TRU SOFTWARE QA (SQA) Documentation** Database system development records and documentation records which support the maintenance and operation of tracking systems. CCP RH TRU SQA documentation pertains to the development, procurement, maintenance, and use of computer software that is important to the waste characterization and certification for the CCP RH. Includes but not limited to the following documentation for: Exempt Software, Commercial Off the Shelf (COTS) Software, Application within COTS, Qualified Supplier Software, Non-Qualified Supplier Software, CCP Software. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site and Alphabetically by Software Name Inclusive Dates: 2006 to Present Location: CCP Records – SWB and/or WRA	ENV 1.g(3)(b)	Destroy or delete upon authorized deletion of related system.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
6	**CCP RH VISUAL EXAMINATION (VE) BATCH DATA REPORTS (BDR)** VE constitutes opening a container and physically examining its contents and verifying its physical form. VE is also used to confirm that the physical form of the waste matches its waste stream description. Removal of prohibited items can be performed in this process.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6(a)	CCP RH VE BDRs Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP RH VE BDRs document the physical form of the waste and absence of prohibited items and is performed at the time the waste is actually being placed into the waste container or of video media. BDRs will include but not limited to the following: VE Data Form(s), VE Independent Technical Reviewer (ITR) Checklist, VE Site Project Manager (SPM) Checklist, VE BDR Cover Sheet, VE BDR Table of Contents, and copy of NCR if applicable. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6(b)	CCP RH Audio/Visual Recording DVD for VE Audio/visual recorded DVDs created for previously packaged waste. VE review is performed using this historical audio/visual media. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Audio/Visual DVDs Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
6(c)	CCP RH VE Quarterly Reports Environmental monitoring reports provided to identify the progress on the environmental monitoring plans or on other related subjects. VE quarterly reports pertain to the quarterly review performed on randomly selected data completed through SPM review, within the last 3 months. The reports give information regarding the repeat of data generation level review, Validation & Verification (V&V) performed on a minimum of one randomly chosen waste container each quarter. The SPM uses this information to document that the data generation level data review is being performed according to procedures. This includes the request and results correspondence. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature on memorandum.** Media Type: Hard Copy Filing Order: Chronological and Quarter Number Inclusive Dates: 2007 to Present Location: CCP Records - SWB and/or WRA	ENV 1.d(8)(a)	Destroy when 75 years old. Cutoff when reports are superseded, obsolete, or canceled.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
7	**CCP RH DOSE-to-CURIE (DTC) DOCUMENTATION** DTC Process is used to determine the total TRU activity concentrations and the individual isotopic activity in containers of RH TRU waste. Various calibrated probes are used to determine the gamma dose rate.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
7(a)	CCP RH Waste DTC BDR Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP RH Waste DTC BDRs are assembled data that is generated during the process and compiled to create a BDR package. The BDR includes the following: Measurement Control Report, Container Data Sheet(s), Waste Container DTC Conversion Record(s), Cover Sheet, Table of Contents, Narrative Summary, ITR Checklist, SPM Checklist and copy of NCRs if applicable. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
7(b)	CCP RH Waste Container DTC Conversion Record CCP RH Waste Container DTC Conversion Record is the electronic file created during the DTC process. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date on associated BDR.** Media Type: Electronic – CD Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8	**CCP RH SAMPLING and ANALYSIS OF GAS SAMPLES BDRs** CCP RH Sampling and Analysis of Gas Samples BDRs are reports that document the analysis of gas samples of Volatile Organic Compounds (VOCs) in Headspace Gas (HSG) samples contained in SUMMA® canisters.			
8(a)	CCP RH Analysis of Gas Samples BDRs Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP RH Analysis of Gas Samples BDRs are reports that document the analysis of gas samples of VOCs in HSG samples contained in SUMMA® canisters. May include but not limited to the following: Data Report Cover page and Table of Contents, Sample Identification Table/Analysis Request Form, Sample Custody Documents and Sample Tags, Sample Results, Quality Control (QC) Measurement Results, Calibration Results, and Data Review Checklists and SPM Project Level Checklist. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8(b)	<u>CCP RH HSG BDRs – Summa Sampling</u> Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP HSG – Summa BDRs that are processed both at data generation level through Project Level V&V in the HSG-Summa Sampling process. May include but not limited to the following: Cover Sheet, Table of Contents, HSG ITR Checklist, HSG Technical Supervisor (TS) Review checklist, HSG Facility QA Officer Review Checklist, 72-hour Temperature Equilibration Plots, Chain-of-Custody/Canister Tag, Sample Drum Data Form, Shipment Request Form (or equivalent), and copy of NCR(s) if applicable. Also includes SPM Checklists. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: March 2004 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8(c)	CCP RH HSG Transportation BDRs Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP RH HSG Transportation BDRs pertain to the process that implements the process to establish the concentration of flammable gas/VOCs, hydrogen, and methane in a waste container intended for shipment in the TRU Package Transporter-II, (TRUPACT-II) or HalfPACT Packaging. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8(d)	CCP RH HSG Transportation Initial Calibration (ICAL) This document which is the ICAL report for the process that implements the process to establish the concentration of flammable VOCs, hydrogen and methane in a waste container intended for shipment in the TRUPACT-II or HalfPACT packaging. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
8(e)	CCP RH HSG Transportation Method Determination Level (MDL) Reports MDL Reports is documentation that supports the process that describes and implements the process to establish the concentration of flammable gas/VOCs, hydrogen and methane in a waste container intended for shipment in the TRUPACT-II or HalfPACT packaging. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
8(f)	CCP RH HSG Random Sample Selection Memorandums HSG Random Selection Memorandum document the random selection for HSG sampling and analysis. It includes at a minimum a memorandum identifying the random selection with attached HSG Random Sample Selection Listing. **QA Record/Nonpermanent/Validated by authorized signature/initial and date.** Media Type: Hard Copy Filing Order: Chronological and Waste Stream Number Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
8(g)	CCP RH HSG Quarterly Reports Environmental monitoring reports provided to identify the progress on the environmental monitoring plans or on other related subjects. HSG quarterly reports pertain to the quarterly review performed on HSG data. The reports give information regarding the repeat of data generation level review. V&V performed on a minimum of one randomly chosen waste container each quarter. The SPM uses this information to document that the data generation level data review is being performed according to procedures. This includes the request and results correspondence. **QA Record/Lifetime/Validated by authorized signature/initial and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 1.d(8)(a)	Destroy when 75 years old. Cutoff when reports are superseded, obsolete, or canceled.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
9	**FIELD REFERENCE STANDARD (FRS) MEMORANDUM** FRS Memorandum is collected to assess the accuracy with which the sampling equipment collects the VOC into SUMMA canisters. The FRS is collected with the first sampling event at a newly certified site and analyzed. The FRS shall contain a minimum of six analytes at concentrations within a range of 10 to 100 ppmv greater than the MDL for each compound. **QA Record/Lifetime/Validated by authorized signature/initial and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2008 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
10	**SOLIDS SAMPLING BDRs** Documentation pertaining to the process of Solids Sampling which is the random sample collection and sample data collection.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10(a)	Solids Sampling BDRs Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. Documentation pertaining to the process of Solids Sampling which is the random sample collection and sample data collection. The BDR may include but is not limited to the following: Sample Tracking Form, Sample Chain-of-Custody Form, Sampling ITR Checklist, Sampling TS Review Checklist, Sampling Facility QA Officer (FQAO) Review Checklist, Sampling BDR – Table of Contents, Solids Sampling BDR – Cover Sheet, Copy of CCP Waste VE Technique Data Form, Copy of NCR(s) if applicable, Temperature Data Logger Sheets, Certification of Cleanliness for Sampling Equipment, and V&V checklists. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2008 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10(b)	Solids Analysis BDRs – Analytical Laboratories Department (ALD) Analytical laboratory data packages consisting of documentation generated during transport and receipt of field samples, sample movement in the laboratory, preparation for analysis, laboratory analyses output, raw and processed data, analytical results, reanalysis, QC sample results and instrument calibration data, plus a summary of final results for each batch. CCP RH Analysis of Solid Sample BDRs are reports that document the analysis of solid samples of VOC, non-halogenated volatile compounds (NHVOC), semi-volatile compounds (SVOC), Metals, Actinides; Gamma; Inductively-Coupled Plasma Mass Spectrometry (ICP-MS), Liquid Scintillation Counting (LSC); Radiochemistry Analysis; and Radiostrontium. May include but not limited to the following: Data Report, Cover Page, Table of Contents, Sample Custody Documents, Sample Results, QC Results, Calibration Results, Data Review Checklists and SPM Project Level Checklist. May also include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2008 to Present Location: CCP Records - SWB and/or WRA	ENV 5.c.1	Destroy in 75 years.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10(c)	<u>CCP Solid Analysis BDRs – Raw Data Supporting Data Package</u> Analytical laboratory data packages consisting of documentation generated during transport and receipt of field samples, sample movement in the laboratory, preparation for analysis, laboratory analyses output, raw and processed data, analytical results, reanalysis, QC sample results and instrument calibration data, plus a summary of final results for each batch. CCP RH Solid Analysis BDRs raw data supporting data packages that document the analysis of VOC, NHVOC, SVOC and metals in solid analysis. These packages may contain but are not limited to the following: Raw Data/Instrument Printouts, copies of applicable pages of Digestion Record and copies of applicable pages of logbooks. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2008 to Present Location: CCP Records - SWB and/or WRA	ENV 5.c.1	Destroy in 75 years.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10(d)	Solids Sampling Random Selection Memorandum Solids Sampling Random Selection Memorandums document the random selection for solids sampling and analysis. It includes at a minimum a memorandum identifying the random selection with attached Solids Random Sample List/Waste Stream Container List. **QA Record/Nonpermanent/Validated by authorized signature/initial and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
10(e)	Completed Chain-of-Custody Forms These data packages consist of documentation generated during transport and receipt of field samples, sample movement in the laboratory, preparation for analysis, laboratory analyses output, raw and processed data, analytical results, reanalysis, quality control sample results and instrument calibration data, plus a summary of final results for each batch. Chain-of-Custody Forms which have been completed document all transfers of sample custody from collection to disposal. The form contains at a minimum, the sample numbers, the date and times of transfers, and the signatures of the relinquishing and accepting parties. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2008 to Present Location: CCP Records - SWB and/or WRA	ENV 5.c.1	Destroy in 75 years.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
11	**CCP RH ACCEPTABLE KNOWLEDGE (AK) DOCUMENTATION** AK Documentation supports the knowledge used for waste characterization, which is based on the materials and processes used to generate a waste. AK includes information about the physical form of the waste, the base materials composing the waste (especially hazardous and radioactive materials) and the process that generated the waste. AK is used to define waste streams, assign summary categories, assign United States Environmental Protection Agency (EPA) hazardous waste numbers, estimate the weight fraction of cellulose, plastic, and rubber (CPR), and estimated isotopic ratios.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
11(a)	CCP RH AK Documentation Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. AK documentation is compiled, reviewed, evaluated, confirmed and reported. It supports the related AK Summary Report. The following documentation may include but is not limited to: AK Documentation Checklist; Record of Communication; AK Source Document Summary - Attachments 3's- may included attached CCP generated source documents – prior to 11/01/2010 the Attachment 3's included as attachment both the site generated and CCP generated source documents; AK Source Document Reference List; Hazardous Constituents Waste Form(s); Waste Form, Waste Material Parameters, Prohibited Items and Packaging Forms with Waste Material Parameter Evaluation Memorandum; Radionuclides Forms – may include Nondestructive Assay (NDA) Memorandum; Waste Containers List – may have additional Memorandums as addendums to the Attachment 8; Acceptable Knowledge Re-evaluation Checklist; AK Source Document Discrepancy Resolution – includes AK Source Document Source Summary Forms as attachments; CCP Waste Stream Characterization Checklist; CCP TRU Waste Correlation and Surrogate Summary Form; AK Sufficiency Determination Request - memorandum and SPM notifications (emails, letters, memorandums, etc.), as applicable. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature/initial and date.**	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
	Media Type: Hard Copy Filing Order: By Site and AK Report or AK Library Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA			
11(b)	AK Historical Source Documents Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. AK historical source documents are external records that have been generated by the waste generating sites. Copies are collected and submitted to support the listing of AK source documents referenced in the correlating AK Summary Report. They may be categorized as follows: Correspondence; Documents; Miscellaneous; Procedures and Published Documents; Discrepancy Resolution; and Unpublished Documents. These records must be maintained in parallel to the correlating AK Document Summaries and CCP source documents. Media Type: Electronic - PDF files, databases, video Filing Order: Site, AK Report or AK Library –Alpha-numeric Inclusive Dates: 1957 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer with related AK Record Set. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
11(c)	<u>CCP RH AK Summary, Technical Reports and Plans</u> Hazardous waste reports, hazardous substance reports, waste characterization reports, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)/Resource Conservation and Recovery Act (RCRA) unit reports. CCP RH AK Summary Reports, Technical Reports and Plans are documentation which supports the knowledge used for waste characterization, which is based on the materials and processes used to generate a waste. AK reports include information about the physical form of the waste, the base materials composing the waste (especially hazardous and radioactive materials) and the process that generated the waste. AK reports define waste streams, assign summary categories, assign EPA hazardous waste numbers, estimate the weight fraction of CPR, and estimated isotopic ratios. May include but is not limited to the following: Documentation that demonstrates approval by designated individuals; Comments and comment resolution (attachments, Document Review Resolution (DRR), emails, letter, etc.); Document revision requests (i.e., initial markup) and DOE/CBFO submittal email within five days of project level review. **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 1.d(10)(a)	Permanent. Cutoff when waste is disposed of. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
11(d)	AK Accuracy Report Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. AK Accuracy Reports document that the AK accuracy is evaluated either on a lot or waste stream basis. The report documents the results of the evaluation for container in a waste stream. It may include but is not limited to Inter-Office Correspondence with attached CCP AK Accuracy Report and CCP Correlation of Containers Identification Numbers to BDR Numbers. **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site, AK Report and Waste Stream Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
11(e)	CCP RH AK QA Equivalency Demonstration Report Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP AK QA Equivalency Demonstration Report is a document that shows the decision process, the criteria for qualifying data through this method, and the criteria used for qualifying the data to demonstrate QA Equivalency. This report ensures RH TRU waste characterization information generated under a historic QA program complies with the applicable Data Quality Objectives (DQOs) and programmatic requirements specified in the RH TRU Waste Characterization Program Implementation Plan (WCPIP). This includes a procedures matrix providing a cross walk that identified the generator site plans and procedures that implement the applicable requirements of the QA Program Document (QAPD). May include but is not limited to the following records: Documentation that demonstrates approval by designated individuals; Comments and comment resolution (attachments, DRR, emails, letter, etc.); Document revision requests (i.e., initial markup) DOE/CBFO submittal email within five days of project level review; and Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2007 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
11(f)	CCP RH AK Characterization Reconciliation Report (CRR)Records indicating type (classification) and degree of contamination, date of disposal, method of disposal (burial, landfill, etc.), volume, and disposal location. Records may include engineering studies, reports of unusual problems encountered during removal or treatment. CCP AK CRR is a report that provides the methodology for data reconciliation with the DQOs provided in the WCPIP, following data V&V by the SPM. The reconciliation is performed at the waste stream or waste stream lot level. It includes but is not limited to the following: RH CRR Container Data Work Sheet 1, RH CRR Container Data Sheet 2, RH CRR DQOs, RH CRR QA Objectives (QAOs), RH CRR Cover Sheet, RH CRR Construction Sheet, RH CRR SPM/AKE Comment Sheet, and summary of Radiological Results by Container. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site, AK Summary Report and Lot Number Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 6.b	Permanent. Cutoff 5 years after disposal. Transfer to NARA 25 years after cutoff.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
11(g)	CCP RH Reconciliation with Data Objective Reports Reconciliation with Data Objective Reports includes the Data Reconciliation and Reporting Routing Sheet, Reconciliation with Data Objective, WIPP Waste Stream Profile, and Characterization Information Summary. **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site, AK Summary Report, Waste Stream Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
11(h)	CCP RH HSG Summary Data Report HSG Summary Data Report includes the Correlation of Container ID Numbers to HSG Sample ID Number Form, UCL_{90} Evaluation Form, Data Evaluation Narrative, Waste Steam Lot Tentatively Identified Compounds, and SPM Narrative. It may also include the Radiography/VE Comparison Report (with copy of trending chart). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Site, AK Summary Report, Waste Stream Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐DOE X Contractor	2. Page 36 of 45

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
11(i)	<u>CCP RH AK Container Tracking Spreadsheet</u> Any electronic or manual system that tracks and produces records of wastes, from cradle to grave, from generator, storage or transported locations, including laboratory processing. AK Container Tracking Spreadsheet is a spreadsheet that identifies the following minimum criterion for each container listed in the waste stream: Container ID, Waste Stream ID, generation date, vent date, change reason, new closure date, new vent date, container type. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Electronic/Hard Copy Filing Order: Site Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 1.g(3)(a)	Delete or destroy when related records are destroyed, or 75 years from creation, whichever occurs later.	Print out after completion of waste stream shipment to WIPP. Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐DOE X Contractor	2. Page 37 of 45

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
12	**CCP PROCEDURES, PLANS, AND REPORTS** CCP Procedures, plans, and reports document record packages may include but is not limited to the following record: Documentation that demonstrates approval by designated individuals; Comments and comment resolution (attachments, DRR, emails, letter, etc.); Document revision requests (i.e., initial markup) and DOE/CBFO submittal email within five days of project level review. This line item is separate from AK Summary Reports and the AK QA Equivalency Demonstration Reports. **QA Record/Nonpermanent/Validated by authorized signature and date for hard copy file and login and password of authorized personnel.** Media Type: Hard Copy Filing Order: Alpha-Numeric - Procedure Numbers Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
13	**CCP RH PROCUREMENT RECORDS** Procurement records generated in the acquisition of goods and non-personnel services.			

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐DOE X Contractor	2. Page 38 of 45

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
13(a)	CCP RH Procurement Documentation CCP procurement records that were generated in the acquisition of goods and non-personnel services for RH generator sites. Includes but not limited to the following: Purchase Requisitions/Change Notices; Purchase Orders/Change Notices; Statements of Work; Specifications/Drawings: Qualified Suppliers List (QSL) and attachments; Approval/Variation Requests, and copies of the QA Grading Level Determination Checklist. This is for Quality Level 1 and 2 procurements only. **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Purchase Order Number Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA and	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
13(b)	CCP RH Receipt Inspection Verification Sheets (RIVS) RIVS and supporting documentation (certificates of analysis/conformance/compliance, calibration certificates, etc.) pertaining to quality source and receipt activities in support of the CCP RH's waste characterization mission. This was named Source Receipt Inspection Verification Sheets (SRIVS) but is now called as titled above – RIVS. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric by Purchase Order Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
14	**STANDING ORDERS for RH Sites** Documentation that is a means in which management communicates short-term direction to operators and the documented quarterly review of standing orders. Information such as special operations, data collection, plotting process parameters and other similar short-term matters may be included in standing orders. Standing orders are not used to deviate from procedures but supplement procedures until the procedure can be revised. Includes Standing Order Log. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized initial/signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in office until completion of characterization process for each site. Transmit to CCP Records to be maintained until no longer needed to support audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
15	**CCP RH OPERATOR AIDS** Documentation that is used to provide information useful to operators in performing their duties and the semi-annual reviews that operator aids are still necessary and current. Operator aids may be in many forms such as the latest revision of pages out of procedures, hand written notes, and information tags. Operator aids are viewed as a convenience to the operator, not administrative/technical requirements and/or direction. Operator aids assigned unique numbers may supplement approved procedures, but shall not be used in lieu of approved procedures. **QA Record/Nonpermanent/Validated by authorized initial/signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in office until completion of characterization process for each site. Transmit to CCP Records to be maintained until no longer needed to support audits. Transfer to the WRA within one year for storage and retention.
16	**CCP RH WASTE DATA SYSTEM (WDS) FORMERLY WIPP WASTE INFORMATION SYSTEM (WWIS) and TRANSPORTATION DOCUMENTATION** The WDS is an on-line database system used to document information pertaining to waste, including but not limited to waste container characterization and certification data, produce reports, record shipment configuration details, disposal locations and disposal dates. Transportation documentation is the transportation packages created during the preparation and transport of drums for burial at the WIPP.			

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
16(a)	<u>CCP RH WDS Documentation</u> The WDS is an on-line database system used to document information pertaining to the waste, including but not limited to waste container characterization and certification data, produce reports, record shipment configuration details, disposal locations and disposal dates. CCP RH WDS package is created during the process entering data into the WDS and reporting data on TRU waste. The WDS is a database system that requires input from waste generator sites for shipment of TRU waste payload containers and payload assemblies that are intended for disposal at WIPP. CCP represents all RH sites as the generator and provides input to WDS on behalf of all RH sites. The CCP RH WDS packages contain, but are not limited to spreadsheets, reports, and correspondence associated with data CCP submits to WDS electronically. **QA Record/Lifetime/Validated by authorized initial/signature and date.** Media Type: Hard Copy Filing Order: Site and WDS Batch Number Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
16(b)	Radiological Surveys Radiological Surveys are performed to document levels of radiation, contamination conditions of the containers going through the characterization process for CCP RH. These are external records generated by the generator sites. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Rad Survey Number Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
16(c)	Removable Lid Canister (RLC) Loading Forms RLC Loading Forms are completed during the process of loading RH containers into the RLC for shipment in the RH-TRU- 72-B Cask for the CCP. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric Canister Number Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
17	**TRANSPORTATION DOCUMENTATION** TRU shipment records includes records prepared by the waste generator and other related documentation. CCP RH transportation packages created during the preparation and transport of drums for burial at the WIPP. May include but not limited to: Payload Container Transportation Certification Document, Uniform Hazardous Waste Manifest, Public burden Statement, Straight Bill of Lading – Short Form, Land Disposal Restriction Exemption Notification, Dunnage Certification Statement, Container Integrity Checklist and Leak Test Report. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **EPIDEMIOLOGICAL** **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Alpha-Numeric by Shipment Number Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	ENV 2.d(4)	Destroy after 5 years.	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
18	**CONFIGURATION MANAGEMENT DOCUMENTATION for EQUIPMENT** Configuration Management documentation for equipment pertains to the control and oversight of CCP Mobile Characterization Equipment (MCE) and transportation equipment.			

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐DOE X Contractor	2. Page 44 of 45

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
18(a)	Measuring and Test Equipment (M&TE) Documentation M&TE pertains to documents that ensure equipment used for inspection and testing are properly controlled, calibrated, and maintained. This includes but is not limited to the following: notice of Deficiency, Manufacturer's Certificate of Calibrations, Calibration Interval Documentation, Exemptions and Temporary Extensions and Evaluations/Impact Studies using Out-of-Tolerance Evaluations, as applicable. May include Attachment 2, CCP Records Transmittal/Receiving Form(s). **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Equipment and date Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.
18(b)	EPA Tier 1 and Tier 2 Documentation Tier 1 and Tier 2 documentation pertains to the characterization change authorization of the EPA approved waste characterization processes for NDA and VE. Tier changes are documented by memorandum which is the notification of the required change to the waste characterization process. May include various supporting documents. **QA Record/Nonpermanent/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2006 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

Waste Isolation Pilot Plant RECORDS INVENTORY AND DISPOSITION SCHEDULE (RIDS)	1. ☐DOE X Contractor	2. Page 45 of 45

6. Item No.	7. Filing Series Title, Description, Any Special Categories, Media Types, Filing Order, Inclusive Dates and Location:	8. Disposition Authority	9. Authorized Disposition Instructions	10. Transfer Instructions
19	**CONTAINER FILTER INSTALLATION FORMS & DRUM INFORMATION SHEETS** Container Filter Installation Forms and Drum Information Sheets are generated and completed by the host site at Argonne National Laboratory – East (ANL-E). Container Filter Installation Forms provide container numbers, filter information, Equipment Serial Number and Calibration Due Date. The Drum Information Sheet provides drum numbers, radiation readings, filter information, lid information, and storage cask numbers. **QA Record/Lifetime/Validated by authorized signature and date.** Media Type: Hard Copy Filing Order: Chronological Inclusive Dates: 2007 to Present Location: CCP Records - SWB and/or WRA	Disposition Authority Pending NARA Approval	UNSCHEDULED -Do Not Destroy-	Retain in CCP Records until completion of characterization process for each site or when no longer needed in project files to support daily functions or audits. Transfer to the WRA within one year for storage and retention.

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National TRU Program Certification
Effective Date: 10/07/2013

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Real-Time Radiography (RTR) Operator/Independent Technical Reviewer (ITR) Qualification Card

Name: Robert Steve Redmond

Education/Experience

Resume documenting education on file with National TRU Program Certification (NTPC) Training.	Cheryl Hungo NTPC Training	11-18-13 Date

National Standard Requirements

SNT-TC-1A Requirements	1. Certificate from an approved vendor stating the individual operator is a qualified Real-Time Radiography (RTR) operator Level II SNT-TC-1A *(Always Required)*	Cheryl Hungo NTPC Training	11-18-13 Date
	2. Eye Examination: *(Always Required)* Jaeger Test (J-2) Date: 11-18-13 Color Vision or Gray Scale Test Date: 11-18-13	Cheryl Hungo NTPC Training	11-18-13 Date

Job Specific Training

☐ Initial Qualification ☑ Requalification ☐ Full Requalification

Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the Site Project Manager (SPM) or the Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the Manager Responsible for Training. The candidate must successfully complete the entire qualification card to reestablish qualification.
Requalification Requirements	Items required for requalification are identified by text.

Real-Time Radiography (RTR) Operator/Independent Technical Reviewer (ITR) Qualification Card

Name: Robert Steve Redmond

Initial/Indoctrination
(Required at Initial Qualification and Full Requalification)

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. WP 15-GM1002, *Issues Management Processing of WIPP Forms*
3. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
4. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
5. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
6. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (TRAMPAC)*
7. CCP-PO-005, *CCP Conduct of Operations*
8. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control*
9. CCP-QP-002, *CCP Training and Qualification Plan*
10. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
11. CCP-QP-008, *CCP Records Management*
12. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
13. CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	Steve Redmond 10-14-13 Trainee Date

Document	Additional Training Requirements	
CCP-PO-001	1. WAP/QAPjP Briefing & Exam *(One-time Requirement)*	Cheryl Arruiz 11-18-13 NTPC Training Date
CCP-RTR-101	2. Real-Time Radiography (RTR) TRU Waste Characterization Briefing. *(Always Required)*	Cheryl Arruiz 11-18-13 NTPC Training Date
CCP-QP-002	3. RTR Comprehensive Exam *(Always Required)*	Cheryl Arruiz 11-18-13 NPTC Training Date
	4. Test Drum (WAC) *(Always Required)*	Cheryl Arruiz 11-18-13 NTPC Training Date
	5. Training Container[1] *(Always Required)*	Cheryl Arruiz 11-18-13 NTPC Training Date

[1] The Training Container meets the requirements of the Test Drum defined in the WCPIP.

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Robert Steve Redmond

Formal Training	On-the-Job Training (OJT) Knowledge Requirements *(Required at Initial Qualification and Full Requalification)*	Subject Matter Expert (SME)/OJT Signature/Date
CCP-PO-001	1. List the Quality Assurance Objectives (QAOs) validated by RTR.	Fred Ong 10-15-13
CCP-PO-001	2. List the Data Quality Objectives (DQOs) of RTR.	Fred Ong 10-15-13
CCP-QP-002	3. State the purpose of the List of Qualified Individuals (LOQI).	Fred Ong 10-15-13
	4. State the requirements for performing the Test demonstration.	Fred Ong 10-15-13
	5. State the requirements for performing the Training Demonstration.	Fred Ong 10-15-13
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	Fred Ong 10-15-13
	7. Describe how nonconforming items are documented.	Fred Ong 10-15-13
	8. Describe how nonconforming items are controlled to prevent their use.	Fred Ong 10-15-13
	9. State who has the responsibility to validate the NCR once initiated.	Fred Ong 10-15-13
	10. Describe how to revise an NCR.	Fred Ong 10-15-13
	11. Describe how to void an NCR.	Fred Ong 10-15-13
WP 15-GM1002	12. Describe the purpose of the WIPP Form process.	Fred Ong 10-15-13
	13. State the person responsible for originating a WIPP Form.	Fred Ong 10-15-13
	14. Describe how WIPP Forms are documented.	Fred Ong 10-15-13
	15. Describe who has responsibility for processing WIPP Forms, approving Corrective Action Plans, and approving closure of WIPP Forms.	Fred Ong 10-15-13
	16. Describe actions personnel may take when conditions adverse to quality are discovered.	Fred Ong 10-15-13

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Robert Steve Redmond

CCP-QP-008	17. List the responsibilities of record generators.	Fred Carey 10-15-13
	18. State the storage and control requirements for records.	Fred Carey 10-15-13
	19. Explain the process and proper method to make corrections or revisions to records.	Fred Carey 10-15-13
CCP-QP-010	20. State the importance of using approved documents.	Fred Carey 10-15-13
	21. State when to verify a document revision.	Fred Carey 10-15-13
CCP-TP-053/ CCP-RTR-101 Briefing	22. Explain the purpose of RTR.	Fred Carey 10-15-13
	23. State the required information on the video/audio recording media labels.	Fred Carey 10-15-13
	24. Explain when the image test pattern/lines-pairs resolution test and checking the audio recording must be performed.	Fred Carey 10-15-13
	25. State the passing requirements for the lines-pair resolution test.	Fred Carey 10-15-13
	26. Describe the unit of measurement for weights to be recorded for RTR.	Fred Carey 10-15-13
	27. Describe where to obtain the tare weight of a waste container.	Fred Carey 10-15-13
	28. Describe where to obtain the gross weight of a waste container.	Fred Carey 10-15-13
	29. Describe how to determine the Volume Utilization Percentage (VUP).	Fred Carey 10-15-13
	30. Define the increments in which the fill percent are recorded.	Fred Carey 10-15-13
	31. State the percentage of the container volume that must be examined.	Fred Carey 10-15-13
	32. State the waste material parameters (WMP).	Fred Carey 10-15-13
	33. Define "layers of confinement".	Fred Carey 10-15-13

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Robert Steve Redmond

	34. Describe acceptable liquids.	Fred Ong 10-15-13
	35. State the total volume of acceptable liquid that must not be exceeded in the characterized container.	Fred Ong 10-15-13
	36. Describe the actions taken if prohibited items are found.	Fred Ong 10-15-13
	37. Describe the information that should be recorded when describing waste items.	Fred Ong 10-15-13
	38. Discuss the requirements for packaging of sharp or heavy objects.	Fred Ong 10-15-13
	39. State when an unvented, unpunctured, internal container is allowed.	Fred Ong 10-15-13
	40. State the number of waste containers allowed per Batch Data Report (BDR).	Fred Ong 10-15-13
	41. State when the replicate scan occurs and who performs it.	Fred Ong 10-15-13
	42. State when the independent observation occurs and who performs it.	Fred Ong 10-15-13
	43. State the responsibilities and function of the Independent Technical Reviewer (ITR).	Fred Ong 10-15-13
	44. Explain who is allowed to make data changes on data sheets.	Fred Ong 10-15-13
	45. Describe what constitutes a data affecting change.	Fred Ong 10-15-13

Real-Time Radiography (RTR)
Qualified Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Robert Steve Redmond

Formal Training	OJT Practical Requirements (Always Required)	SME/OJT Signature/Date
CCP-TP-053	1. Perform image test pattern/lines-pair resolution test.	11/12/13
	2. Perform an RTR examination.	11/12/13
	3. Determine the VUP.	11/12/13
	4. Determine layers of confinement.	11/12/13
	5. Determine WMP.	11/12/13
	6. Estimate weight of each WMP.	11/12/13
	7. Verify the physical form of the waste matches the waste description.	11/12/13
	8. Complete an RTR data sheet.	11/12/13
	9. Perform an independent observation.	11/12/13
	10. Assemble a Batch Data Report (BDR).	11/12/13
	11. Complete an ITR review.	11/13/13
	12. Demonstrate how to make changes/corrections to a BDR.	11/13/13

Real-Time Radiography (RTR) Operator/Independent Technical Reviewer (ITR) Qualification Card

Name: Robert Steve Redmond

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RTR Operator/ITR.	Steve Redmond 11-14-13 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RTR Operator/ITR. *(Validation by the SME/OJT instructor(s) involved in the training of this individual).*	FRED ONEY 11-14-13 SME/OJT Instructor *(printed name and signature)* Date
	Eric Lykes 11/14/13 SME/OJT Instructor *(printed name and signature)* Date
I have evaluated the training documentation and determined this individual meets the requirements for certification as an RTR Operator/ITR.	Andrew O. Stallings 11/18/13 Cognizant Engineer *(printed name and signature)* Date
I approve this employee to perform the duties of a RTR Operator/ITR.	BSSchrock BSSchrock 11/18/13 SPM *(printed name and signature)* Date

Approved for Content & Format: **Kenneth Dale Simpson** *(Approval on File)* **10/07/2013**
SME/OJT Date

Approved for Applicability, Content & Format: **Andrew Stallings** *(Approval on File)* **10/07/2013**
Cognizant Engineer Date

Approved for Content: **Richard Kantrowitz** *(Approval on File)* **10/07/2013**
SPM Date

Approved for Applicability, Content, Format, & Use: **A.J. Fisher** *(Approval on File)* **10/07/2013**
Manager Responsible for Training Date

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Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney
Email Address: [redacted]

Education/Experience		
Resume documenting education on file with Central Characterization Project (CCP) Training.		CCP Training 4/26/12 Date
National Standard Requirements		
SNT-TC-1A Requirements	1. Certificate from an approved vendor stating the individual operator is a qualified Real-Time Radiography (RTR) operator Level II SNT-TC-1A. *(Required every three (3) years minimum)*	CCP Training 4/26/12 Date
	2. Eye Examination: *(Annual requirement)* Jaeger Test (J-2) Date: 12/8/11 Color Vision or Gray Scale Test Date: 12/8/11	CCP Training 4/26/12 Date
Job Specific Training		
☐ Initial Qualification	☑ Requalification	☐ Full Requalification
Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the CCP Lead Site Project Manager (SPM) or the CCP Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the CCP Manager Responsible for Training. The candidate must successfully complete the entire CCP qualification card to reestablish qualification.	
Requalification Requirements	Items required for requalification are identified by text.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney
Email Address: [redacted]

Indoctrination
(Required at initial qualification and full requalification)

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
3. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
4. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (TRAMPAC)*
5. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control*
6. CCP-QP-002, *CCP Training and Qualification Plan*
7. CCP-QP-004, *CCP Corrective Action Management*
8. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
9. CCP-QP-006, *CCP Corrective Action Reporting and Control*
10. CCP-QP-008, *CCP Records Management*
11. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
12. CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*

I have read the listed initial/indoctrination reading and understand my responsibilities as applicable to the procedures above.	N/A Trainee	Date

Document	Additional Training Requirements		
CCP-PO-001	1. WAP/QAPjP Briefing and Test. *(One-time requirement)*	[signature] CCP Training	4/26/12 Date
CCP-RTR-101	2. Real-Time Radiography (RTR) TRU Waste Characterization Briefing. *(Required at qualification and at each requalification)*	[signature] CCP Training	4/26/12 Date
CCP-PO-002	3. RTR Comprehensive Exam (score 80% or higher), administered by CCP Training. *(To be administered at each requalification)*	[signature] CCP Training	4/26/12 Date
CCP-QP-002	4. Test Drum (WAC): *(Required at qualification and at each requalification)*	[signature] CCP Training	5/1/12 Date
CCP-QP-002	5. Training Container[1]: *(Required at qualification, bi-annually, and at each requalification)*	[signature] CCP Training	5/1/12 Date

[1] The Training Container meets the requirements of the Test Drum defined in the WCPIP.

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney

Email Address: [redacted]

Formal Training	On-the-Job Training (OJT) Knowledge Requirements *(Required at initial qualification and full requalification)*	Subject Matter Expert (SME)/OJT Signature/Date
CCP-PO-001	1. List the Quality Assurance Objectives (QAOs) validated by RTR.	
CCP-PO-001	2. List the Data Quality Objectives (DQOs) of RTR.	
CCP-QP-002	3. State the purpose of the List of Qualified Individuals (LOQI).	
	4. State the requirements for performing the Test demonstration.	
	5. State the requirements for performing the Training Demonstration.	
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	
	7. Describe how nonconforming items are documented.	
	8. Describe how nonconforming items are controlled to prevent their use.	
	9. State who has the responsibility to validate the NCR once initiated.	
	10. Describe how to revise an NCR.	
	11. Describe how to void an NCR.	
CCP-QP-006	12. Describe the purpose of the corrective action report (CAR) process.	
	13. State the person responsible for originating a CAR.	
	14. Describe how corrective actions are documented.	
	15. State who has the responsibility to validate the CAR once initiated.	
	16. Describe actions CCP personnel may take when conditions adverse to quality are discovered.	
CCP-QP-008	17. List the responsibilities of record generators.	
	18. State the storage and control requirements for CCP records.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney
Email Address: [redacted]

	19. Explain the process and proper method to make corrections or revisions to CCP records.	
CCP-QP-010	20. State the importance of using approved documents.	
	21. State when to verify a document revision.	
CCP-TP-053/ CCP-RTR-101 Briefing	22. Explain the purpose of RTR.	
	23. State the required information on the video/audio recording media labels.	
	24. Explain when the image test pattern/lines-pairs resolution test and checking the audio recording must be performed.	
	25. State the passing requirements for the lines-pair resolution test.	
	26. Describe the unit of measurement for weights to be recorded for RTR.	
	27. Describe where to obtain the tare weight of a waste container.	
	28. Describe where to obtain the gross weight of a waste container.	
	29. Describe how to determine the Volume Utilization Percentage (VUP).	
	30. Define the increments in which the fill percent are recorded.	
	31. State the percentage of the container volume that must be examined.	
	32. State the waste material parameters (WMP).	
	33. Define "layers of confinement".	
	34. Describe acceptable liquids.	
	35. State the total volume of acceptable liquid that must not be exceeded in the characterized container.	
	36. Describe the actions taken if prohibited items are found.	
	37. Describe the information that should be recorded when describing waste items.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney

Email Address: [redacted]

	38. Discuss the requirements for packaging of sharp or heavy objects.	
	39. State when an unvented, unpunctured, internal container is allowed.	
	40. State the number of waste containers allowed per Batch Data Report (BDR).	
	41. State when the replicate scan occurs and who performs it.	
	42. State when the independent observation occurs and who performs it.	
	43. State the responsibilities and function of the Independent Technical Reviewer (ITR).	4-24-12
	44. Explain who is allowed to make data changes on data sheets.	
	45. Describe what constitutes a data affecting change.	
Formal Training	**OJT Practical Requirements** *(Required at initial qualification, requalification, and full requalification)*	**SME/OJT Signature/Date**
CCP-TP-053	1. Perform image test pattern/lines-pair resolution test.	Jerry Bowden 4-11-12
	2. Perform an RTR examination.	Jerry Bowden 4-11-12
	3. Determine the VUP.	Jerry Bowden 4-11-12
	4. Determine layers of confinement.	Jerry Bowden 4-11-12
	5. Determine WMP.	Jerry Bowden 4-11-12
	6. Estimate weight of each WMP.	Jerry Bowden 4-11-12
	7. Verify the physical form of the waste matches the waste description.	Jerry Bowden 4-11-12
	8. Complete an RTR data sheet.	Jerry Bowden 4-11-12
	9. Perform an independent observation.	Jerry Bowden 4-11-12
	10. Assemble a Batch Data Report (BDR).	Jerry Bowden 4-11-12
	11. Complete an ITR review.	Jerry Bowden 4-11-12
	12. Demonstrate how to make changes/corrections to a BDR.	Jerry Bowden 4-11-12

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney
Email Address: [redacted]

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RTR Operator/ITR.	FRED ONEY 4-26-12 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RTR Operator/ITR. *(Validation by the SME/OJT instructor(s) involved in the training of this individual).*	JERRY EDWOEN 4-26-12 SME/OJT Instructor *(printed name and signature)* Date N/A 4-26-12 SME/OJT Instructor *(printed name and signature)* Date
I approve this employee to perform the duties of a RTR Operator/ITR.	Barbara Bramfield 5/01/12 CCP Lead or Alternate SPM *(printed name and signature)* Date

Approved for Content & Format: **Steve Ewing (Approval on file)** **4/4/2012**
SME/OJT Date

Approved for Content & Format: **Andrew Stallings (Approval on file)** **4/4/2012**
Cognizant Engineer Date

Approved for Content: **Richard Kantrowitz (Approval on file)** **4/4/2012**
CCP Lead or Alternate SPM Date

Approved for Use: **AJ Fisher (Approval on file)** **4/4/2012**
CCP Manager Responsible for Training Date

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National TRU Program Certification
Effective Date: 10/07/2013

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Real-Time Radiography (RTR) Operator/Independent Technical Reviewer (ITR) Qualification Card

Name: Daphne Brothers

Education/Experience

Resume documenting education on file with National TRU Program Certification (NTPC) Training.	Michele Billett NTPC Training	11/25/13 Date

National Standard Requirements

SNT-TC-1A Requirements	1. Certificate from an approved vendor stating the individual operator is a qualified Real-Time Radiography (RTR) operator Level II SNT-TC-1A *(Always Required)*	Michele Billett NTPC Training	11/25/13 Date
	2. Eye Examination: *(Always Required)* Jaeger Test (J-2) Date: 11-18-13 Color Vision or Gray Scale Test Date: 11-18-13	Cheryl Alonzo NTPC Training	11-18-13 Date

Job Specific Training

☐ Initial Qualification ☑ Requalification ☑ Full Requalification

Qualification Limit	This qualification is valid for two (2) years. If necessary, additional training may be required by the Site Project Manager (SPM) or the Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the Manager Responsible for Training. The candidate must successfully complete the entire qualification card to reestablish qualification.
Requalification Requirements	Items required for requalification are identified by text.

Real-Time Radiography (RTR) Operator/Independent Technical Reviewer (ITR) Qualification Card

Name: Daphne Brothers

Initial/Indoctrination
(Required at Initial Qualification and Full Requalification)

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. WP 15-GM1002, *Issues Management Processing of WIPP Forms*
3. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
4. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
5. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
6. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (TRAMPAC)*
7. CCP-PO-005, *CCP Conduct of Operations*
8. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control*
9. CCP-QP-002, *CCP Training and Qualification Plan*
10. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
11. CCP-QP-008, *CCP Records Management*
12. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
13. CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	Daphne Brothers 10-13-13 Trainee — Date

Document	Additional Training Requirements	
CCP-PO-001	1. WAP/QAPjP Briefing & Exam *(One-time Requirement)*	NTPC Training 11-18-13 Date
CCP-RTR-101	2. Real-Time Radiography (RTR) TRU Waste Characterization Briefing. *(Always Required)*	NTPC Training 11/25/13 Date
CCP-QP-002	3. RTR Comprehensive Exam *(Always Required)*	NPTC Training 11-18-13 Date
	4. Test Drum (WAC) *(Always Required)*	NTPC Training 11-18-13 Date
	5. Training Container[1] *(Always Required)*	NTPC Training 11-18-13 Date

[1] The Training Container meets the requirements of the Test Drum defined in the WCPIP.

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Daphne Brothers

Formal Training	On-the-Job Training (OJT) Knowledge Requirements (Required at Initial Qualification and Full Requalification)	Subject Matter Expert (SME)/OJT Signature/Date
CCP-PO-001	1. List the Quality Assurance Objectives (QAOs) validated by RTR.	Fred Cruz 10-15-13
CCP-PO-001	2. List the Data Quality Objectives (DQOs) of RTR.	Fred Cruz 10-15-13
CCP-QP-002	3. State the purpose of the List of Qualified Individuals (LOQI).	Fred Cruz 10-15-13
	4. State the requirements for performing the Test demonstration.	Fred Cruz 10-15-13
	5. State the requirements for performing the Training Demonstration.	Fred Cruz 10-15-13
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	Fred Cruz 10-15-13
	7. Describe how nonconforming items are documented.	Fred Cruz 10-15-13
	8. Describe how nonconforming items are controlled to prevent their use.	Fred Cruz 10-15-13
	9. State who has the responsibility to validate the NCR once initiated.	Fred Cruz 10-15-13
	10. Describe how to revise an NCR.	Fred Cruz 10-15-13
	11. Describe how to void an NCR.	Fred Cruz 10-15-13
WP 15-GM1002	12. Describe the purpose of the WIPP Form process.	Fred Cruz 10-15-13
	13. State the person responsible for originating a WIPP Form.	Fred Cruz 10-15-13
	14. Describe how WIPP Forms are documented.	Fred Cruz 10-15-13
	15. Describe who has responsibility for processing WIPP Forms, approving Corrective Action Plans, and approving closure of WIPP Forms.	Fred Cruz 10-15-13
	16. Describe actions personnel may take when conditions adverse to quality are discovered.	Fred Cruz 10-15-13

**Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card**

Name: Daphne Brothers

CCP-QP-008	17. List the responsibilities of record generators.	Fred Ong 10-15-13
	18. State the storage and control requirements for records.	Fred Ong 10-15-13
	19. Explain the process and proper method to make corrections or revisions to records.	Fred Ong 10-15-13
CCP-QP-010	20. State the importance of using approved documents.	Fred Ong 10-15-13
	21. State when to verify a document revision.	Fred Ong 10-15-13
CCP-TP-053/ CCP-RTR-101 Briefing	22. Explain the purpose of RTR.	Fred Ong 10-15-13
	23. State the required information on the video/audio recording media labels.	Fred Ong 10-15-13
	24. Explain when the image test pattern/lines-pairs resolution test and checking the audio recording must be performed.	Fred Ong 10-15-13
	25. State the passing requirements for the lines-pair resolution test.	Fred Ong 10-15-13
	26. Describe the unit of measurement for weights to be recorded for RTR.	Fred Ong 10-15-13
	27. Describe where to obtain the tare weight of a waste container.	Fred Ong 10-15-13
	28. Describe where to obtain the gross weight of a waste container.	Fred Ong 10-15-13
	29. Describe how to determine the Volume Utilization Percentage (VUP).	Fred Ong 10-15-13
	30. Define the increments in which the fill percent are recorded.	Fred Ong 10-15-13
	31. State the percentage of the container volume that must be examined.	Fred Ong 10-15-13
	32. State the waste material parameters (WMP).	Fred Ong 10-15-13
	33. Define "layers of confinement".	Fred Ong 10-15-13

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Daphne Brothers

	34. Describe acceptable liquids.	Fred Ong 10-15-13
	35. State the total volume of acceptable liquid that must not be exceeded in the characterized container.	Fred Ong 10-15-13
	36. Describe the actions taken if prohibited items are found.	Fred Ong 10-15-13
	37. Describe the information that should be recorded when describing waste items.	Fred Ong 10-15-13
	38. Discuss the requirements for packaging of sharp or heavy objects.	Fred Ong 10-15-13
	39. State when an unvented, unpunctured, internal container is allowed.	Fred Ong 10-15-13
	40. State the number of waste containers allowed per Batch Data Report (BDR).	Fred Ong 10-15-13
	41. State when the replicate scan occurs and who performs it.	Fred Ong 10-15-13
	42. State when the independent observation occurs and who performs it.	Fred Ong 10-15-13
	43. State the responsibilities and function of the Independent Technical Reviewer (ITR).	Fred Ong 10-15-13
	44. Explain who is allowed to make data changes on data sheets.	Fred Ong 10-15-13
	45. Describe what constitutes a data affecting change.	Fred Ong 10-15-13

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Daphne Brothers

Formal Training	OJT Practical Requirements *(Always Required)*	SME/OJT Signature/Date
CCP-TP-053	1. Perform image test pattern/lines-pair resolution test.	11/12/13
	2. Perform an RTR examination.	11/12/13
	3. Determine the VUP.	11/12/13
	4. Determine layers of confinement.	11/12/13
	5. Determine WMP.	11/12/13
	6. Estimate weight of each WMP.	11/12/13
	7. Verify the physical form of the waste matches the waste description.	11/12/13
	8. Complete an RTR data sheet.	11/12/13
	9. Perform an independent observation.	11/12/13
	10. Assemble a Batch Data Report (BDR).	11/12/13
	11. Complete an ITR review.	11/13/13
	12. Demonstrate how to make changes/corrections to a BDR.	11/13/13

Real-Time Radiography (RTR) Operator/Independent Technical Reviewer (ITR) Qualification Card

Name: Daphne Brothers

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RTR Operator/ITR.	Daphne Brothers 11-14-13 Trainee *(printed name and signature)* — Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RTR Operator/ITR. *(Validation by the SME/OJT instructor(s) involved in the training of this individual).*	FRED ONEY 11-14-13 SME/OJT Instructor *(printed name and signature)* — Date
	Eric Lyles 11/14/13 SME/OJT Instructor *(printed name and signature)* — Date
I have evaluated the training documentation and determined this individual meets the requirements for certification as an RTR Operator/ITR.	Andrew O. Stallings 11/18/13 Cognizant Engineer *(printed name and signature)* — Date
I approve this employee to perform the duties of a RTR Operator/ITR.	BSSchrock BSSchrock 11/25/13 SPM *(printed name and signature)* — Date

Approved for Content & Format: **Kenneth Dale Simpson *(Approval on File)*** — SME/OJT — **10/07/2013** Date

Approved for Applicability, Content & Format: **Andrew Stallings *(Approval on File)*** — Cognizant Engineer — **10/07/2013** Date

Approved for Content: **Richard Kantrowitz *(Approval on File)*** — SPM — **10/07/2013** Date

Approved for Applicability, Content, Format, & Use: **A.J. Fisher *(Approval on File)*** — Manager Responsible for Training — **10/07/2013** Date

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Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles	Badge Number: [redacted]
Email Address: [redacted]	

Education/Experience		
Resume documenting education on file with Central Characterization Project (CCP) Training.		CCP Training 1/30/12 Date
National Standard Requirements		
SNT-TC-1A Requirements	1. Certificate from an approved vendor stating the individual operator is a qualified Real-Time Radiography (RTR) operator Level II SNT-TC-1A. *(Required every three (3) years minimum)*	CCP Training 1/30/12 Date
	2. Eye Examination: *(Annual requirement)* Jaeger Test (J-2) Date: 1/11/12 Color Vision or Gray Scale Test Date: 1/11/12	CCP Training 1/30/12 Date
Job Specific Training		
☐ Initial Qualification ☒ Requalification		
Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the CCP Lead Site Project Manager (SPM) or the CCP Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the CCP Manager Responsible for Training. The candidate must successfully complete the entire CCP qualification card to reestablish qualification.	
Requalification Requirements	Items required for requalification are identified by text.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles	Badge Number: [redacted]
Email Address: [redacted]	

Indoctrination

(Required at initial qualification, or in the event of requalification after disqualification only)

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
3. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
4. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (TRAMPAC)*
5. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control*
6. CCP-QP-002, *CCP Training and Qualification Plan*
7. CCP-QP-004, *CCP Corrective Action Management*
8. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
9. CCP-QP-006, *CCP Corrective Action Reporting and Control*
10. CCP-QP-008, *CCP Records Management*
11. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
12. CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*

I have read the listed initial/indoctrination reading and understand my responsibilities as applicable to the procedures above.	Trainee	Date: 1/25/12

Document	Additional Training Requirements		
CCP-PO-001	1. WAP/QAPjP Briefing and Test. *(One-time requirement)*	CCP Training	Date: 1/30/12
CCP-RTR-101	2. Real-Time Radiography (RTR) TRU Waste Characterization Briefing. *(Required at qualification and at each requalification)*	CCP Training	Date: 1/30/12
CCP-PO-002	3. RTR Comprehensive Exam (score 80% or higher), administered by CCP Training. *(To be administered at each requalification)*	CCP Training	Date: 1/30/12
CCP-QP-002	4. Test Drum (WAC): *(Required at qualification and at each requalification)*	CCP Training	Date: 2/29/12
CCP-QP-002	5. Training Container[1]: *(Required at qualification, bi-annually, and at each requalification)*	CCP Training	Date: 2/29/12

[1] The Training Container meets the requirements of the Test Drum defined in the WCPIP.

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles [redacted] **Badge Number:** [redacted]

Email Address: [redacted]

Formal Training	On-the-Job Training (OJT) Knowledge Requirements *(Required at initial qualification, or in the event of requalification after disqualification only.)*	Subject Matter Expert (SME) Signature/Date
CCP-PO-001	1. List the Quality Assurance Objectives (QAOs) validated by RTR.	
CCP-PO-001	2. List the Data Quality Objectives (DQOs) of RTR.	
CCP-QP-002	3. State the purpose of the List of Qualified Individuals (LOQI).	
	4. State the requirements for performing the Test demonstration.	
	5. State the requirements for performing the Training Demonstration.	
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	N/A
	7. Describe how nonconforming items are documented.	
	8. Describe how nonconforming items are controlled to prevent their use.	
	9. State who has the responsibility to validate the NCR once initiated.	
	10. Describe how to revise an NCR.	
	11. Describe how to void an NCR.	
CCP-QP-006	12. Describe the purpose of the corrective action report (CAR) process.	
	13. State the person responsible for originating a CAR.	
	14. Describe how corrective actions are documented.	
	15. State who has the responsibility to validate the CAR once initiated.	
	16. Describe actions CCP personnel may take when conditions adverse to quality are discovered.	
CCP-QP-008	17. List the responsibilities of record generators.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles	Badge Number: [redacted]
Email Address: [redacted]	

CCP-QP-010	18. State the storage and control requirements for CCP records.	
	19. Explain the process and proper method to make corrections or revisions to CCP records.	
	20. State the importance of using approved documents.	
	21. State when to verify a document revision.	
CCP-TP-053/ CCP-RTR-101 Briefing	22. Explain the purpose of RTR.	
	23. State the required information on the video/audio recording media labels.	
	24. Explain when the image test pattern/lines-pairs resolution test and checking the audio recording must be performed.	N/A
	25. State the passing requirements for the lines-pair resolution test.	
	26. Describe the unit of measurement for weights to be recorded for RTR.	
	27. Describe where to obtain the tare weight of a waste container.	
	28. Describe where to obtain the gross weight of a waste container.	
	29. Describe how to determine the Volume Utilization Percentage (VUP).	
	30. Define the increments in which the fill percent are recorded.	
	31. State the percentage of the container volume that must be examined.	
	32. State the waste material parameters (WMP).	
	33. Define "layers of confinement".	
	34. Describe acceptable liquids.	
	35. State the total volume of acceptable liquid that must not be exceeded in the characterized container.	
	36. Describe the actions taken if prohibited items are found.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles	Badge Number: [redacted]
Email Address: [redacted]	

	37. Describe the information that should be recorded when describing waste items.	
	38. Discuss the requirements for packaging of sharp or heavy objects.	
	39. State when an unvented, unpunctured, internal container is allowed.	
	40. State the number of waste containers allowed per Batch Data Report (BDR).	N/A
	41. State when the replicate scan occurs and who performs it.	
	42. State when the independent observation occurs and who performs it.	
	43. State the responsibilities and function of the Independent Technical Reviewer (ITR).	
	44. Explain who is allowed to make data changes on data sheets.	
	45. Describe what constitutes a data affecting change.	
Formal Training	**OJT Practical Requirements** *(Required at initial qualification and at requalification)*	**SME Signature/Date**
CCP-TP-053	1. Perform image test pattern/lines-pair resolution test. LA-HERTR-12-0007	[signature] 1-25-12
	2. Perform an RTR examination. LA-HERTR-12-0007	[signature] 1-25-12
	3. Determine the VUP. LA-HERTR-12-0007	[signature] 1-25-12
	4. Determine layers of confinement. LA-HERTR-12-0007	[signature] 1-25-12
	5. Determine WMP. LA-HERTR-12-0007	[signature] 1-25-12
	6. Estimate weight of each WMP. LA-HERTR-12-0007	[signature] 1-25-12
	7. Verify the physical form of the waste matches the waste description. LA-HERTR-12-0007	[signature] 1-25-12
	8. Complete an RTR data sheet. LA-HERTR-12-0007	[signature] 1-25-12
	9. Perform an independent observation. LA-RTR2-12-0012	[signature] 1-25-12

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles	Badge Number: [redacted]
Email Address: [redacted]	

	10. Assemble a Batch Data Report (BDR). LA-HERTR-12-0007	[signature]	1-25-12
	11. Complete an ITR review. LA-HERTR-12-0004	[signature]	1-25-12
	12. Demonstrate how to make changes/corrections to a BDR.	[signature]	1-25-12

Real-Time Radiography (RTR) Operator/Independent Technical Reviewer (ITR) Qualification Card

Name: Eric Lyles **Badge Number:** [redacted]

Email Address: [redacted]

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RTR Operator/ITR.	Eric Lyles — Trainee *(printed name and signature)* — Date: 1/25/12
I have monitored the training of this individual and believe they are ready to perform the duties of a RTR Operator/ITR. *(Signature validation by the SME/OJT instructor(s) involved in the training of this individual).*	Kenneth Simpson — SME/OJT Instructor *(printed name and signature)* — Date: 1-25-12 N/A — SME/OJT Instructor *(printed name and signature)* — Date
I approve this employee to perform the duties of a RTR Operator/ITR.	Richard Kantrowitz — CCP Lead or Alternate SPM *(printed name and signature)* — Date: 2/29/12

Approved for Content & Format: **Steve Ewing (Approval on file)** — RTR SME/OJT *(printed name and signature)* — **3/22/2011** Date

Approved for Content & Format: **Larry Porter (Approval on file)** — Cognizant Engineer *(printed name and signature)* — **3/22/2011** Date

Approved for Content: **Richard Kantrowitz (Approval on file)** — CCP Lead or Alternate SPM *(printed name and signature)* — **3/22/2011** Date

Approved for Use: **AJ Fisher (Approval on file)** — CCP Manager Responsible for Training *(printed name and signature)* — **3/22/2011** Date

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles

Badge Number: [redacted] RA 1/31/12

Email Address: [redacted]

Site: LANL

List of Applicable Waste Streams (based on applicable Acceptable Knowledge Reports read):*	
	N/A EL 1/31/12

**For use with Initial and Additional Sites. (To be completed for each site the trainee is qualifying)*

I have read the applicable Acceptable Knowledge Reports for this site. I understand my responsibilities regarding the waste streams listed above.

Eric Lyles 1/31/12

Trainee *(printed name and signature)* Date

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Central Characterization Project
Non-Destructive Examination (NDE)
List of Applicable Waste Streams Qualified

Name: Eric Lyles	Site: ORNL

Applicable Waste Streams: *(based on applicable Acceptable Knowledge Reports read)* *For use with Initial and Additional Sites. (To be completed for each site the trainee is qualifying)*		
OR-NFS-CH-HET-A		
OR-NFS-CH-SOIL		
OR-REDC-CH-HET		
OR-ISTP-CH-HET		
	N/A	
N/A		

I have read the applicable Acceptable Knowledge Reports for this site. I understand my responsibilities regarding the waste streams listed above.

Eric Lyles — Trainee *(printed name and signature)* — 11/7/13 — Date

EL 11/7/13

I approve this employee to perform NDE duties with the above waste streams.

MIKE RAMIREZ — Site Project Manager *(printed name and signature)* — 11-7-13 — Date

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CCP ATTENDANCE SHEET

12/16/13

COURSE NAME: CCP-AK-ORNL-001, Revision 8 DATE: 12/16 BSS 12/13/13

LOCATION: Teleconference

	NAME (PRINT NAME)	TITLE/POSITION	SIGNATURE
1.	Eric Lyles	RTR/NDE	
2.	FRED ONAY	RTR/LO	
3.	Chuck Wallace	VEO/VE	
4.	Steve Redmond	RTR/operator	
5.	Jason Cofer	VEO/VE	
6.	Derek Matheny	VEO/VE	
7.	Anthony Harley	VEE	
8.	Daphne Brothers	RTR/operator	
9.			
10.	N A		
11.			
12.			

Beverly S. Schrock — Instructor Name (Print)

BSSchrock — Signature

12/16/13 — Date

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CCP ATTENDANCE SHEET

COURSE NAME: CCP-AK-ORNL-008, Revision 1 DATE: 1/09/14

LOCATION: Teleconference

	NAME (PRINT NAME)	TITLE/POSITION	SIGNATURE
1.	Anthony Harley	VEE	
2.	Steve Redmond	RTR operator	
3.	Fred Ouy	RTR/LO	
4.	Eric Lyles	RTR/hbE	
5.	Derek Matheny	VEO	
6.	Andrew Stallings	VPM	
7.			
8.		N/A	
9.			
10.			
11.			
12.			

Beverly S. Schrock — Instructor Name (Print)

BSSchrock — Signature

1/13/14 — Date

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CCP ATTENDANCE SHEET

COURSE NAME: CCP-AK-ORNL-008, Revision 1 DATE: ~~1/09/14~~ 1-13-14 As 1-13-14

LOCATION: ~~Teleconference~~ As 1-13-14 Read and Signed

	NAME (PRINT NAME)	TITLE/POSITION	SIGNATURE
1.	Daphne Brothers	RTR operator	
2.	Jason Cofer	VEO	
3.	Chuck Wallace	VEO	
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

A
N

Beverly S. Schrock — Instructor Name (Print)

BSSchrock — Signature

1/13/14 — Date

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CCP ATTENDANCE SHEET

COURSE NAME: CCP-AK-ORNL-008, Revision 0 DATE: 11/14/13

LOCATION: Teleconference

	NAME (PRINT NAME)	TITLE/POSITION	SIGNATURE
1.	Jason Cofer	VE	
2.	Chuck Wallace	VE	
3.	Daphne Brothers	RTR	
4.	Derek Matheny	VE	
5.	LaTeanc Harris	QA	
6.	Anthony Harley	VEE	
7.	Eric Lyles	RTR/hDE	
8.	Steve Robinson	RERlapse.	
9.	Fred Ong	RTR	
10.	Carmel Byrd	FGA Operator	
11.	Jeremy Robinson	FGA	
12.	JAMES DAVIS	FGA ITR	

Beverly S. Schrock — Instructor Name (Print)

BSSchrock — Signature

11/18/13 — Date

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CCP ATTENDANCE SHEET

COURSE NAME: CCP-AK-ORNL-001, Revision 7 DATE: 11/14/13

LOCATION: Teleconference

	NAME (PRINT NAME)	TITLE/POSITION	SIGNATURE
1.	Chuck Wallace	VE	
2.	Jason Cofer	VE	
3.	Daphne Brothers	RTR	
4.	LaTarie Hamm	QA	
5.	Anthony Harley	VEE	
6.	Derek Matheny	VE	
7.	Earl Lyles	RTR/NDE	
8.	Fred Oney	RTR	
9.	Steve Rodgers	RTR/Lead	
10.	Carmel Byrd	FCA	
11.	Jerry Robison	FCA	
12.	James Davis	FCA/ITR	

Beverly S. Schrock — Instructor Name (Print)

BSSchrock — Signature

11/18/13 — Date

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CCP ATTENDANCE SHEET

COURSE NAME: CCP-AK-ORNL-002, Revision 2 DATE: 11/14/13

LOCATION: Teleconference

	NAME (PRINT NAME)	TITLE/POSITION	SIGNATURE
1.	Jason Cofer	VE	
2.	Chuck Wallace	VE	
3.	Daphne Brothers	RTR	
4.	LaTeavia Harris	QA	
5.	Anthony Harley	VEE	
6.	Steve Redmond	RTR/oper	
7.	Fred Owen	RTR	
8.	Eric Lyles	RTR/NDE	
9.	Derek Matheny	VE	
10.	Carmel Byrd	FGA	
11.	Jerry Robison	FGA	
12.	JAMES DAVIS	FGA / ITR	

Beverly S. Schrock — Instructor Name (Print)

BSSchrock — Signature

11/18/13 — Date

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[redacted]

Name: Chuck Wallace

Education/Experience	
Resume documenting education and experience on file with National TRU Program Certification (NTPC) Training.	Cheryl Munger 11-14-13 NTPC Training Date

Job Specific Training

☑ Initial Qualification ☐ Requalification ☐ Full Requalification

Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the Site Project Manager (SPM) or the Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the Manager Responsible for Training. The candidate must successfully complete the entire qualification card to reestablish qualification.
Requalification Requirements	Items required for requalification are identified by text.

Indoctrination
(Required at Initial Qualification and Full Requalification)

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. WP 15-GM1002, *Issues Management Processing of WIPP Forms*
3. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
4. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
5. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
6. CCP-PO-005, *CCP Conduct of Operations*
7. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
8. CCP-QP-002, *CCP Training and Qualification Plan*
9. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
10. CCP-QP-008, *CCP Records Management*
11. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
12. CCP-QP-016, *CCP Control of Measuring and Testing Equipment*
13. CCP-QP-023, *CCP Handling, Storage, and Shipping*
14. CCP-TP-163, *CCP Evaluation of Waste Packaging Records for Visual Examination of Records*
15. CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*
16. CCP-TP-513, *CCP Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of Remote-Handled Transuranic Waste*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	[redacted] 10/25/13 Trainee Date

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National TRU Program Certification
Effective Date: 10/07/2013

RH-VE-01 QAP 4
Revision 4

Visual Examination (VE)
Operator/Independent Technical Reviewer (ITR)
Waste Handler (WH)
Qualification Card

Name: Chuck Wallace

Additional Training Requirements		
1. WAP/QAPjP Briefing & Exam *(One-time Requirement)*	Cheryl Hruz NTPC Training	11-14-13 Date
2. CCP-VE-101, *Visual Examination (VE) TRU Waste Characterization Briefing* *(Always Required)*	Cheryl Hruz NTPC Training	11-18-13 Date
3. VE Comprehensive Exam *(Always Required)*	Cheryl Hruz NTPC Training	11-14-13 Date

Personal Initials	Qualification Requirements (Required at Initial Qualification and Full Requalification)	Visual Examination (VE) Operator/Independent Technical Reviewer (ITR) Signature/Date
CCP-PO-001	1. List the VE Quality Assurance Objectives (QAOs) per the WAP.	10-23-13
	2. List the VE Data Quality Objectives (DQOs) per the WAP.	10-23-13
DOE/WIPP 02-3214	3. List the VE QAOs per the PIP.	10-23-13
	4. List the VE DQOs per the PIP.	10-23-13
CCP-QP-002	5. State the purpose of the List of Qualified Individuals (LOQI).	10-23-13
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	10-23-13
	7. Describe how nonconforming items are documented.	10-23-13
	8. Describe how nonconforming items are controlled to prevent their use.	10-23-13
	9. State who has the responsibility to validate the NCR once initiated.	10-23-13
	10. Describe how to revise a NCR.	10-23-13
	11. Describe how to void a NCR.	10-23-13
WP 15-GM1002	12. Describe the purpose of the WIPP Form process.	10-23-13

Visual Examination (VE)
Operator/Independent Technical Reviewer (ITR)
Remote-Handled (RH) Waste
Qualification Card

Name: Chuck Wellens

	13. State the person responsible for originating a WIPP Form.	10-23-13
	14. Describe how WIPP Forms are documented.	10-23-13
	15. Describe who has responsibility for processing WIPP Forms, approving Corrective Action Plans, and approving closure of WIPP Forms.	10-23-13
	16. Describe actions personnel may take when conditions adverse to quality are discovered.	10-23-13
CCP-QP-008	17. List the responsibilities of record generators.	10-23-13
	18. State the storage and control requirements for records.	10-23-13
	19. Explain the process and proper method to make corrections or revisions to records.	10-23-13
CCP-QP-010	20. State the importance of using approved documents.	10-23-13
	21. State when to verify a document revision.	10-23-13
CCP-QP-016	22. List the Measuring & Testing Equipment (M&TE) items used during VE.	10-23-13
CCP-TP-500/ CCP-VE-101 Briefing	23. Explain the purpose of VE and the roles and responsibilities of the VE Operator.	10-23-13
	24. Identify who is responsible for overall direction and implementation of the VE of that facility.	10-23-13
	25. Define the two phases of VE technique for remote-handled waste.	10-23-13
	26. State the number of waste containers allowed per Batch Data Report (BDR).	10-23-13
	27. Define "layers of confinement."	10-23-13
	28. State the authorized methods to close a liner bag.	10-23-13
	29. State the action to be taken if a condition adverse to quality arises.	10-23-13
	30. State the waste material parameters (WMP).	10-23-13
	31. Describe the information that should be recorded when describing waste items.	10-23-13
	32. State five (5) examples of prohibited items.	10-23-13

Visual Examination (VE) Operator/Independent Technical Reviewer (ITR) for Remote-Handled (RH) Waste Qualification Card

Name: Chuck Wallace

	33. Describe how a non-transparent container is handled when liquid is suspected.			[signature] 10-23-13
	34. State the acceptable liquid limits in a characterized container.			[signature] 10-23-13
	35. Explain the responsibilities and functions of the Independent Technical Review (ITR).			[signature] 10-23-13
	36. Define layers of confinement.			[signature] 10-23-13
	37. Describe how to determine Volume Utilization Percentage (VUP).			[signature] 10-23-13
	38. State the allowable fill percent increments.			[signature] 10-23-13
Formal Training	**OJT Practical Requirements[1]** *(This section must be performed in the presence of a [illegible])* *(Always Required)*			**VE SME/OJT Signature/Date**
CCP-TP-500	1. Prepare the recording equipment. *(This activity is at the discretion of the SME instructor)*	P	S	N/A [signature] 11-14-13
	2. Complete CCP-TP-500 Attachment 1.	(P)	S	[signature] 11-14-13
	3. Prepare a BDR.	(P)	S	[signature] 11-14-13
	4. Determine the VUP.	(P)	S	[signature] 11-14-13
	5. Complete an ITR.	(P)	S	[signature] 11-14-13
	6. Determine Waste Material Parameter (WMP).	(P)	S	[signature] 11-14-13
	7. Verify the physical form of the waste matches the waste stream ID.	(P)	S	[signature] 11-14-13
CCP-TP-513	8. Perform a dimensional or gravimetric measurement and determine the measurement acceptability[2].	P	S	N/A [signature] 11-14-13

[1] For simulated steps that involve the recording of information, the steps can be satisfied by the trainee's ability to identify the specific location in the correct record form where actual data would be entered, and explain where the information would be obtained. All required calculations will actually be performed: for simulations, representative data will be used in lieu of actual data. Circle "P" if actually performed or "S" if requirement was simulated.

[2] Procedure CCP-TP-513 is not applicable at all sites. The OJT Practical Requirement for this procedure is only required if the procedure is invoked.

[redacted]

Qualification Card

Name: Chuck Wallace

	Approvals
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RH VE Operator/ITR.	Chuck Wallace — 11-14-13 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RH VE Operator/ITR. *(Validation by the RH VEE SME/OJT instructor(s) involved in the training of this individual).*	Anthony Hadley — 11-14-13 RH VEE SME/OJT Instructor *(printed name and signature)* Date NA RH VEE SME/OJT Instructor *(printed name and signature)* Date
I approve this employee to perform the duties of a RH VE Operator/ITR.	Richard Kantrowitz — 11/18/13 SPM *(printed name and signature)* Date

Approved for Content & Format: **Wes Root *(Approval on File)*** — SME/OJT — **10/07/2013** Date

Approved for Applicability, Content & Format: **Andrew Stallings *(Approval on File)*** — Cognizant Engineer — **10/07/2013** Date

Approved for Content: **Irene Joo *(Approval on File)*** — SPM — **10/07/2013** Date

Approved for Applicability, Content, Format, & Use: **A.J. Fisher *(Approval on File)*** — Manager Responsible for Training — **10/07/2013** Date

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[redacted]

Resume documenting education and experience on file with National TRU Program Certification (NTPC) Training.	Cheryl Munger 11-14-13 NTPC Training Date

☑ Initial Qualification ☐ Requalification ☐ Full Requalification

Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the Site Project Manager (SPM) or the Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the Manager Responsible for Training. The candidate must successfully complete the entire qualification card to reestablish qualification.
Requalification Requirements	Items required for requalification are identified by text.

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. WP 15-GM1002, *Issues Management Processing of WIPP Forms*
3. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
4. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
5. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
6. CCP-PO-005, *CCP Conduct of Operations*
7. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
8. CCP-QP-002, *CCP Training and Qualification Plan*
9. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
10. CCP-QP-008, *CCP Records Management*
11. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
12. CCP-QP-016, *CCP Control of Measuring and Testing Equipment*
13. CCP-QP-023, *CCP Handling, Storage, and Shipping*
14. CCP-TP-163, *CCP Evaluation of Waste Packaging Records for Visual Examination of Records*
15. CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*
16. CCP-TP-513, *CCP Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of Remote-Handled Transuranic Waste*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	[redacted] 10-28-13 Trainee Date

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[redacted]

1. WAP/QAPjP Briefing & Exam *(One-time Requirement)*	Cheryl Arroyo NTPC Training	11-14-13 Date
2. CCP-VE-101, *Visual Examination (VE) TRU Waste Characterization Briefing* *(Always Required)*	Cheryl Arroyo NTPC Training	11-18-13 Date
3. VE Comprehensive Exam *(Always Required)*	Cheryl Arroyo NTPC Training	11-14-13 Date

[redacted]

CCP-PO-001	1. List the VE Quality Assurance Objectives (QAOs) per the WAP.	10-23-13
	2. List the VE Data Quality Objectives (DQOs) per the WAP.	10-23-13
DOE/WIPP 02-3214	3. List the VE QAOs per the PIP.	10-23-13
	4. List the VE DQOs per the PIP.	10-23-13
CCP-QP-002	5. State the purpose of the List of Qualified Individuals (LOQI).	10-23-13
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	10-23-13
	7. Describe how nonconforming items are documented.	10-23-13
	8. Describe how nonconforming items are controlled to prevent their use.	10-23-13
	9. State who has the responsibility to validate the NCR once initiated.	10-23-13
	10. Describe how to revise a NCR.	10-23-13
	11. Describe how to void a NCR.	10-23-13
WP 15-GM1002	12. Describe the purpose of the WIPP Form process.	10-23-13

Name: Jason Carter

CCP-QP-008	13. State the person responsible for originating a WIPP Form.	10-23-13
	14. Describe how WIPP Forms are documented.	10-23-13
	15. Describe who has responsibility for processing WIPP Forms, approving Corrective Action Plans, and approving closure of WIPP Forms.	10-23-13
	16. Describe actions personnel may take when conditions adverse to quality are discovered.	10-23-13
	17. List the responsibilities of record generators.	10-23-13
	18. State the storage and control requirements for records.	10-23-13
	19. Explain the process and proper method to make corrections or revisions to records.	10-23-13
CCP-QP-010	20. State the importance of using approved documents.	10-23-13
	21. State when to verify a document revision.	10-23-13
CCP-QP-016	22. List the Measuring & Testing Equipment (M&TE) items used during VE.	10-23-13
CCP-TP-500/ CCP-VE-101 Briefing	23. Explain the purpose of VE and the roles and responsibilities of the VE Operator.	10-23-13
	24. Identify who is responsible for overall direction and implementation of the VE of that facility.	10-23-13
	25. Define the two phases of VE technique for remote-handled waste.	10-23-13
	26. State the number of waste containers allowed per Batch Data Report (BDR).	10-23-13
	27. Define "layers of confinement."	10-23-13
	28. State the authorized methods to close a liner bag.	10-23-13
	29. State the action to be taken if a condition adverse to quality arises.	10-23-13
	30. State the waste material parameters (WMP).	10-23-13
	31. Describe the information that should be recorded when describing waste items.	10-23-13
	32. State five (5) examples of prohibited items.	10-23-13

National TRU Program Corporation
Effective Date: 10/7/2013

Visual Examination (VE)
Operator Independent Technical Review (ITR)
for Remote-Handled (RH) Waste
Qualification Card

Name: Jason Foster

	33. Describe how a non-transparent container is handled when liquid is suspected.	10-23-13
	34. State the acceptable liquid limits in a characterized container.	10-23-13
	35. Explain the responsibilities and functions of the Independent Technical Review (ITR).	10-23-13
	36. Define layers of confinement.	10-23-13
	37. Describe how to determine Volume Utilization Percentage (VUP).	10-23-13
	38. State the allowable fill percent increments.	10-23-13

	OJT Practical Requirements (This section shall be performed in the presence of the SME Instructor)			VE SME/OJT Signature/Date
CCP-TP-500	1. Prepare the recording equipment. *(This activity is at the discretion of the SME Instructor)*	P	S	N/A 11-14-13
	2. Complete CCP-TP-500 Attachment 1.	(P)	S	11-14-13
	3. Prepare a BDR.	(P)	S	11-14-13
	4. Determine the VUP.	(P)	S	11-14-13
	5. Complete an ITR.	(P)	S	11-14-13
	6. Determine Waste Material Parameter (WMP).	(P)	S	11-14-13
	7. Verify the physical form of the waste matches the waste stream ID.	(P)	S	11-14-13
CCP-TP-513	8. Perform a dimensional or gravimetric measurement and determine the measurement acceptability[2].	P	S	N/A 11-14-13

[1] For simulated steps that involve the recording of information, the steps can be satisfied by the trainee's ability to identify the specific location in the correct record form where actual data would be entered, and explain where the information would be obtained. All required calculations will actually be performed: for simulations, representative data will be used in lieu of actual data. Circle "P" if actually performed or "S" if requirement was simulated.
[2] Procedure CCP-TP-513 is not applicable at all sites. The OJT Practical Requirement for this procedure is only required if the procedure is invoked.

Visual Examination (VE) Operator/Independent Technical Reviewer (ITR) for Remote-Handled (RH) Waste Qualification Card

Name: Jason Cofer

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RH VE Operator/ITR.	Jason Cofer Jason E Cofer 11-14-13 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RH VE Operator/ITR. *(Validation by the RH VEE SME/OJT instructor(s) involved in the training of this individual).*	Anthony Harley 11-14-13 RH VEE SME/OJT Instructor *(printed name and signature)* Date NA RH VEE SME/OJT Instructor *(printed name and signature)* Date
I approve this employee to perform the duties of a RH VE Operator/ITR.	Richard Kantrowitz 11/18/13 SPM *(printed name and signature)* Date

Approved for Content & Format:	**Wes Root *(Approval on File)***	**10/07/2013**
	SME/OJT	Date
Approved for Applicability, Content & Format:	**Andrew Stallings *(Approval on File)***	**10/07/2013**
	Cognizant Engineer	Date
Approved for Content:	**Irene Joo *(Approval on File)***	**10/07/2013**
	SPM	Date
Approved for Applicability, Content, Format, & Use:	**A.J. Fisher *(Approval on File)***	**10/07/2013**
	Manager Responsible for Training	Date

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Visual Examination (VE)
Operator/Independent Technical Reviewer (ITR)
for Remote-Handled (RH) Waste
Qualification Card

Name: Anthony Harley

Education/Experience

Resume documenting education and experience on file with National TRU Program Certification (NTPC) Training.	NTPC Training: [signature] Date: 06-06-13

Job Specific Training

☐ Initial Qualification ☑ Requalification ☐ Full Requalification

Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the Site Project Manager (SPM) or the Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the Manager Responsible for Training. The candidate must successfully complete the entire qualification card to reestablish qualification.
Requalification Requirements	Items required for requalification are identified by text.

Indoctrination

(Required at Initial Qualification and Full Requalification)

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
3. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
4. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
5. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
6. CCP-QP-002, *CCP Training and Qualification Plan*
7. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
8. CCP-QP-008, *CCP Records Management*
9. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
10. CCP-QP-016, *CCP Control of Measuring and Testing Equipment*
11. CCP-QP-023, *CCP Handling, Storage, and Shipping*
12. CCP-QP-029, *CCP Corrective Action Management*
13. CCP-TP-163, *CCP Evaluation of Waste Packaging Records for Visual Examination of Records*
14. CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*
15. CCP-TP-513, *CCP Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of Remote-Handled Transuranic Waste*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	NA Trainee Date

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Visual Examination (VE)
Operator/Independent Technical Reviewer (ITR)
for Remote-Handled (RH) Waste
Qualification Card

Name: Anthony Harley

Additional Training Requirements		
1. WAP/QAPjP Briefing & Exam *(One-time Requirement)*	Cheryl Almyja NTPC Training	06-06-13 Date
2. CCP-VE-101, *Visual Examination (VE) TRU Waste Characterization Briefing* *(Always Required)*	Cheryl Almyja NTPC Training	06-06-13 Date
3. VE Comprehensive Exam *(Always Required)*	Cheryl Almyja NTPC Training	06-06-13 Date

Formal Training	On-the-Job Training (OJT) Knowledge Requirements *(Required at Initial Qualification and Full Requalification)*	Visual Examination Expert (VEE) Subject Matter Expert (SME)/OJT Signature/Date
CCP-PO-001	1. List the VE Quality Assurance Objectives (QAOs) per the WAP.	5-30-13
	2. List the VE Data Quality Objectives (DQOs) per the WAP.	5-30-13
DOE/WIPP 02-3214	3. List the VE QAOs per the PIP.	5-30-13
	4. List the VE DQOs per the PIP.	5-30-13
CCP-QP-002	5. State the purpose of the List of Qualified Individuals (LOQI).	5-8-13
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	5-8-13
	7. Describe how nonconforming items are documented.	5-8-13
	8. Describe how nonconforming items are controlled to prevent their use.	5-8-13
	9. State who has the responsibility to validate the NCR once initiated.	5-8-13
	10. Describe how to revise a NCR.	5-8-13
	11. Describe how to void a NCR.	5-8-13
CCP-QP-029	12. Describe the purpose of the corrective action report (CAR) process.	5-8-13

Visual Examination (VE)
Operator/Independent Technical Reviewer (ITR)
for Remote-Handled (RH) Waste
Qualification Card

Name: Anthony Harley

	13. State the person responsible for originating a CAR.	5-8-13 5-8-13 5-8-13
	14. Describe how corrective actions are documented.	5-8-13
	15. State who has the responsibility to validate the CAR once initiated.	5-8-13
	16. Describe actions personnel may take when conditions adverse to quality are discovered.	5-8-13
CCP-QP-008	17. List the responsibilities of record generators.	5-8-13
	18. State the storage and control requirements for records.	5-8-13
	19. Explain the process and proper method to make corrections or revisions to records.	5-8-13
CCP-QP-010	20. State the importance of using approved documents.	5-30-13
	21. State when to verify a document revision.	5-30-13
CCP-QP-016	22. List the Measuring & Testing Equipment (M&TE) items used during VE.	5-30-13
CCP-TP-500/ CCP-VE-101 Briefing	23. Explain the purpose of VE and the roles and responsibilities of the VE Operator.	5-30-13
	24. Identify who is responsible for overall direction and implementation of the VE of that facility.	5-30-13
	25. Define the two phases of VE technique for remote-handled waste.	5-30-13
	26. State the number of waste containers allowed per Batch Data Report (BDR).	5-30-13
	27. Define "layers of confinement."	5-30-13
	28. State the authorized methods to close a liner bag.	5-30-13
	29. State the action to be taken if a condition adverse to quality arises.	5-30-13
	30. State the waste material parameters (WMP).	5-30-13
	31. Describe the information that should be recorded when describing waste items.	5-30-13
	32. State five (5) examples of prohibited items.	5-30-13

Visual Examination (VE) Operator/Independent Technical Reviewer (ITR) for Remote-Handled (RH) Waste Qualification Card

Name: Anthony Harley

	33. Describe how a non-transparent container is handled when liquid is suspected.			5-30-13
	34. State the acceptable liquid limits in a characterized container.			5-30-13
	35. Explain the responsibilities and functions of the Independent Technical Review (ITR).			5-30-13
	36. Define layers of confinement.			N/A
	37. Describe how to determine Volume Utilization Percentage (VUP).			5-30-13
	38. State the allowable fill percent increments.			5-30-13
Formal Training	**OJT Practical Requirements[1]** *(This section must be performed in the presence of a VEE)* *(Always Required)*			**VEE SME/OJT Signature/Date**
CCP-TP-500	1. Prepare the recording equipment. *(This activity is at the discretion of the SME instructor)*	P	S	5-30-13
	2. Complete CCP-TP-500 Attachment 1.	P	S	5-30-13
	3. Prepare a BDR.	P	S	5-30-13
	4. Determine the VUP.	P	S	5-30-13
	5. Complete an ITR.	P	S	5-30-13
	6. Determine Waste Material Parameter (WMP).	P	S	5-30-13
	7. Verify the physical form of the waste matches the waste stream ID.	P	S	5-30-13
CCP-TP-513	8. Perform a dimensional or gravimetric measurement and determine the measurement acceptability[2].	P	S	5-30-13

[1] For simulated steps that involve the recording of information, the steps can be satisfied by the trainee's ability to identify the specific location in the correct record form where actual data would be entered, and explain where the information would be obtained. All required calculations will actually be performed: for simulations, representative data will be used in lieu of actual data. Circle "P" if actually performed or "S" if requirement was simulated.

[2] Procedure CCP-TP-513 is not applicable at all sites. The OJT Practical Requirement for this procedure is only required if the procedure is invoked.

Visual Examination (VE)
Operator/Independent Technical Reviewer (ITR)
for Remote-Handled (RH) Waste
Qualification Card

Name: Anthony Harley

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RH VE Operator/ITR.	Anthony Harley 5-30-13 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RH VE Operator/ITR. *(Validation by the RH VEE SME/OJT instructor(s) involved in the training of this individual).*	Tommy Mejia 5-30-13 RH VEE SME/OJT Instructor *(printed name and signature)* Date NA RH VEE SME/OJT Instructor *(printed name and signature)* Date
I approve this employee to perform the duties of a RH VE Operator/ITR.	Richard Kantrowitz 6/6/13 SPM *(printed name and signature)* Date

Approved for Content & Format:	**Wes Root** ***(Approval on File)***	**03/13/2013**
	SME/OJT	Date
Approved for Applicability, Content & Format:	**Andrew Stallings** ***(Approval on File)***	**03/13/2013**
	Cognizant Engineer	Date
Approved for Content:	**Irene Joo** ***(Approval on File)***	**03/13/2013**
	SPM	Date
Approved for Applicability, Content, Format, & Use:	**A.J. Fisher** ***(Approval on File)***	**03/13/2013**
	Manager Responsible for Training	Date

NPTC - Oak Ridge National Labs (ORNL)
List of Qualified Individuals
1/6/2014 4:56 PM

	Name	Position	CCP Next Training Due Date	Host Site Next Training Due Date
VE	Harley, Anthony	Operator/ITR **SME/OJT** **Expert** NCR "K" Code Designee	09/2015	07/10/14

	Name	Position	CCP Next Training Due Date	Host Site Next Training Due Date
RTR	Brothers, Daphne	Operator/ITR NCR "K" Code Designee	Eye Exam - 11/2014 Requal - 11/2015 SNT-TC-1A - 11/20/16 Training Cont. - 05/2014	03/14/14
	Lyles, Eric	Operator/ITR **SME/OJT** NCR "K" Code Designee	Eye Exam – 01/2014 Requal – 02/2014 SNT-TC-1A – 04/22/2016 Training Cont. – 02/2014	03/12/14
	Oney, Fred	Operator/ITR **SME/OJT** NCR "K" Code Designee	Eye Exam – 11/2014 Requal – 05/2014 SNT-TC-1A – 04/16/16 Training Cont. – 04/2014	03/09/14
	Redmond, R. Steve	Operator/ITR NCR "K" Code Designee	Eye Exam – 11/2014 Requal – 11/2015 SNT-TC-1A – 05/26/14 Training Cont. – 05/2014	06/12/14

	Name	Position	CCP Next Training Due Date	Host Site Next Training Due Date
NDA IQ3	Anderson, Susan	Operator/ITR NCR "K" Code Designee	11/2015	04/10/14
	Ceo, Robert	Expert Analyst	N/A	N/A
	Gerlock, Chad	Operator/ITR NCR "K" Code Designee	11/2015	03/29/14
	Gillespie, Bruce	Expert Analyst	N/A	N/A
	Morales, Bart	Expert Analyst	N/A	N/A
	Meyer, Kevin	Expert Analyst	N/A	N/A
	Southworth, Tim	Expert Analyst	N/A	N/A
	Steade, Maria	Operator/ITR	01/2016	09/29/14
	Whitson, Ron	Operator/ITR **SME/OJT** NCR "K" Code Designee	10/2015	04/01/14

NPTC - Oak Ridge National Labs (ORNL)
List of Qualified Individuals
1/6/2014 4:56 PM

	Name	Position	CCP Next Training Due Date	Host Site Next Training Due Date
FGA	Adams, James	Operator/ITR **SME/OJT**	07/2014	Cannot perform operations until site training is complete.
	Byrd, Carmel	Operator/ITR	01/2016	10/27/14
	Davis, James	Operator/ITR	12/2015	10/27/14
	Robinson, Jeremy	Operator/ITR **SME/OJT**	06/2014	05/15/14

ORNL NDE Personnel Waste Streams Qualified List

1/6/2014 4:56 PM

		TWPC Process Bldg	OR-NFS-CH-HET-A	OR-NFS-CH-HOM-A	OR-NFS-CH-HOM-B	OR-NFS-CH-SOIL	OR-REDC-CH-HET	OR-RADP-CH-HET	OR-RF-CH-HET	OR-CHEM-CH-HET	OR-GENR-CH-HET	OR-NBL-CH-HET	OR-ISTP-CH-HET	OR-SWSA-CH-HET	OR-SWSA-CH-SOIL
		VE Expert	AK-1				AK-2	AK-3	AK-4	AK-5	AK-6	AK-7	AK-8	AK-9	
RTR	Brothers, Daphne		X	X	X	X	X						X		
RTR	Lyles, Eric		X	X	X	X	X						X		
RTR	Oney, Fred		X	X	X	X	X						X		
RTR	Redmond, R. Steve		X	X	X	X	X						X		
VE	Harley, Anthony	E	X	X	X	X	X						X		

RH Program - ORNL
List of Qualified Individuals
1/6/2014 4:58 PM

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	Name	Position	NTPC Next Training Due Date	Host Site Next Training Due Date
DTC	Crosby, Dan	Operator/ITR	12/2015	05/13/14
	Gerlock, Chad	Operator/ITR	12/2015	03/29/14
	Whitson, Ron	Operator/ITR **SME/OJT** NCR "K" Code Designee	05/2014	04/01/14

	Name	Position	NTPC Next Training Due Date	Host Site Next Training Due Date
FGA	Adams, James	Operator/ITR **SME/OJT**	07/2014	Cannot perform operations until site training is complete.
	Byrd, Carmel	Operator/ITR	01/2016	10/27/14
	Davis, James	Operator/ITR	12/2015	10/27/14
	Robinson, Jeremy	Operator/ITR **SME/OJT**	06/2014	05/15/14

	Name	Position	NTPC Next Training Due Date	Host Site Next Training Due Date
VE	Cofer, Jason	Operator/ITR	11/2015	10/29/14
	Harley, Anthony	Operator/ITR (Includes Gravimetric) **SME/OJT** **Expert** NCR "K" Code Designee	06/2015	07/10/14
	Matheny, Derek	Operator/ITR	12/2015	Cannot perform operations until site training is complete.
	Pattee, Spencer Troy	Operator/ITR (Includes Gravimetric) **SME/OJT** NCR "K" Code Designee	06/2015	Cannot perform operations until site training is complete.
	Root, Wes	Operator/ITR (Includes Gravimetric) **SME/OJT**	08/2015	Cannot perform operations until site training is complete.
	Wallace, Chuck	Operator/ITR	11/2015	06/27/14

RH ORNL NDE Personnel Waste Streams Qualified List

1/6/2014 4:58 PM

		TWPC Process Bldg. BLDG 3525		OR-REDC-RH-HET	OR-RF-RH-HET
		VE Expert		AK-500	510
VE	Cofer, Jason			X	
	Harley, Anthony	E		X	
	Matheny, Derek			X	
	Pattee, Spencer			X	
	Root, Wes				
	Wallace, Chuck			X	

Central Characterization Project
Effective Date: 06/08/2011

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Acceptable Knowledge Expert (AKE) Qualification Card

Name: Chris Chancellor **Badge Number:** [redacted]

Email Address: [redacted]

Education / Experience

Resume documenting education and experience on file with Central Characterization Project (CCP) Training.	Michele Billett 6/16/11 CCP Training Date

Job Specific Training

Qualification Limit	There is no qualification time limit for this position. It is a one-time only requirement. Upon completion of this qualification card, the Trainee is qualified to perform all Acceptable Knowledge Expert duties, including the development of acceptable knowledge reports. If necessary, additional training may be required by the CCP Lead Site Project Manager (SPM) or the CCP Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the CCP Manager Responsible for Training. The candidate must successfully complete the entire CCP qualification card to re-establish qualification.
Requalification Requirements	Not required. See above statement.

Indoctrination

WAP/QAPjP Briefing and Test. 9/30/08	Michele Billett 6/13/11 CCP Training Date

Initial/Indoctrination Reading:

1. NM4890139088, *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*
2. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
3. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
4. DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document*
5. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
6. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
7. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
8. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
9. CCP-QP-004, *CCP Corrective Action Management*
10. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
11. CCP-QP-006, *CCP Corrective Action Reporting and Control*
12. CCP-QP-008, *CCP Records Management*
13. CCP-QP-036, *CCP Qualification of Acceptable Knowledge for Remote-Handled Transuranic Waste Through a Quality Assurance Equivalency Demonstration*

Acceptable Knowledge Expert (AKE) Qualification Card

Name: Chris Chancellor **Badge Number:** [redacted]

Email Address: [redacted]

	14. CCP-TP-001, *CCP Project Level Data Validation and Verification* 15. CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data* 16. CCP-TP-005, *CCP Acceptable Knowledge Documentation* 17. CCP-TP-506, *CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report*
I have read the listed initial/indoctrination reading and understand my responsibilities as applicable to the procedures above.	Trainee Signature 06/13/2011 Date

Formal Training Requirements	
RCRA Training Documentation	Michele Billett 6/13/11 CCP Training Date

Approvals	
I have completed formal training and received on-the-job training for this position. I fully understand my responsibilities as an AKE.	Christopher J. Chancellor 06/13/2011 Trainee *(printed name and signature)* Date
This individual has shown proficiency in the implementation of the requirements for the preparation of Acceptable Knowledge Summary Reports as required by CCP-TP-005.	Trey Greenwood 6/16/11 AK Cognizant Manager *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of an AKE. I approve this employee to perform the duties of an AKE.	LAURA NELSON Laura Nelson 6-16-11 CCP Site Project Manager *(printed name and signature)* Date

Approved for Content & Format: **Trey Greenwood (Approval on File)** **06/08/2011**
Cognizant Engineer Date

Approved for Content: **Richard Kantrowitz (Approval on File)** **06/08/2011**
CCP Lead or Alternate SPM Date

Approved for Use: **A.J. Fisher (Approval on File)** **06/08/2011**
CCP Manager Responsible for Training Date

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Central Characterization Project **Effective Date: 06/08/2011**	**AKE-01, Rev. 7** **Page 1 of 2**

Acceptable Knowledge Expert (AKE) Qualification Card

Name: Charles Allen Dickerson **Badge Number:** [redacted]

Email Address: [redacted]

Education / Experience

Resume documenting education and experience on file with Central Characterization Project (CCP) Training.	Michele Billett 6/9/11 CCP Training Date

Job Specific Training

Qualification Limit	There is no qualification time limit for this position. It is a one-time only requirement. Upon completion of this qualification card, the Trainee is qualified to perform all Acceptable Knowledge Expert duties, including the development of acceptable knowledge reports. If necessary, additional training may be required by the CCP Lead Site Project Manager (SPM) or the CCP Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the CCP Manager Responsible for Training. The candidate must successfully complete the entire CCP qualification card to re-establish qualification.
Requalification Requirements	Not required. See above statement.

Indoctrination

WAP/QAPjP Briefing and Test. 8/18/10	Michele Billett 6/9/11 CCP Training Date

Initial/Indoctrination Reading:

1. NM4890139088, *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*
2. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
3. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
4. DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document*
5. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
6. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
7. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
8. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
9. CCP-QP-004, *CCP Corrective Action Management*
10. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
11. CCP-QP-006, *CCP Corrective Action Reporting and Control*
12. CCP-QP-008, *CCP Records Management*
13. CCP-QP-036, *CCP Qualification of Acceptable Knowledge for Remote-Handled Transuranic Waste Through a Quality Assurance Equivalency Demonstration*

Acceptable Knowledge Expert (AKE) Qualification Card

Name: Charles Allen Dickerson | **Badge Number:** [redacted]

Email Address: [redacted]

	14. CCP-TP-001, *CCP Project Level Data Validation and Verification* 15. CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data* 16. CCP-TP-005, *CCP Acceptable Knowledge Documentation* 17. CCP-TP-506, *CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report*
I have read the listed initial/indoctrination reading and understand my responsibilities as applicable to the procedures above.	C. Allen Dickerson 6-9-2011 Trainee Signature — Date

Formal Training Requirements	
RCRA Training Documentation	Michele Billett 6/9/11 CCP Training — Date

Approvals	
I have completed formal training and received on-the-job training for this position. I fully understand my responsibilities as an AKE.	C. Allen Dickerson 6-9-11 Trainee *(printed name and signature)* — Date
This individual has shown proficiency in the implementation of the requirements for the preparation of Acceptable Knowledge Summary Reports as required by CCP-TP-005.	Trey Greenwood 6/10/11 AK Cognizant Manager *(printed name and signature)* — Date
I have monitored the training of this individual and believe they are ready to perform the duties of an AKE. I approve this employee to perform the duties of an AKE.	Laura Nelson 6/10/11 CCP Site Project Manager *(printed name and signature)* — Date

Approved for Content & Format: **Trey Greenwood (Approval on File)** — Cognizant Engineer — **06/08/2011** — Date

Approved for Content: **Richard Kantrowitz (Approval on File)** — CCP Lead or Alternate SPM — **06/08/2011** — Date

Approved for Use: **A.J. Fisher (Approval on File)** — CCP Manager Responsible for Training — **06/08/2011** — Date

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Acceptable Knowledge Expert (AKE) Qualification Card

Name: Trey Greenwood **Badge Number:** [redacted]

Email Address: [redacted]

Education / Experience

Resume documenting education and experience on file with Central Characterization Project (CCP) Training.	Michele Billett 6/13/11 CCP Training Date

Job Specific Training

Qualification Limit	There is no qualification time limit for this position. It is a one-time only requirement. Upon completion of this qualification card, the Trainee is qualified to perform all Acceptable Knowledge Expert duties, including the development of acceptable knowledge reports. If necessary, additional training may be required by the CCP Lead Site Project Manager (SPM) or the CCP Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the CCP Manager Responsible for Training. The candidate must successfully complete the entire CCP qualification card to re-establish qualification.
Requalification Requirements	Not required. See above statement.

Indoctrination

WAP/QAPjP Briefing and Test. 10/13/04	Michele Billett 6/13/11 CCP Training Date

Initial/Indoctrination Reading:

1. NM4890139088, *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*
2. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
3. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
4. DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document*
5. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
6. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
7. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
8. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
9. CCP-QP-004, *CCP Corrective Action Management*
10. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
11. CCP-QP-006, *CCP Corrective Action Reporting and Control*
12. CCP-QP-008, *CCP Records Management*
13. CCP-QP-036, *CCP Qualification of Acceptable Knowledge for Remote-Handled Transuranic Waste Through a Quality Assurance Equivalency Demonstration*

Acceptable Knowledge Expert (AKE) Qualification Card

Name: Trey Greenwood	Badge Number: [redacted]
Email Address: [redacted]	

	14. CCP-TP-001, *CCP Project Level Data Validation and Verification* 15. CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data* 16. CCP-TP-005, *CCP Acceptable Knowledge Documentation* 17. CCP-TP-506, *CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report*
I have read the listed initial/indoctrination reading and understand my responsibilities as applicable to the procedures above.	Trainee Signature 6/13/11 Date

Formal Training Requirements	
RCRA Training Documentation	Michele Billett 6/13/11 CCP Training Date

Approvals	
I have completed formal training and received on-the-job training for this position. I fully understand my responsibilities as an AKE.	Trey Greenwood 6/13/11 Trainee *(printed name and signature)* Date
This individual has shown proficiency in the implementation of the requirements for the preparation of Acceptable Knowledge Summary Reports as required by CCP-TP-005.	Mark Pearcy Mark Pearcy 6/16/2011 AK Cognizant Manager *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of an AKE. I approve this employee to perform the duties of an AKE.	LAUREN Nelson Lauren Nelson 6/16/2011 CCP Site Project Manager *(printed name and signature)* Date

Approved for Content & Format: **Trey Greenwood (Approval on File)** **06/08/2011**
Cognizant Engineer — Date

Approved for Content: **Richard Kantrowitz (Approval on File)** **06/08/2011**
CCP Lead or Alternate SPM — Date

Approved for Use: **A.J. Fisher (Approval on File)** **06/08/2011**
CCP Manager Responsible for Training — Date

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Central Characterization Project Effective Date: 06/08/2011	AKE-01, Rev. 7 Page 1 of 2

Acceptable Knowledge Expert (AKE) Qualification Card

Name: Jason Montoya	Badge Number: [redacted]
Email Address: [redacted]	

Education / Experience	
Resume documenting education and experience on file with Central Characterization Project (CCP) Training.	Michele Billett 6/14/11 CCP Training Date

Job Specific Training	
Qualification Limit	There is no qualification time limit for this position. It is a one-time only requirement. Upon completion of this qualification card, the Trainee is qualified to perform all Acceptable Knowledge Expert duties, including the development of acceptable knowledge reports. If necessary, additional training may be required by the CCP Lead Site Project Manager (SPM) or the CCP Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the CCP Manager Responsible for Training. The candidate must successfully complete the entire CCP qualification card to re-establish qualification.
Requalification Requirements	Not required. See above statement.

Indoctrination	
WAP/QAPjP Briefing and Test. 2/24/06	Michele Billett 6/14/11 CCP Training Date

Initial/Indoctrination Reading:

1. NM4890139088, *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*
2. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
3. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
4. DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document*
5. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
6. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
7. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
8. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
9. CCP-QP-004, *CCP Corrective Action Management*
10. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
11. CCP-QP-006, *CCP Corrective Action Reporting and Control*
12. CCP-QP-008, *CCP Records Management*
13. CCP-QP-036, *CCP Qualification of Acceptable Knowledge for Remote-Handled Transuranic Waste Through a Quality Assurance Equivalency Demonstration*

Acceptable Knowledge Expert (AKE) Qualification Card

Name: Jason Montoya	Badge Number: [redacted]
Email Address: [redacted]	

	14. CCP-TP-001, *CCP Project Level Data Validation and Verification* 15. CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data* 16. CCP-TP-005, *CCP Acceptable Knowledge Documentation* 17. CCP-TP-506, *CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report*
I have read the listed initial/indoctrination reading and understand my responsibilities as applicable to the procedures above.	Trainee Signature — Date: 6/8/11

Formal Training Requirements	
RCRA Training Documentation	Michele Billett — CCP Training — Date: 6/14/11

Approvals	
I have completed formal training and received on-the-job training for this position. I fully understand my responsibilities as an AKE.	Jason Montoya — Trainee *(printed name and signature)* — Date: 6/8/11
This individual has shown proficiency in the implementation of the requirements for the preparation of Acceptable Knowledge Summary Reports as required by CCP-TP-005.	Trey Greenwood — AK Cognizant Manager *(printed name and signature)* — Date: 6/16/11
I have monitored the training of this individual and believe they are ready to perform the duties of an AKE. I approve this employee to perform the duties of an AKE.	LAURA Nelson — CCP Site Project Manager *(printed name and signature)* — Date: 6-16-11

Approved for Content & Format: **Trey Greenwood (Approval on File)** — Cognizant Engineer — **06/08/2011** — Date

Approved for Content: **Richard Kantrowitz (Approval on File)** — CCP Lead or Alternate SPM — **06/08/2011** — Date

Approved for Use: **A.J. Fisher (Approval on File)** — CCP Manager Responsible for Training — **06/08/2011** — Date

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Acceptable Knowledge Expert (AKE) Qualification Card

Name: Travis Smith	**Badge Number:** [redacted]
Email Address: [redacted]	

Education / Experience	
Resume documenting education and experience on file with Central Characterization Project (CCP) Training.	Michele Billett 6/9/11 CCP Training Date

Job Specific Training	
Qualification Limit	There is no qualification time limit for this position. It is a one-time only requirement. Upon completion of this qualification card, the Trainee is qualified to perform all Acceptable Knowledge Expert duties, including the development of acceptable knowledge reports. If necessary, additional training may be required by the CCP Lead Site Project Manager (SPM) or the CCP Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the CCP Manager Responsible for Training. The candidate must successfully complete the entire CCP qualification card to re-establish qualification.
Requalification Requirements	Not required. See above statement.

Indoctrination	
WAP/QAPjP Briefing and Test.	Michele Billett 6/9/11 CCP Training Date

Initial/Indoctrination Reading:

1. NM4890139088, *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*
2. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
3. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
4. DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document*
5. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
6. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
7. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
8. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
9. CCP-QP-004, *CCP Corrective Action Management*
10. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
11. CCP-QP-006, *CCP Corrective Action Reporting and Control*
12. CCP-QP-008, *CCP Records Management*
13. CCP-QP-036, *CCP Qualification of Acceptable Knowledge for Remote-Handled Transuranic Waste Through a Quality Assurance Equivalency Demonstration*

Acceptable Knowledge Expert (AKE) Qualification Card

Name: Travis Smith **Badge Number:** [redacted]

Email Address: [redacted]

	14. CCP-TP-001, *CCP Project Level Data Validation and Verification* 15. CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data* 16. CCP-TP-005, *CCP Acceptable Knowledge Documentation* 17. CCP-TP-506, *CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report*
I have read the listed initial/indoctrination reading and understand my responsibilities as applicable to the procedures above.	Trainee Signature — Date: 6/8/2011

Formal Training Requirements	
RCRA Training Documentation	Michele Billett — CCP Training — Date: 6/9/11

Approvals	
I have completed formal training and received on-the-job training for this position. I fully understand my responsibilities as an AKE.	TRAVIS SMITH — Trainee *(printed name and signature)* — Date: 6/8/2011
This individual has shown proficiency in the implementation of the requirements for the preparation of Acceptable Knowledge Summary Reports as required by CCP-TP-005.	Trey Greenwood — AK Cognizant Manager *(printed name and signature)* — Date: 6/16/11
I have monitored the training of this individual and believe they are ready to perform the duties of an AKE. I approve this employee to perform the duties of an AKE.	LAURA NELSON — CCP Site Project Manager *(printed name and signature)* — Date: 6-10-11

Approved for Content & Format: **Trey Greenwood (Approval on File)** — Cognizant Engineer — **06/08/2011** Date

Approved for Content: **Richard Kantrowitz (Approval on File)** — CCP Lead or Alternate SPM — **06/08/2011** Date

Approved for Use: **A.J. Fisher (Approval on File)** — CCP Manager Responsible for Training — **06/08/2011** Date

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Site Project Manager (SPM) Qualification Card

Name: Rich Kantrowitz	Badge number: [redacted]

The requirements of this document are the result of an evaluation as described in CCP-QP-002, *CCP Training and Qualification Plan.*

Education / Experience

Trainee has been selected for this position based on their education, prior-experience, additional certifications, training, etc., as documented in the CCP training files.	[signature] 5/2/06 CCP Program Manager — Date

Job specific training

Qualification limit	There is no qualification limit for this position. This qualification is a one-time-only requirement. **Qualification is valid for the site(s) with completed addenda.** Trainee may qualify for additional sites as necessary by completing the appropriate addenda.	
Requalification requirements	There are no requalification requirements for this position. If performance in this position is interrupted, then cognizant manager will determine if requalification is required at time position is resumed.	
Indoctrination	1. WAP/QAPjP briefing and test 4/5/05	Cindi Becher 5/1/06 CCP Training — Date
	2. Hazardous Waste Code Assignments briefing and test	Cindi Becher 5/1/06 CCP Training — Date
	3. Solid and Soils Sampling and Analysis for Site Project Managers (SPM) and Site Project Quality Assurance Officers (SPQAO) briefing Att 1 See SOO-03, Rv 4 10/7/05	[signature] 5/2/06 Site Project Manager — Date
	4. NCR / CAR briefing (Provided by CCP/QA organization)	[signature] 5/2/06 CCP/QA organization — Date

Required reading:

Note: Site-specific required reading will be completed on applicable addenda for the site assigned (e.g., SPM-01a, *Savannah River Site*; SPM-01b, *Nevada Test Site;* etc.).

1. NM4890139088, *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Attachments B-B6*
2. DOE/CAO-95-1076, *Performance Demonstration Program Plan for Analysis of Simulated Headspace Gases*
3. DOE/CBFO-01-1005, *Performance Demonstration Program Plan for Nondestructive Assay of Drummed Wastes for the TRU Waste Characterization Program*
4. DOE/CBFO-01-3107, *Performance Demonstration Program Management*
5. DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document*
6. DOE/WIPP-02-3122, *Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
7. WP 08.NT.03, *Waste Stream Profile form*

Site Project Manager (SPM) Qualification Card

Name: Rich Kantrowitz | **Badge number:** [redacted]

8. CCP-CM-001, *CCP Equipment Documentation and Configuration Management*
9. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
10. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
11. CCP-PO-003, *CCP TRUPACT-II Authorized Methods for Payload Control (TRAMPAC)*
12. CCP-PO-005, *CCP Conduct of Operations*
13. CCP-PO-008, *CCP Quality Assurance Interface with the WTS Quality Assurance Program*
14. CCP-QP-002, *CCP Training and Qualification Plan*
15. CCP-QP-004, *CCP Corrective Action Management*
16. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
17. CCP-QP-006, *CCP Corrective Action Reporting and Control*
18. CCP-QP-008, *CCP Records Management*
19. CCP-QP-009, *CCP Work Control Process*
20. CCP-QP-010, *CCP Document Preparation, Approval and Control*
21. CCP-QP-011, *CCP Notebooks & Logbooks*
22. CCP-QP-015, *CCP Procurement*
23. CCP-QP-016, *CCP Control of Measuring, Testing, and Data Collection Equipment*
24. CCP-QP-018, *CCP Management Assessment*
25. CCP-QP-021, *CCP Surveillance Program*
26. CCP-QP-022, *CCP TRU Software Quality Assurance*
27. CCP-QP-023, *CCP Handling, Storage, and Shipping*
28. CCP-QP-027, *CCP Test Control*
29. CCP-QP-028, *CCP Records Filing, Inventory, Scheduling, and Dispositioning*
30. CCP-QP-030, *CCP Written Practice for the Qualification of CCP Helium Leak Detection*
31. CCP-TP-001, *CCP Project Level Data Validation and Verification*
32. CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*
33. CCP-TP-003, *CCP Sampling Design and Data Analysis for RCRA Characterization*
34. CCP-TP-005, *CCP Acceptable Knowledge Documentation*
35. CCP-TP-028, *CCP Radiographic Test and Training Drum Requirements*
36. CCP-TP-030, *CCP TRU Waste Certification and WWIS Data Entry*
37. CCP-TP-056, *CCP HSG Performance Demonstration Plan*
38. CCP-TP-058, *CCP NDA Performance Demonstration Plan*

Site Project Manager (SPM) Qualification Card

Name: Rich Kantrowitz **Badge number:** [redacted]

	I have read the listed required reading and understand my responsibilities as applicable to procedures above	Trainee signature: Rich Kantrowitz Date: 4/5/06
Formal training	**On-the-job training practical requirements**	**SME signature / date**
	1. Demonstrate proficiency in the review of headspace gas batch data (BDR) reports.[2]	073103A 120404A1 Adele Mlanta 4/25/06
	2. Demonstrate proficiency in the review of non-destructive examination (NDE) BDRs.[2]	SRRTR1669 SRRTR 1767 Adele Mlanta 4/25/06
	3. Demonstrate proficiency in the review of non-destructive assay (NDA) BDRs.[2]	SRNDA836 SRNDA870 Adele Mlanta 4/25/06
	4. Demonstrate proficiency in the review of visual examination (VE) BDRs.[2]	SRVEP60256 SRVEP60258 Adele Mlanta 4/25/06

Site Project Manager (SPM) Qualification Card

Name: Rich Kantrowitz	**Badge number:** [redacted]

Approvals		
I have completed required reading and formal training, and received on-the-job training for my job position. I fully understand my responsibilities as Site Project Manager.	Trainee signature	Date: 5/2/06
I approve this employee to perform the duties of Site Project Manager.	Cognizant Manager	Date: 5/2/06
Each SME/OJT instructor involved in the trainee validation of this OJT will print and sign their name in the respective blanks.	SME/OJT Instructor's printed name and signature	
	SME/OJT Instructor's printed name and signature	
This qualification card has been reviewed for completeness and signature verification by CCP Training.	CCP Training	Date: 5/2/06

1. Documentation in training file.
2. Proficiency will be demonstrated after the completion of BDR reviews in each discipline under the supervision of a qualified SPM.

Approved for format:

Rebecca Walker (original signature on file) **2-14-06**
CCP Training Date

Approved for content:

Larry Porter (original signature on file) **2-14-06**
CCP Site Project Manager Date

Approved for use:

Sherry Fabian for David Haar (original signature on file) **2-14-06**
Cognizant Manager Date

Reference CBFO CAR 08-004 for clarification of position qualification determination.
R. J. Walker 01-09-2008

Site Project Manager (SPM) Qualification Card

Addendum J – Oak Ridge National Laboratory

Name: Rich Kantrowitz **Badge number:** [redacted]

Email address: [redacted]

Indoctrination	Required reading: 1. All applicable acceptable knowledge summary reports for Oak Ridge National Laboratory (ORNL), including revisions and memoranda, as listed on the CCP ftp site. 2. CCP-PO-027, *CCP / ORNL Interface document* 3. CCP-TP-068, *CCP Container Management at the Idaho National Laboratory (INL)and TRU Waste Processing Center (TWPC)*	
	I have read the listed required reading and understand my responsibilities as applicable to procedures above	Trainee signature: Richard Kantrowitz 1/2/08 Date
Approvals		
I approve this employee to perform the duties of **Site Project Manager.**		Cognizant Manager: Mark Pearcy 1/2/08 Date (OP MP 1-2-08)
This qualification card has been reviewed for completeness and signature verification by CCP Training.		CCP Training: Rebecca Walker 1.3.08 Date

Approved for format: Rebecca Walker (original signature on file) July 20, 2007
CCP Training — Date

Approved for content: Mark Pearcy (original signature on file) July 20, 2007
CCP Site Project Manager — Date

Approved for use: Mike Sensibaugh (original signature on file) July 20, 2007
Cognizant Manager — Date

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Site Project Manager (SPM) Qualification Card

Name: Beverly Schrock **Badge Number:** [redacted]

Email Address: [redacted]

The requirements of this document are the result of an evaluation as described in CCP-QP-002, *CCP Training and Qualification Plan.*

Education / Experience

Trainee has been selected for this position based on their education, prior-experience, additional certifications, training, etc., as documented in the CCP training files.	Mark Pearcy Mark Pearcy CCP Program Manager	3/2/10 Date

Job Specific Training

Qualification Limit	There is no qualification limit for this position. This qualification is a one-time-only requirement. Upon completion of this core qualification card, the Trainee is qualified to perform SPM duties. Site specific qualification (i.e., BDR review) is valid for the site(s) with completed addenda. Unsatisfactory performance will result in disqualification. If unsatisfactory performance is determined, the qualification card and OJT process must be completed to re-establish qualification.
Requalification Requirements	Not required. See above statement.

Indoctrination

WAP/QAPjP Briefing and Test	Alyca Atwood CCP Training	3/8/10 Date
Hazardous Waste Code Assignments Briefing and Test	Alyca Atwood CCP Training	3/8/10 Date
Solid and Soils Sampling and Analysis for Site Project Managers (SPM) Briefing	Michael W. Lentine Site Project Manager	5/12/10 Date
NCR / CAR Briefing (Provided by CCP/QA Organization)	Christine M. Gomez CCP/QA Organization	3/10/10 Date
Statistical Sampling Briefing	Thomas R. Gallegos Site Project Manager	3/22/10 Date

Site Project Manager (SPM) Qualification Card

Name: Beverly Schrock **Badge Number:** [redacted]

Email Address: [redacted]

Contact-Handled Waste VE and RTR Training	Larry Porter Larry Porter 5/7/10 Site Project Manager Date
Incompatibles Determination Training Module	Michael W. Valentine 5/7/2010 Site Project Manager Date

Required Reading:

1. WP 08.NT.03, *Waste Stream Profile form*
2. CCP-CM-001, *CCP Equipment Change Authorization and Documentation*
3. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
4. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
5. CCP-PO-003, *CCP TRUPACT-II Authorized Methods for Payload Control (TRAMPAC)*
6. CCP-PO-005, *CCP Conduct of Operations*
7. CCP-PO-008, *CCP Quality Assurance Interface with the WTS Quality Assurance Program*
8. CCP-QP-002, *CCP Training and Qualification Plan*
9. CCP-QP-004, *CCP Corrective Action Management*
10. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
11. CCP-QP-006, *CCP Corrective Action Reporting and Control*
12. CCP-QP-008, *CCP Records Management*
13. CCP-QP-010, *CCP Document Preparation, Approval and Control*
14. CCP-QP-011, *CCP Notebooks & Logbooks*
15. CCP-QP-015, *CCP Procurement*
16. CCP-QP-016, *CCP Control of Measuring, Testing, and Data Collection Equipment*
17. CCP-QP-018, *CCP Management Assessment*
18. CCP-QP-022, *CCP TRU Software Quality Assurance*
19. CCP-QP-023, *CCP Handling, Storage, and Shipping*
20. CCP-QP-027, *CCP Test Control*
21. CCP-QP-028, *CCP Records Filing, Inventory, Scheduling, and Dispositioning*
22. CCP-QP-030, *CCP Written Practice for the Qualification of CCP Helium Leak Detection*
23. CCP-TP-001, *CCP Project Level Data Validation and Verification*
24. CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*
25. CCP-TP-003, *CCP Sampling Design and Data Analysis for RCRA Characterization*
26. CCP-TP-005, *CCP Acceptable Knowledge Documentation*
27. CCP-TP-028, *CCP Radiographic Test and Training Drum Requirements*
28. CCP-TP-030, *CCP TRU Waste Certification and WWIS Data Entry*
29. CCP-TP-056, *CCP HSG Performance Demonstration Plan*
30. CCP-TP-058, *CCP NDA Performance Demonstration Plan*
31. CCP-TP-160, *CCP Random Selection of Containers for Headspace Gas Sampling and Analysis*

Site Project Manager (SPM) Qualification Card

Name: Beverly Schrock	**Badge Number:** [redacted]
Email Address: [redacted]	

I have read the listed required reading and understand my responsibilities as applicable to the procedures above.	Beverly S. Schrock 5-7-10 Trainee Signature Date
CCP-PO-005 - Conduct of Operations Comprehensive Exam	Alyca Atwood 5/8/10 CCP Training Date

Formal Training	On-the-job Training Knowledge Requirements	SME Signature / Date
CCP-PO-001	1. Define the term "prohibited item" and give two examples of prohibited items.	Larry Porta 5/7/10
	2. Identify the document that permits WIPP to receive and store hazardous mixed TRU waste.	Larry Porta 5/7/10
	3. Identify the four major methods used by CCP to characterize TRU waste and briefly describe each method.	Larry Porta 5/7/10
	4. State three (3) instances when an NCR is required for non-destructive examination (NDE).	Larry Porta 5/7/10
	5. State when an NCR is written for visual examination (VE).	Larry Porta 5/7/10
	6. State when an NCR is written for headspace gas (HSG).	6/21/10
	7. State the difference between a "Z" qualifier and a "J" qualifier.	Adela M Canton 6/17/2010
	8. State when a "B" qualifier is used.	Adela M Canton 6/17/2010
	9. Describe the definition of VE of record according to New Mexico Environment Department (NMED). Provide an example.	6/21/10
	10. State when a duplicate waste drum is run.	6/21/10

* Individual forgot to date when correcting at time of qualification. BM 12/15/10

Site Project Manager (SPM) Qualification Card

Name: Beverly Schrock **Badge Number:** [redacted]

Email Address: [redacted]

CCP-PO-002	11. State when an NCR is written for non-destructive assay (NDA).	6/21/10
	12. State which document is the driver for NDA.	6/21/10
	13. Describe the information to look for in an NDA control chart during V & V review of an NDA batch data report.	6/21/10
CCP-QP-005	14. State one major purpose for the nonconformance control program.	6/21/10
	15. Identify who can initiate a non-conformance report (NCR).	6/21/10
CCP-TP-005	16. Define the term "acceptable knowledge" and state one use/purpose for acceptable knowledge.	6/21/10
	17. State where acceptable knowledge information is documented.	6/21/10
	18. Discuss the AK sufficiency elements.	6/21/10
	On-the-job Training Practical Requirements	**SME Signature / Date**
CCP-TP-001	1. Demonstrate proficiency in the review of headspace gas batch data (BDR) reports.[2]	Adele M Carter 6/17/2010
	2. Demonstrate proficiency in the review of non-destructive examination (NDE) BDRs.[2]	Adele M Carter 6/17/2010
	3. Demonstrate proficiency in the review of non-destructive assay (NDA) BDRs.[2]	6/22/2010
	4. Demonstrate proficiency in the review of visual examination (VE) BDRs.[2]	Adele M Carter 6/17/2010
CCP-TP-002	5. Complete a Characterization Information Summary (CIS).	6/22/10

[2] Proficiency will be demonstrated after the completion of BDR reviews in each discipline under the supervision of a qualified SPM.

Site Project Manager (SPM) Qualification Card

Name: Beverly Schrock **Badge Number:** [redacted]

Email Address: [redacted]

Approvals	
I have completed formal training and received on-the-job training for this position. I fully understand my responsibilities as an SPM.	Beverly S. Schrock Beverly S Schrock 6-22-10 Trainee *(printed name and signature)* Date
Validation by the SME/OJT instructor(s) involved in the training of this individual.	FGA, HSG, Totals (VOA, SVOC, Metals - detailed) RTR, VE. Adela M. Cantu Adela M Cantu 6/17/2010 SME/OJT Instructor *(printed name and signature)* Date
	Craig Simmons 6/22/2010 SME/OJT Instructor *(printed name and signature)* Date
I approve this employee to perform the duties of an SPM.	Richard Kantrowitz 6/22/10 CCP Site Project Manager *(printed name and signature)* Date
	Mark Pearcy Mark Pearcy 6/23/10 CCP Program Manager *(printed name and signature)* Date
This qualification card has been reviewed for completeness and signature verification by CCP Training.	Ryan Martin 6/23/10 CCP Training *(printed name and signature)* Date

Approved for Format: **Alyca Atwood** *(original signature on file)* 02-23-09
CCP Training Date

Approved for Content: **Craig Simmons** *(original signature on file)* 02-23-09
CCP Site Project Manager Date

Approved for Use: **R. A. Billett** *(original signature on file)* 02-23-09
CCP Program Manager Date

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Contact Handled (CH)
Site Project Manager (SPM)
Qualification Card

Name: Jake Knox

Education/Experience	
Resume documenting education and experience on file with National TRU Program Certification (NTPC) Training.	Cheryl A. Kruijo 10-18-13 NTPC Training Date

Job Specific Training	
Qualification Limit	There is no qualification limit for this position. This qualification is a one-time-only requirement. Upon completion of this core qualification card, the Trainee is qualified to perform Site Project Manager (SPM) duties for Contact Handled (CH) Waste. Unsatisfactory performance will result in disqualification. If unsatisfactory performance is determined, the complete qualification card, including the On-the-Job Training (OJT) portions, must be completed to re-establish qualification.
Requalification Requirements	Not required. See above statement.

Indoctrination

Initial/Indoctrination Reading:

1. WP 15-GM1002, *Issues Management Processing of WIPP Forms*
2. CCP-CM-001, *CCP Equipment Change Authorization and Documentation*
3. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
4. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
5. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
6. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
7. CCP-PO-050, *CCP TRUPACT-III TRU Waste Authorized Methods for Payload Control (CCP TRUPACT-III TRAMPAC)*
8. CCP-QP-002, *CCP Training and Qualification Plan*
9. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
10. CCP-QP-008, *CCP Records Management*
11. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
12. CCP-QP-015, *CCP Procurement*
13. CCP-QP-016, *CCP Control of Measuring and Testing Equipment*
14. CCP-QP-018, *CCP Management Assessment*
15. CCP-QP-022, *CCP Software Quality Assurance Plan*
16. CCP-QP-023, *CCP Handling, Storage, and Shipping*
17. CCP-QP-027, *CCP Test Control*
18. CCP-QP-028, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning*
19. CCP-TP-001, *CCP Project Level Data Validation and Verification*
20. CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*
21. CCP-TP-005, *CCP Acceptable Knowledge Documentation*
22. CCP-TP-028, *CCP Radiographic Test Drum and Training Container Construction*
23. CCP-TP-030, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry*

Contact Handled (CH)
Site Project Manager (SPM)
Qualification Card

Name: Jake Knox

24. CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*
25. CCP-TP-058, *CCP NDA Performance Demonstration Program*
26. CCP-TP-113, *CCP Standard Contact-Handled Waste Visual Examination*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	Trainee	Date: 10-23-13

Additional Training Requirements

CCP-PO-001	1. WAP/QAPjP Briefing and Test	NTPC Training	Date: 10-18-13
Haz-Waste-101	2. Hazardous Waste Identification (Self-Paced Module)	NTPC Training	Date: 10-23-13
CCP-VE-101	3. Visual Examination (VE) TRU Waste Characterization Briefing	NTPC Training	Date: 10-18-13
CCP-RTR-101	4. Real-Time Radiography (RTR) TRU Waste Characterization Briefing	NTPC Training	Date: 10-18-13

Formal Training	OJT Knowledge Requirements	Subject Matter Expert (SME)/OJT Signature/Date
CCP-PO-001	1. State the regulator who governs hazardous waste.	10/9/13
	2. Define the term "prohibited item" and give five examples of prohibited items.	10/9/13
	3. Identify the document allowing Waste Isolation Pilot Plant (WIPP) to receive and store TRU-mixed waste.	10/9/13
	4. Identify and describe the three major methods used to characterize TRU waste.	10/9/13
	5. State the Data Quality Objectives (DQOs) for VE/RTR.	10/9/13
	6. Name at least 2 DQOs for Acceptable Knowledge (AK).	10/9/13
	7. State the five (5) Quality Assurance Objectives (QAOs).	10/9/13

Contact Handled (CH)
Site Project Manager (SPM)
Qualification Card

Name: Jake Knox

CCP-PO-002	8. Define waste stream.	10-9-13
	9. Define waste matrix code.	10-9-13
	10. Describe the three (3) summary category groups.	10-9-13
	11. Define TRU waste.	David W Moody 9 oct 13
	12. Define TRU-mixed waste.	David W Moody 9 oct 13
	13. List the 10 radionuclides that must be reported.	David W Moody 9 oct 13
	14. List the agency which governs radiological waste.	David W Moody 9 oct 13
	15. State which document is the driver for non-destructive assay (NDA).	David W Moody 9 oct 13
	16. State which type of radioactive waste is accepted at the WIPP (limited by The Land Withdrawal Act, as stated in the WIPP Waste Acceptance Criteria (WAC)).	David W Moody 9 oct 13
CCP-QP-005	17. State one major purpose for the nonconformance control program.	Mark Peacey 10/22/2013
	18. Identify who can initiate a non-conformance report (NCR).	Mark Peacey 10/22/2013
	19. Explain the difference between a final disposition of 'Use As Is' and 'Rework.'	Mark Peacey 10/22/2013
	20. Describe the process if an NCR generated at Project Level is determined to be "reportable."	Mark Peacey 10/22/2013
WP 15-GM1002	21. Describe the purpose of the WIPP Form process.	Mark Peacey 10/22/2013
	22. State the person responsible for originating a WIPP Form.	Mark Peacey 10/22/2013
	23. Describe how WIPP Forms are documented.	Mark Peacey 10/22/2013
	24. Describe who has responsibility for processing WIPP Forms, approving Corrective Action Plans, and approving closure of WIPP Forms.	Mark Peacey 10/22/2013

Contact Handled (CH)
Site Project Manager (SPM)
Qualification Card

Name: Jake Knox

CCP-TP-001	25. Describe actions personnel may take when conditions adverse to quality are discovered.	Mark Pearcy 10/22/2013
	26. State which characterization data requires SPM review and validation and verification.	Mark Pearcy 10/22/2013
	27. State the percentage of Batch Data Reports (BDRs) that must undergo SPM review.	10/23/13
	28. Explain when it is allowed to review BDRs with containers not on the AK Tracking Spreadsheet.	10/23/13
	29. State when an SPM must provide comments or justifications when completing an SPM checklist.	10/23/13
	30. Explain the differences between "editorial" changes and "data affecting" changes.	Mark Pearcy 10/22/2013
	31. State how the SPM documents the data generation level (DGL) data review, validation, and verification is being performed in accordance with applicable procedures.	10/23/13
CCP-TP-002	32. Discuss the components of a Characterization Information Summary (CIS).	10-24-13
CCP-TP-005	33. Define the term "acceptable knowledge" and state one use/purpose for acceptable knowledge.	10-23-13
	34. State where acceptable knowledge information is documented.	10-24-13
	35. Discuss the AK sufficiency elements.	10-24-13
	36. State the purpose of the NDA Memo and who assists in its generation.	Mark Pearcy 10/22/2013
Formal Training	**OJT Practical Requirements**	**SME/OJT Signature/Date**
CCP-TP-001	1. Demonstrate proficiency in the review of RTR BDRs.[1]	LA-HERTR-13-0197 10/23/13
	2. Demonstrate proficiency in the review of NDA BDRs.[1]	SRLBC1033 10/23/13
	3. Demonstrate proficiency in the review of VE BDRs.[1]	EM-ARP-12-002818 10/23/13

[1] Proficiency will be demonstrated after the completion of BDR reviews in each discipline under the supervision of a qualified SPM SME.

Contact Handled (CH)
Site Project Manager (SPM)
Qualification Card

Name: Jake Knox

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a CH SPM.	Jake Knox 10-23-13 Trainee *(printed name and signature)* — Date
I have monitored the training of this individual and believe they are ready to perform the duties of a CH SPM. *(Validation by the SME/OJT instructor(s) involved in the training of this individual.)*	David W Moody 10/23/13 SME/OJT Instructor *(printed name and signature)* — Date Mark Pearcy 10/22/2013 SME/OJT Instructor *(printed name and signature)* — Date
I approve this employee to perform the duties of a CH SPM.	Mark Pearcy 10/23/2013 SPM *(printed name and signature)* — Date

Approved for Content & Format: **Richard Kantrowitz *(Approval on File)*** — **10/07/2013**
SME/OJT — Date

Approved for Content: **Mark Pearcy *(Approval on File)*** — **10/07/2013**
SPM — Date

Approved for Applicability, Content, Format, & Use: **A.J. Fisher *(Approval on File)*** — **10/07/2013**
Manager Responsible for Training — Date

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Remote Handled (RH) Site Project Manager (SPM) Qualification Card

Name: Laura Nelson	**Badge Number:** [redacted]
Email Address: [redacted]	

Education/Experience

Resume documenting education and experience on file with Central Characterization Project (CCP) Training.	Michele Bissett 6/22/10 CCP Training Date

Job Specific Training

Qualification Limit	There is no qualification limit for this position. This qualification is a one-time-only requirement. Upon completion of this core qualification card, the Trainee is qualified to perform Site Project Manager (SPM) duties for Remote Handled Waste. Unsatisfactory performance will result in disqualification. If unsatisfactory performance is determined, the qualification card and on-the-job training (OJT) process must be completed to re-establish qualification.
Requalification Requirements	Not required. See above statement.

Indoctrination

Initial/Indoctrination Reading:

1. DOE / WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan (WCPIP)*
2. CCP-CM-001, *CCP Equipment Change Authorization and Documentation*
3. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
4. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
5. CCP-PO-008, *CCP Quality Assurance Interface with the WTS Quality Assurance Program*
6. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
7. CCP-QP-002, *CCP Training and Qualification Plan*
8. CCP-QP-004, *CCP Corrective Action Management*
9. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
10. CCP-QP-006, *CCP Corrective Action Reporting and Control*
11. CCP-QP-008, *CCP Records Management*
12. CCP-QP-010, *CCP Document Preparation, Approval and Control*
13. CCP-QP-011, *CCP Laboratory Logbooks*
14. CCP-QP-015, *CCP Procurement*
15. CCP-QP-016, *CCP Control of Measuring and Testing Equipment*
16. CCP-QP-018, *CCP Management Assessment*
17. CCP-QP-022, *CCP Software Quality Assurance Plan*
18. CCP-QP-023, *CCP Handling, Storage, and Shipping*
19. CCP-QP-027, *CCP Test Control*
20. CCP-QP-028, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning*

Remote Handled (RH)
Site Project Manager (SPM)
Qualification Card

Name: Laura Nelson **Badge Number:** [redacted]

Email Address: [redacted]

21. CCP-QP-030, *CCP Written Practice for the Qualification of CCP Helium Leak Detection Personnel*
22. CCP-QP-036, *CCP Qualification of Acceptable Knowledge for Remote-Handled Transuranic Waste Through a Quality Assurance Equivalency Demonstration*
23. CCP-TP-001, *CCP Project Level Data Validation and Verification*
24. CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*
25. CCP-TP-003, *CCP Data Analysis for S3000, S4000, and S5000 Characterization*
26. CCP-TP-005, *CCP Acceptable Knowledge Documentation*
27. CCP-TP-028, *CCP Radiographic Test and Training Drum Construction*
28. CCP-TP-056, *CCP HSG Performance Demonstration Plan*
29. CCP-TP-058, *CCP NDA Performance Demonstration Program*
30. CCP-TP-162, *CCP Random Selection of Containers for Solids and Headspace Gas Sampling and Analysis*
31. CCP-TP-163, *CCP Standard Waste Visual Examination*
32. CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*
33. CCP-TP-504, *CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste*
34. CCP-TP-506, *CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report*
35. CCP-TP-508, *CCP Standard Real-Time Radiography Inspection Procedure*
36. CCP-TP-509, *CCP Remote-Handled Transuranic Container Tracking*
37. CCP-TP-510, *CCP Remote-Handled Radiography Test and Training Drum Requirements*
38. CCP-TP-511, *CCP Peer Review*
39. CCP-TP-512, *CCP Remote-Handled Waste Sampling*
40. CCP-TP-530, *CCP RH TRU Waste Certification and WWIS Data Entry*

I have read the listed initial/indoctrination reading and understand my responsibilities as applicable to the procedures above.

Laura Nel — Trainee Signature — 6/21/10 Date

Document	Additional Training Requirements		
CCP-PO-001	1. WAP/QAPjP Briefing and Test 4/1/10	Michele Billett — CCP Training	6/21/10 Date
	2. Hazardous Waste Number Assignments Briefing and Test 4/1/10	Michele Billett — CCP Training	6/21/10 Date
	3. Solid and Soils Sampling and Analysis for Site Project Managers (SPM) Briefing	Hilario J. Nevarez — CCP SPM	6-22-10 Date

Remote Handled (RH)
Site Project Manager (SPM)
Qualification Card

Name: Laura Nelson **Badge Number:** [redacted]

Email Address: [redacted]

	4. Statistical Sampling Briefing	Thomas P. Gatliffe 6/22/10 CCP SPM Date
	5. NCR/CAR Briefing (Provided by CCP/QA Organization)	Christine McKinney 6/22/10 CCP/QA Organization Date
CCP-VE-101	6. Visual Examination (VE) TRU Waste Characterization Briefing	Larry Porter Larry Porter 6/22/10 CCP SPM Date
CCP-RTR-101	7. Real-Time Radiography TRU Waste Characterization Briefing.	Larry Porter Larry Porter 6/22/10 CCP SPM Date
	8. Incompatibles Determination Training Module	Larry Porter Larry Porter 6/22/10 CCP SPM Date

Formal Training	OJT Knowledge Requirements	Subject Matter Expert (SME) Signature/Date
DOE/WIPP 02-3214	1. Define Environmental Protection Agency's (EPA) definition of Visual Examination (VE) of record. Provide an example.	Irene Price 6/17/10
	2. Explain how CCP-TP-500 satisfies the EPA and New Mexico Environmental Department (NMED) criteria.	Irene Price 6/17/10
	3. State the Data Quality Objectives (DQO) and Quality Assurance Objectives (QAO) for each characterization method (e.g., Dose-to-Curie, VE).	Irene Price 6/17/10
	4. State the purpose of CCP-TP-506.	Irene Price 6/17/10
CCP-PO-001	5. Define the term "prohibited item" and give two examples of prohibited items.	Irene Price 6/17/10
	6. Identify the document allowing WIPP to receive and store TRU-mixed waste.	Irene Price 6/17/10

Remote Handled (RH)
Site Project Manager (SPM)
Qualification Card

Name: Laura Nelson **Badge Number:** [redacted]

Email Address: [redacted]

	7. Identify and describe the four major methods used by CCP to characterize TRU waste.	Laura Nelson 6/17/10
	8. State three (3) instances when a nonconformance report (NCR) is required for Real-Time Radiography (RTR).	Laura Nelson 6/17/10
	9. State when an NCR is written for VE.	Laura Nelson 6/17/10
	10. State when an NCR is written for Headspace Gas (HSG) Sampling and Analysis.	Laura Nelson 6/17/10
	11. State the difference between a "Z" qualifier and a "J" qualifier.	Laura Nelson 6/17/10
	12. State when a "B" qualifier is used.	Laura Nelson 6/17/10
	13. State when a replicate waste drum is run in RTR.	Laura Nelson 6/17/10
CCP-PO-002	14. State which sites are authorized to ship PCB waste.	Laura Nelson 6/17/10
	15. State the maximum allowed curies per liter activity level (averaged over the volume of the canister).	Laura Nelson 6/17/10
	16. State if machine-compacted waste is allowed to ship to the Waste Isolation Pilot Plant (WIPP).	Laura Nelson 6/17/10
CCP-QP-005	17. State one major purpose for the nonconformance control program.	Laura Nelson 6/17/10
	18. Identify who can initiate an NCR.	Laura Nelson 6/17/10
CCP-QP-008	19. List the responsibilities of record generators.	Laura Nelson 6/17/10

Remote Handled (RH)
Site Project Manager (SPM)
Qualification Card

Name: Laura Nelson		Badge Number: [redacted]
Email Address: [redacted]		
CCP-QP-010	20. State the storage and control requirements for CCP records.	Dene Q. Nelson 6/17/10
	21. Explain the process and proper method to make corrections or revisions to CCP records.	Dene Q. Nelson 6/17/10
	22. State the importance of using approved documents.	Dene Q. Nelson 6/17/10
	23. State when to verify a document revision.	Dene Q. Nelson 6/17/10
CCP-PO-505	24. Discuss the differences in the transportation requirement for RH-TRU 72-B and CNS 10-160B versus the TRUPACT-II.	Dene Q. Nelson 6/17/10
CCP-TP-511	25. State the peer review requirements.	Dene Q. Nelson 6/17/10
CCP-TP-512	26. Discuss the QAOs for radiochemistry and ICP-MS batch data report (BDR).	Dene Q. Nelson 6/17/10
Formal Training	**OJT Practical Requirements**	**SME Signature/Date**
CCP-TP-002	1. Demonstrate proficiency of characterization information summary reports.	Dene Q. Nelson 6/17/10
CCP-TP-500	2. Demonstrate proficiency in review of the RH visual examination BDRs.	Dene Q. Nelson 6/17/10
CCP-TP-504	3. Demonstrate proficiency in the review of "Dose-to-Curie" BDR.	Dene Q. Nelson 6/17/10
CCP-TP-506	4. Complete a Characterization Reconciliation Report (CRR).	Dene Q. Nelson 6/17/10

Remote Handled (RH)
Site Project Manager (SPM)
Qualification Card

Name: Laura Nelson		**Badge Number:** [redacted]
Email Address: [redacted]		
CCP-TP-508	5. Demonstrate proficiency in review of the RH Real-time Radiography (RTR) BDRs.	6/17/10
	6. Demonstrate the verification of a container meeting the applicable content code limit.	6/17/10
CCP-TP-512	7. Demonstrate proficiency in the review of "Remote-Handled Waste Sample" BDR.	6/17/10

Remote Handled (RH)
Site Project Manager (SPM)
Qualification Card

Name: Laura Nelson **Badge Number:** [redacted]

Email Address: [redacted]

Approvals	
I have completed formal training and received on-the-job training for this position. I fully understand my responsibilities as a RH SPM.	LAURA NELSON Laura Nelson 6/22/10 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RH SPM. *(Signature validation by the SME/OJT instructor(s) involved in the training of this individual)*	Irene Quintana Irene Quintana 6/21/10 SME/OJT Instructor *(printed name and signature)* Date N/A SME/OJT Instructor *(printed name and signature)* Date
I approve this employee to perform the duties of a RH SPM.	LQ 4/20/11 * Irene Quintana Irene Quintana 6/21/10 CCP Lead or Alternate SPM *(printed name and signature)* Date

Approved for Content & Format: **Approval on file** **6/17/2010**
RH SPM SME *(printed name and signature)* Date

Approved for Content: **Approval on file** **6/17/2010**
CCP Lead or Alternate SPM *(printed name and signature)* Date

Approved for Use: **Approval on file** **6/17/2010**
CCP Manager Responsible for Training *(printed name and signature)* Date

* Briefings under the Additional Training Requirement was performed 6/22/10. The CCP Lead or alternate SPM date of 6/21/10 was recorded inadvertently. LQ 4/22/11

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Contact Handled (CH)
Site Project Manager (SPM)
Qualification Card

Name: Daniel Wade

Education/Experience	
Resume documenting education and experience on file with National TRU Program Certification (NTPC) Training.	Cheryl Bruyère 10-23-13 NTPC Training Date

Job Specific Training	
Qualification Limit	There is no qualification limit for this position. This qualification is a one-time-only requirement. Upon completion of this core qualification card, the Trainee is qualified to perform Site Project Manager (SPM) duties for Contact Handled (CH) Waste. Unsatisfactory performance will result in disqualification. If unsatisfactory performance is determined, the complete qualification card, including the On-the-Job Training (OJT) portions, must be completed to re-establish qualification.
Requalification Requirements	Not required. See above statement.

Indoctrination

Initial/Indoctrination Reading:

1. WP 15-GM1002, *Issues Management Processing of WIPP Forms*
2. CCP-CM-001, *CCP Equipment Change Authorization and Documentation*
3. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
4. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
5. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
6. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
7. CCP-PO-050, *CCP TRUPACT-III TRU Waste Authorized Methods for Payload Control (CCP TRUPACT-III TRAMPAC)*
8. CCP-QP-002, *CCP Training and Qualification Plan*
9. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
10. CCP-QP-008, *CCP Records Management*
11. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
12. CCP-QP-015, *CCP Procurement*
13. CCP-QP-016, *CCP Control of Measuring and Testing Equipment*
14. CCP-QP-018, *CCP Management Assessment*
15. CCP-QP-022, *CCP Software Quality Assurance Plan*
16. CCP-QP-023, *CCP Handling, Storage, and Shipping*
17. CCP-QP-027, *CCP Test Control*
18. CCP-QP-028, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning*
19. CCP-TP-001, *CCP Project Level Data Validation and Verification*
20. CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*
21. CCP-TP-005, *CCP Acceptable Knowledge Documentation*
22. CCP-TP-028, *CCP Radiographic Test Drum and Training Container Construction*
23. CCP-TP-030, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry*

Contact Handled (CH)
Site Project Manager (SPM)
Qualification Card

Name: Daniel Wade

24. CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*
25. CCP-TP-058, *CCP NDA Performance Demonstration Program*
26. CCP-TP-113, *CCP Standard Contact-Handled Waste Visual Examination*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	Daniel Wade 10/21/13 Trainee Date

Additional Training Requirements

CCP-PO-001	1. WAP/QAPjP Briefing and Test	Michele Billett 10/21/13 NTPC Training Date
Haz-Waste-101	2. Hazardous Waste Identification (Self-Paced Module)	Cheryl Armijo 10-21-13 NTPC Training Date
CCP-VE-101	3. Visual Examination (VE) TRU Waste Characterization Briefing	Cheryl Armijo 10-09-13 NTPC Training Date
CCP-RTR-101	4. Real-Time Radiography (RTR) TRU Waste Characterization Briefing	Cheryl Armijo 10-09-13 NTPC Training Date

Formal Training	OJT Knowledge Requirements	Subject Matter Expert (SME)/OJT Signature/Date
CCP-PO-001	1. State the regulator who governs hazardous waste.	10/19/13
	2. Define the term "prohibited item" and give five examples of prohibited items.	10/19/13
	3. Identify the document allowing Waste Isolation Pilot Plant (WIPP) to receive and store TRU-mixed waste.	10/19/13
	4. Identify and describe the three major methods used to characterize TRU waste.	10/19/13
	5. State the Data Quality Objectives (DQOs) for VE/RTR.	10/19/13
	6. Name at least 2 DQOs for Acceptable Knowledge (AK).	10/19/13
	7. State the five (5) Quality Assurance Objectives (QAOs).	10/19/13

Contact Handled (CH)
Site Project Manager (SPM)
Qualification Card

Name: Daniel Wade

	8. Define waste stream.	10/9/13
	9. Define waste matrix code.	10/9/13
	10. Describe the three (3) summary category groups.	10/9/13
CCP-PO-002	11. Define TRU waste.	David W Moody 9 Oct 13
	12. Define TRU-mixed waste.	David W Moody 9 Oct 13
	13. List the 10 radionuclides that must be reported.	David W Moody 9 Oct 13
	14. List the agency which governs radiological waste.	David W Moody 9 Oct 13
	15. State which document is the driver for non-destructive assay (NDA).	David W Moody 9 Oct 13
	16. State which type of radioactive waste is accepted at the WIPP (limited by The Land Withdrawal Act, as stated in the WIPP Waste Acceptance Criteria (WAC)).	David W Moody 9 Oct 13
CCP-QP-005	17. State one major purpose for the nonconformance control program.	Mark Peacey 10/22/2013
	18. Identify who can initiate a non-conformance report (NCR).	Mark Peacey 10/22/2013
	19. Explain the difference between a final disposition of "Use As Is" and "Rework."	Mark Peacey 10/22/2013
	20. Describe the process if an NCR generated at Project Level is determined to be "reportable."	Mark Peacey 10/22/2013
WP 15-GM1002	21. Describe the purpose of the WIPP Form process.	Mark Peacey 10/22/2013
	22. State the person responsible for originating a WIPP Form.	Mark Peacey 10/22/2013
	23. Describe how WIPP Forms are documented.	Mark Peacey 10/22/2013
	24. Describe who has responsibility for processing WIPP Forms, approving Corrective Action Plans, and approving closure of WIPP Forms.	Mark Peacey 10/22/2013

Contact Handled (CH)
Site Project Manager (SPM)
Qualification Card

Name: Daniel Wade

CCP-TP-001	25. Describe actions personnel may take when conditions adverse to quality are discovered.	Mark Pearcy 10/22/2013
	26. State which characterization data requires SPM review and validation and verification.	Mark Pearcy 10/22/2013
	27. State the percentage of Batch Data Reports (BDRs) that must undergo SPM review.	10/23/13
	28. Explain when it is allowed to review BDRs with containers not on the AK Tracking Spreadsheet.	10/23/13
	29. State when an SPM must provide comments or justifications when completing an SPM checklist.	10/23/13
	30. Explain the differences between "editorial" changes and "data affecting" changes.	Mark Pearcy 10/22/2013
	31. State how the SPM documents the data generation level (DGL) data review, validation, and verification is being performed in accordance with applicable procedures.	10/23/13
CCP-TP-002	32. Discuss the components of a Characterization Information Summary (CIS).	10-14-13
CCP-TP-005	33. Define the term "acceptable knowledge" and state one use/purpose for acceptable knowledge.	10/23/13
	34. State where acceptable knowledge information is documented.	10/23/13
	35. Discuss the AK sufficiency elements.	10/23/13
	36. State the purpose of the NDA Memo and who assists in its generation.	Mark Pearcy 10/22/2013
Formal Training	**OJT Practical Requirements**	**SME/OJT Signature/Date**
CCP-TP-001	1. Demonstrate proficiency in the review of RTR BDRs.[1]	LA-MRATR-13-0107 10/23/13
	2. Demonstrate proficiency in the review of NDA BDRs.[1]	SRLBC1033 10/23/13
	3. Demonstrate proficiency in the review of VE BDRs.[1]	IN-TRP.VE-002918 10/23/13

[1] Proficiency will be demonstrated after the completion of BDR reviews in each discipline under the supervision of a qualified SPM-SME.

Contact Handled (CH)
Site Project Manager (SPM)
Qualification Card

Name: Daniel Wade

Approvals		
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a CH SPM.	Daniel Wade Trainee *(printed name and signature)*	10/23/13 Date
I have monitored the training of this individual and believe they are ready to perform the duties of a CH SPM. *(Validation by the SME/OJT instructor(s) involved in the training of this individual.)*	David W Moody Jim Vernon SME/OJT Instructor *(printed name and signature)*	4 Oct 13 10/9/13 Date
	Richard Kantrowitz SME/OJT Instructor *(printed name and signature)*	10/23/13 Date
	Mark Pearcy SME/OJT Instructor *(printed name and signature)*	10/22/2013 Date
I approve this employee to perform the duties of a CH SPM.	Mark Pearcy SPM *(printed name and signature)*	10/23/2013 Date

Approved for Content & Format: **Richard Kantrowitz** ***(Approval on File)*** **10/07/2013**
SME/OJT — Date

Approved for Content: **Mark Pearcy** ***(Approval on File)*** **10/07/2013**
SPM — Date

Approved for Applicability, Content, Format, & Use: **A.J. Fisher** ***(Approval on File)*** **10/07/2013**
Manager Responsible for Training — Date

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Site Project Manager (SPM) Qualification Card

Name: Laura Nelson	**Badge Number:** [redacted]
Email Address: [redacted]	

The requirements of this document are the result of an evaluation as described in CCP-QP-002, *CCP Training and Qualification Plan.*

Education / Experience

Trainee has been selected for this position based on their education, prior-experience, additional certifications, training, etc., as documented in the CCP training files.	Mark Pearcy Mark Pearcy 4-8-10 CCP Program Manager — Date

Job Specific Training

Qualification Limit	There is no qualification limit for this position. This qualification is a one-time-only requirement. Upon completion of this core qualification card, the Trainee is qualified to perform SPM duties. Site specific qualification (i.e., BDR review) is valid for the site(s) with completed addenda. * see below Unsatisfactory performance will result in disqualification. If unsatisfactory performance is determined, the qualification card and OJT process must be completed to re-establish qualification.
Requalification Requirements	Not required. See above statement.

Indoctrination

WAP/QAPjP Briefing and Test 4/1/10	Michele Billett 6/21/10 CCP Training — Date
Hazardous Waste Code Assignments Briefing and Test 4/1/10	Michele Billett 6/21/10 CCP Training — Date
Solid and Soils Sampling and Analysis for Site Project Managers (SPM) Briefing	Michael Valentine 5/12/10 Site Project Manager — Date
NCR / CAR Briefing (Provided by CCP/QA Organization)	Kristen Gomez 4/8/10 CCP/QA Organization — Date
Statistical Sampling Briefing	4/9/10 Site Project Manager — Date

Trainee started qualification prior to revision of qualcard. Based on new process defined in CCP-QP-002 addendum are no longer applicable and the trainee is a qualified SPM. Terry Foster 6/21/10

Site Project Manager (SPM) Qualification Card

Name: Laura Nelson **Badge Number:** [redacted]

Email Address: [redacted]

Contact-Handled Waste VE and RTR Training	Larry Porter Larry Porter 6/4/10 Site Project Manager Date
Incompatibles Determination Training Module	Michael Wolverton 5/12/10 Site Project Manager Date

Required Reading:

1. WP 08.NT.03, *Waste Stream Profile form*
2. CCP-CM-001, *CCP Equipment Change Authorization and Documentation*
3. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
4. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
5. CCP-PO-003, *CCP TRUPACT-II Authorized Methods for Payload Control (TRAMPAC)*
6. CCP-PO-005, *CCP Conduct of Operations*
7. CCP-PO-008, *CCP Quality Assurance Interface with the WTS Quality Assurance Program*
8. CCP-QP-002, *CCP Training and Qualification Plan*
9. CCP-QP-004, *CCP Corrective Action Management*
10. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
11. CCP-QP-006, *CCP Corrective Action Reporting and Control*
12. CCP-QP-008, *CCP Records Management*
13. CCP-QP-010, *CCP Document Preparation, Approval and Control*
14. CCP-QP-011, *CCP Notebooks & Logbooks*
15. CCP-QP-015, *CCP Procurement*
16. CCP-QP-016, *CCP Control of Measuring, Testing, and Data Collection Equipment*
17. CCP-QP-018, *CCP Management Assessment*
18. CCP-QP-022, *CCP TRU Software Quality Assurance*
19. CCP-QP-023, *CCP Handling, Storage, and Shipping*
20. CCP-QP-027, *CCP Test Control*
21. CCP-QP-028, *CCP Records Filing, Inventory, Scheduling, and Dispositioning*
22. CCP-QP-030, *CCP Written Practice for the Qualification of CCP Helium Leak Detection*
23. CCP-TP-001, *CCP Project Level Data Validation and Verification*
24. CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*
25. CCP-TP-003, *CCP Sampling Design and Data Analysis for RCRA Characterization*
26. CCP-TP-005, *CCP Acceptable Knowledge Documentation*
27. CCP-TP-028, *CCP Radiographic Test and Training Drum Requirements*
28. CCP-TP-030, *CCP TRU Waste Certification and WWIS Data Entry*
29. CCP-TP-056, *CCP HSG Performance Demonstration Plan*
30. CCP-TP-058, *CCP NDA Performance Demonstration Plan*
31. CCP-TP-160, *CCP Random Selection of Containers for Headspace Gas Sampling and Analysis*

Site Project Manager (SPM)
Qualification Card

Name: Laura Nelson	**Badge Number:** [redacted]
Email Address: [redacted]	

I have read the listed required reading and understand my responsibilities as applicable to the procedures above.	Laura Nelson 4/8/2010 Trainee Signature Date
CCP-PO-005 - Conduct of Operations Comprehensive Exam 4-5-10	Michael Billett 6/21/10 CCP Training Date

Formal Training	On-the-job Training Knowledge Requirements	SME Signature / Date
CCP-PO-001	1. Define the term "prohibited item" and give two examples of prohibited items.	4/9/2010
	2. Identify the document that permits WIPP to receive and store hazardous mixed TRU waste.	4/9/2010
	3. Identify the four major methods used by CCP to characterize TRU waste and briefly describe each method.	4/9/2010
	4. State three (3) instances when an NCR is required for non-destructive examination (NDE).	4/9/2010
	5. State when an NCR is written for visual examination (VE).	4/9/2010
	6. State when an NCR is written for headspace gas (HSG).	4/9/2010
	7. State the difference between a "Z" qualifier and a "J" qualifier.	4/9/2010
	8. State when a "B" qualifier is used.	4/9/2010
	9. Describe the definition of VE of record according to New Mexico Environment Department (NMED). Provide an example.	4/9/2010
	10. State when a duplicate waste drum is run.	4/9/2010

Site Project Manager (SPM) Qualification Card

Name: Laura Nelson **Badge Number:** [redacted]

Email Address: [redacted]

CCP-PO-002	11. State when an NCR is written for non-destructive assay (NDA).	4/9/2010
	12. State which document is the driver for NDA.	4/9/2010
	13. Describe the information to look for in an NDA control chart during V & V review of an NDA batch data report.	6/14/10
CCP-QP-005	14. State one major purpose for the nonconformance control program.	6/14/10
	15. Identify who can initiate a non-conformance report (NCR).	4/9/2010
CCP-TP-005	16. Define the term "acceptable knowledge" and state one use/purpose for acceptable knowledge.	4/9/2010
	17. State where acceptable knowledge information is documented.	4/9/2010
	18. Discuss the AK sufficiency elements.	6/15/10
	On-the-job Training Practical Requirements	**SME Signature / Date**
CCP-TP-001	1. Demonstrate proficiency in the review of headspace gas batch data (BDR) reports.[2]	6/14/10
	2. Demonstrate proficiency in the review of non-destructive examination (NDE) BDRs.[2]	6/15/10
	3. Demonstrate proficiency in the review of non-destructive assay (NDA) BDRs.[2]	6/14/10
	4. Demonstrate proficiency in the review of visual examination (VE) BDRs.[2]	6/15/10
CCP-TP-002	5. Complete a Characterization Information Summary (CIS).	6/17/10

[2] Proficiency will be demonstrated after the completion of BDR reviews in each discipline under the supervision of a qualified SPM.

Site Project Manager (SPM) Qualification Card

Name: Laura Nelson	**Badge Number:** [redacted]
Email Address: [redacted]	

Approvals	
I have completed formal training and received on-the-job training for this position. I fully understand my responsibilities as an SPM.	6-21-10 Laura Laura Nelson 6/21/10 Trainee *(printed name and signature)* Date
Validation by the SME/OJT instructor(s) involved in the training of this individual.	Craig Simmons 6/21/10 SME/OJT Instructor *(printed name and signature)* Date
	Michael Wolaver 6/15/10 SME/OJT Instructor *(printed name and signature)* Date
I approve this employee to perform the duties of an SPM.	Hillari J. Neely 6-21-10 CCP Site Project Manager *(printed name and signature)* Date
	Michael L. Sansborn 6-21-10 ~~6-20-10~~ ~~6-20-10~~ MS 6-21-10 CCP Program Manager *(printed name and signature)* Date
This qualification card has been reviewed for completeness and signature verification by CCP Training.	Larry Porter 6-21-10 CCP Training *(printed name and signature)* Date

Approved for Format: **Alyca Atwood** *(original signature on file)* **02-23-09**
CCP Training Date

Approved for Content: **Craig Simmons** *(original signature on file)* **02-23-09**
CCP Site Project Manager Date

Approved for Use: **R. A. Billett** *(original signature on file)* **02-23-09**
CCP Program Manager Date

Table C6-2 Acceptable Knowledge (AK) Checklist
ORNL/CCP Audit A-14-03
January 14-16, 2014

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Acceptable Knowledge (AK) Checklist[1]

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	GENERAL REQUIREMENTS					
134	Are the primary document(s) required in Permit Attachment C4 containing acceptable knowledge information available? (Section C4-2)	CCP-TP-002 S. 4.3-4.5 CCP-TP-005 S. 4.4	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)** Waste Stream Profile Form and attachments for Waste Stream OR-ISTP-CH-HET **(AK-4)** Draft Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-HOM-A **(AK-5)** Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-SOIL **(AK-6)** Waste Stream Profile Form and attachments for	Y	During the week of January13th 2014, the CTAC AK auditors participated in a recertification audit of the ORNL CCP TRU waste program for both CH and RH TRU waste. The AK records for 3 distinct TRU waste streams representing Summary Category Groups S4000 and S5000 for CH waste and S5000 for RH waste were reviewed in light of the current WAP, WAC, TRAMPAC and WCPIP AK requirements. In addition, an initial certification audit was conducted for an S3000 CH TRU waste stream, OR-NFS-CH-HOM-A. The other three waste streams examined by AK auditors are CH S5000 OR-ISTP-CH-HET, CH S4000 OR-NFS-CH-SOIL-and RH S5000 OR-REDC-RH-HET

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				waste stream OR-REDC-RH-HET **(AK-7)** Q&MIS Approvals for AK Summaries CCP-AK-ORNL-001 R8, CCP-AK-ORNL-008 R1 and CCP-AK-ORNL-500 R3 **(AK-8)**		
135	Has the generator developed a methodology whereby a logical sequence of acceptable knowledge information that progresses from general facility to more detailed waste-specific information can be acquired? (Section C4-2)	CCP-TP-005 S. 4.0	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)** AK Source Document Summaries for waste stream OR-ISTP-CH-HET **(AK-9)** AK Source Document Summaries for waste stream OR-NFS-CH-HOM-A **(AK-10)** AK Source Document Summaries for waste stream OR-NFS-CH-SOIL **(AK-11)**	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				AK Source Document Summaries for waste stream OR-REDC-RH-HET **(AK-12)**		
136	Does the site have adequate procedures in place to ensure that the Acceptable Knowledge process is adequately implemented? Do these procedures facilitate the mandatory traceability analysis performed for each Summary Waste Category Group examined during the audit? (Section C4-2)	CCP-TP-005 S. 4.0	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)** Waste Stream Profile Form and attachments for Waste Stream OR-ISTP-CH-HET **(AK-4)** Draft Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-HOM-A **(AK-5)** Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-SOIL **(AK-6)** Waste Stream Profile	Y	A total of eight waste containers were selected for the WAP required traceability exercise from the four waste streams examined representing four distinct Summary Category Groups. The containers were the following, OR-ISTP-CH-HET (CH S5000) X10C0501650 X10C0501534 OR-NFS-CH-HOM-A (CH S3000) NFS0478A NFS0929A OR-NFS-CH-SOIL (CH S4000) NFS0773 X10C0506151B X10C0506151E OR-REDC-RH-HET (RH S5000) ORRH00681

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				Form and attachments for waste stream OR-REDC-RH-HET **(AK-7)** AK Source Document Summaries for waste stream OR-ISTP-CH-HET **(AK-9)** AK Source Document Summaries for waste stream OR-NFS-CH-HOM-A **(AK-10)** AK Source Document Summaries for waste stream OR-NFS-CH-SOIL **(AK-11)** AK Source Document Summaries for waste stream OR-REDC-RH-HET **(AK-12)** **Traceability BDRs** RTR OR-RTR6-0092 **(AK-29)** OR-RTR6-0342 **(AK-30)** OR-RTR6-0353 **(AK-31)** OR-RTR6-0437 **(AK-32)** OR-RTR6-0438 **(AK-33)** OR-RTR7-0002 **(AK-34)** OR-RTR7-0003 **(AK-35)** VE ORNLRHVE13004 **(AK-36)** IDC Screenshots for traceability containers **(AK-20)** AK CH and RH Tracking Spreadsheets for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL,		

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				and OR-REDC-RH-HET **(AK-21)** Container Input Forms for traceability containers **(AK-22)** AK Waste Containers List Att. 8 for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-17)** Waste Stream Characterization Checklists and AK Data Reconciliation **(AK-28)**		
137	Does the generator site's TRU mixed waste management program information clearly define (or provide a methodology for defining) waste categorization schemes and terminology, provide a breakdown of the types and quantities of TRU mixed waste generated/stored at the site, and describe how waste is tracked and managed at the generator site (including historical and current operations? Do procedures ensure that waste streams are adequately identified? (Section C4-2a)	CCP-TP-005 S. 4.4, 4.2.2, 4.2.3, 4.2.4, 4.2.5,4.11, Att. 8 CCP-TP-001 S. 2.7 S. 4.1 S. 4.2	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)** IDC Screenshots for traceability containers **(AK-20)**	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				AK CH and RH Tracking Spreadsheets for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-21)** AK Waste Containers List Att. 8 for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-17)**		
138	Does site documentation procedures indicate that the site will document, justify, and consistently define waste streams and assign EPA hazardous waste numbers? (Section C4-2b)	CCP-TP-005 S. 4.4.16- 4.4.21 Att. 5	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S.5.4.3, Tables 5-4, 5-5 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.3, 7.4.3, Table 7-5 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2, Tables 5-2, 5-3 **(AK-3)** AK Att. 5, Hazardous Constituents for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				(AK-15)		
	REQUIRED AND ADDITIONAL INFORMATION					
140	Does the generator site document that the following must be included in the acceptable knowledge record: • Map of the site with the areas and facilities involved in TRU waste generation, treatment, and storage identified • Facility mission description as related to TRU waste generation and management (e.g., nuclear weapons research may involve metallurgy, radiochemistry, and nuclear physics operations that result in specific waste streams) • Description of the operations that generate TRU waste at the site (e.g., plutonium recovery, weapons design, or weapons fabrication) • Waste identification or categorization schemes used at the facility (e.g., item description codes, content codes) • Types and quantities of TRU mixed waste generated, including historical generation through future projections • Correlation of waste streams generated from the same building and process, as appropriate (e.g., sludge, combustibles, metals, and glass) • Waste certification procedures for retrievably stored and newly generated wastes to be sent to the WIPP facility (Section C4-2a)	**Bullets 1-7:** CCP-TP-005 S. 4.2.2 S. 4.4.5 Att. 1	Y	CCP-AK-ORNL-008 **(AK-1)** CCP-AK-ORNL-001 **(AK-2)** CCP-AK-ORNL-500 **(AK-3)** B1**-** S4.1, Figures 1-5 **(AK-1)** S4.1,Figures 1-3, 5, 7 **(AK-2)** S4.1, Figures 1-3 **(AK-3)** B2-S4.2,**(AK-1)** S4.2, **(AK-2)** S4.3 **(AK-3)** B3-S4.4 **(AK-1)** S4.4 **(AK-2)** S4.7 **(AK-3)** B4-S4.5 **(AK-1)** S4.5 **(AK-2)** S4.6.3 **(AK-3)** B5-S4.6.1 **(AK-1)** S4.6.1 **(AK-2)** S4.6.1 **(AK-3)** B6-S4.6.2 **(AK-1)** S4.6.2 **(AK-2)** S4.6.2 **(AK-3)** B7-S4.7 **(AK-1)** S4.7 **(AK-2)** S4.8 **(AK-3)**	Y	
141	Does the generator site document that the following shall be collected for each waste stream: A. Area(s) and/or building(s) from which the waste stream was or is generated B. Waste stream volume and time period of generation (e.g., 100 standard waste boxes of retrievable stored waste generated from June 1977	**A-F:** CCP-TP-005 S. 4.2.4 S. 4.4.5 Att. 1	Y	CCP-AK-ORNL-008 **(AK-1)** CCP-AK-ORNL-001 **(AK-2)** CCP-AK-ORNL-500 **(AK-3)**	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	through December 1977) C. Waste generating process described for each building (e.g., batch waste stream generated during decommissioning operations of glove boxes), including processes associated with U134 waste generation, if applicable. D. Documentation demonstrating how the site has historically managed the waste, including the historical regulatory status of the waste (i.e., TRU mixed versus TRU non-mined waste) E. Process flow diagrams (e.g., a diagram illustrating glove boxes from a specific building to a size reduction facility to a container storage area). In the case of research/development, analytical laboratory waste, or the similar processes where process flow diagrams cannot be created, a description of the waste generating processes, rather than a formal process flow diagram, may be included if this modification is justified and the justification is placed in the auditable record F. Material inputs or other information that identifies the chemical content of the waste stream and the physical waste form (e.g., glove box materials and chemical handled during glove box operations, events or processes that may have modified the chemical or physical properties of the waste stream after generation, data obtained through visual examination of newly generated waste that later undergoes radiography; information demonstrating neutralization of U134 [hydrofluoric acid] and waste compatibility. (Section C4-2b)			A. S5.1 **(AK-1)** S6.1, 7.1 **(AK-2)** S5.1, **(AK-3)** B. S5.2 **(AK-1)** S6.2, 7.2 **(AK-2)** S5.2 **(AK-3)** C. S5.3 **(AK-1)** S6.3, 7.3 **(AK-2)** S5.3 **(AK-3)** D. S4.5, 4.6, 5.4.3 **(AK-1)** S4.6.2, 6.4.3, 7.4.3**(AK-2)** S5.4.2 **(AK-3)** E. Figures 6-16 **(AK-1)** AK Source Document Summaries for OR-NFS-CH-HOM-A, P274 **(AK-10)** AK Source Document Summaries for OR-NFS-CH-SOIL, P306, P315, P1400 **(AK-11)** Figures 4-16 **(AK-3)** F. S5.4.1, 5.4.3, Tables 5-1, 5-3, 5-4, 5-5 **(AK-1)** S6.4.1, 6.4.3, 7.4.1, 7.4.3, Tables 6-1, 7-1, 7-5 **(AK-2)** S5.4.1, 5.4.2, Tables 5-1, 5-2, 5-3 **(AK-3)**		
142	Do site documents/procedures require that the facility will provide a summary to the Permittees that summarizes all information collected, including basis and rationale for all waste stream designations? Is an example of this summary available for audit review? If discrepant hazardous waste data exist in required information, do sites consider applying all hazardous waste numbers, but assess and evaluate the information to determine the appropriate hazardous waste number consistent with RCRA requirements? (Section C4-2b)	CCP-TP-005 S. 4.4 S. 4.9	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)** AK Discrepancy Resolutions in the AK Record **(AK-18)**		
143	Do site procedures indicate that if the required AK information is not available for a particular waste stream, that the waste stream will not be eligible for an AK Sufficiency Determination? (Section C4-2)	CCP-TP-005 S. 4.2 S. 4.4 S. 4.7	Y	AK Documentation Checklist, Attachment 1, for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-13)**	Y	An AK Sufficiency Determination was not requested for ORNL waste streams.

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
144	Have the following procedures been prepared?: A. Procedures for identifying and assigning the physical waste form of the waste B. Procedures for delineating waste streams and assigning Waste Matrix Codes C. Procedures for resolving inconsistencies in acceptable knowledge documentation D. Procedures for visual examination and/or radiography, if applicable E. For newly generated waste, procedures describing process controls used to ensure prohibited items (specified in the WAP, Permit Attachment C) are documented and managed F. Procedures to ensure radiography and visual examination include a list of prohibited items that the operator shall verify are not present in each container (e.g. liquid exceeding TSDF-WAC limits, corrosives, ignitables, reactives, and incompatible wastes) G. Procedures to document how changes to Waste Matrix Codes, waste stream assignment, and associated Environmental Protection Agency hazardous waste numbers based on material composition are documented for any waste H. Procedures that ensure the assignment of EPA hazardous waste numbers is appropriate, consistent with RCRA requirements, and adequately considers site historical waste management I. Procedures for estimating waste material parameter weights (Section C4-2b)	A. CCP-TP-005 S. 4.4.13 S. 4.4.14 B. CCP-TP-005 S. 4.4.11 NOTE above S. 4.4.12 C. & G. CCP-TP-005 S. 4.9 E. CCP-TP-500 (ALL) H. CCP-TP-005 S. 4.4.16 -4.4.21 I. CCP-TP-005 S. 4.4.26 **D, F & I:** CCP-TP-053 (ALL) **D, E & F:** CCP-TP-500 (ALL)	Y	CCP-AK-ORNL-008 **(AK-1)** CCP-AK-ORNL-001 **(AK-2)** CCP-AK-ORNL-500 **(AK-3)** A. S5.4.1, Table 5-1 **(AK-1)** S6.4.1, 7.4.1, Tables 6-1, 7-1 **(AK-2)** S5.4.1, Tables 5-1, 5-3 **(AK-3)** B. S2.1, 5.4.1.1, **(AK-1)** S2.2,2.3, 6.4.1.1, 7.4.1.1 **(AK-2)** S2.0, 5.4.1.1 **(AK-3)** C. AK Discrepancy Resolutions in the AK Record **(AK-18)** E. ORNLRHVE13004 **(AK-36)** G. AK Discrepancy Resolutions in the AK Record **(AK-18)** AK Discrepancy Resolutions at Characterization and AK Reevaluations **(AK-19)** H. CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.3, Tables 5-4, 5-5 **(AK-1)** CCP AK Summary Report	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.3, 7.4.3, Table 7-5 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2, Tables 5-2, 5-3 **(AK-3)** AK Att. 5, Hazardous Constituents for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-15)** I. CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.1.2, Table 5-1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.1.2, 7.4.1.2, Tables 6-1, 7-1 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.1.2, Table 5-1 **(AK-3)** Memos attached to AK Att. 6, Waste Form,		

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				Waste Material Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-16)** D, F & I: <u>RTR BDRs:</u> OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)** <u>VE BDRs</u> ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)**		
<u>145</u>	Does the generator provide procedures or written commitment to collect additional	CCP-TP-005	Y	AK Documentation	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	acceptable knowledge information, as available and as necessary to augment mandatory information? (Section C4-2c)	S. 4.2.5 Att.1		Checklist, Attachment 1, for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-13)**		
146	Does the generator site document that all additional specific, relevant information used in the acceptable knowledge process will be identified and its use explained? Is all necessary information assembled and has it been appropriately used? (Section C4-2c)	CCP-TP-005 S. 4.2.5 Att.1	Y	AK Documentation Checklist, Attachment 1, for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-13)**	Y	
147	Does the generator site discrepancy analysis documentation (for acceptable knowledge additional and required documentation) indicate that if discrepancies are detected, the site may consider applying all hazardous waste numbers indicated in the required and additional information, but must assess and evaluate the information to determine the appropriate hazardous waste numbers consistent with RCRA requirements? (Section C4-2c)	CCP-TP-005 S. 4.9	Y	AK Discrepancy Resolutions in the AK Record **(AK-18)**	Y	
	TRAINING					
148	Does the generator site have procedures to ensure that all personnel involved with acceptable knowledge waste characterization have the following training, and is this training documented? A. WIPP WAP in Permit Attachment C and the TSDF-WAC specified in this permit B. State and Federal RCRA regulations associated with solid and hazardous waste characterization C. Discrepancy resolution and reporting D. Site-specific procedures associated with waste characterization using acceptable knowledge (Section C4-3a)	CCP-QP-002 S. 4.2.1	Y	Acceptable Knowledge Expert (AKE) and Site Project Manager (SPM) Training files **(GEN-18)**	Y	
	PROCEDURES					
149	Has the generator site developed the following procedures, and are these	**A-D:** CCP-TP-005	Y	A. CCP AK Summary Report for ORNL Isotopes	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	procedures technically sufficient? A. Sites must prepare and implement a written procedure outlining the specific methodology used to assemble acceptable knowledge records, including the origin of the documentation, how it will be used, and any limitations associated with the information (e.g., identify the purpose and scope of a study that included limited sampling and analysis data). B. Sites must develop and implement a written procedure to compile the required acceptable knowledge record. C. Sites must develop and implement a written procedure that ensures unacceptable wastes (e.g., reactive, ignitable, corrosive) are identified and segregated from TRU mixed waste populations sent to WIPP. D. Sites must prepare and implement a written procedure to evaluate acceptable knowledge and resolve discrepancies. For example, if different sources of information indicate different hazardous wastes are present, then sites must include all sources of information in its records and may choose to either conservatively assign hazardous waste numbers, or assign only those numbers deemed appropriate and consistent with RCRA requirements. All information used to justify assignment of hazardous waste numbers must be placed in the auditable record. Further, the assignment of hazardous waste numbers shall be tracked in the auditable record to all required documentation.	S. 4.2, 4.3, 4.4 & 4.9 CCP-TP-001 S. 2.7, 4.1 & 4.2 CCP-TP-500 S. 4.0 CCP-TP-068 S. 4.1, 4.4.4[G], 4.5.4, Att. 2 & 3		Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)** AK Source Document Summaries for waste stream OR-ISTP-CH-HET **(AK-9)** AK Source Document Summaries for waste stream OR-NFS-CH-HOM-A **(AK-10)** AK Source Document Summaries for waste stream OR-NFS-CH-SOIL **(AK-11)** AK Source Document Summaries for waste stream OR-REDC-RH-HET **(AK-12)** B. CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1		

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				(AK-1) CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)** C. AK Att. 6, Waste Form, Waste Material Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-16)** NCRs for prohibited items **(AK-23)** IDC database with “reject” field **(AK-20)** Container inspection reports **(AK-24)** “Hold” tag **(AK-25)** ORNLRHVE13004 **(AK-36)** D. AK Discrepancy Resolutions in the AK Record **(AK-18)**		

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
149a	E. Sites must prepare and implement a written procedure to identify hazardous wastes and assign the appropriate hazardous waste numbers to each waste stream. The following are minimum baseline requirements/standards that site-specific procedures must include to ensure comparable and consistent characterization of hazardous waste: 1. Compile all of the required information in an auditable record. 2. Review the compiled information and delineate waste streams. Delineation of waste streams must comply with the WAP definition in Permit Attachment C, Section C-0a, and justify combining waste historically managed separately as TRU mixed and TRU non-mixed waste streams into a single waste stream. 3. Review the compiled information to determine if the waste stream is compliant with the TSDF-WAC 4. Review the required information to determine if the waste is listed under 20.4.1.200 NMAC (incorporating 40 CFR 261), Subpart D. Assign all listed hazardous waste numbers, unless the site chooses to justify an alternative assignment and document the justification in the auditable record. 5. Review the required information to determine if the waste exhibits a hazardous characteristic or may contain hazardous constituents included in the toxicity characteristics specified in 20.4.1.200 NMAC (incorporating 40 CFR 261, Subpart C. If a toxicity characteristic contaminant is identified and is not included as a listed waste, sites may evaluate available data and assign the toxicity characteristic hazardous waste number consistent with RCRA requirements. All data examined to reach the hazardous waste number determination must be placed in the auditable record and must present a clear justification for the hazardous waste number analyses. 6. Review the compiled information to provide an estimate of the material parameter weights for each container to be stored or disposed of at WIPP. For newly generated waste, procedures shall be developed and implemented to characterize hazardous waste using acceptable knowledge prior to packaging.	**E.1 - E.6:** CCP-TP-005 S. 1.1, 4.2, 4.3 & 4.4 CCP-TP-500 S. 4.0	Y	E1. CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)** E2. CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S2.0 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S2.2, 2.3 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S2.0 **(AK-3)** E3. CCP AK Summary Report for ORNL Isotopes	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.3.5, 5.4.3.6, 5.5 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.3.5, 6.4.3.6, 6.4.4, 7.4.3.5, 7.4.3.6, 7.4.4 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2.3, 5.4.5, 5.4.6 **(AK-3)** NCRs for prohibited items **(AK-23)** AK Att. 6, Waste Form, Waste Material Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-16)** ORNLRHVE13004 **(AK-36)** E4&5. CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.3, Tables 5-4, 5-5 **(AK-1)**		

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.3, 7.4.3, Table 7-5 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2, Tables 5-2, 5-3 **(AK-3)** AK Att. 5, Hazardous Constituents for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-15)** E6. CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.1.2, Table 5-1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S6.4.1.2, 7.4.1.2, Tables 6-1, 7-1 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.1.2, Table 5-1 **(AK-3)** Memos attached to AK		

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				Att. 6, Waste Form, Waste Material Parameters, Prohibited Items and Packaging for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-16)**		
149b	F. Sites shall ensure that results of audits of the TRU mixed waste characterization programs at the site are available in the records. G. Sites shall identify all process controls (implemented to ensure that the waste contains no prohibited items and to control hazardous waste content and/or physical form) that have been applied to retrievably stored waste and/or may presently be applied to newly generated waste. Process controls are applied at the time of waste generation/packaging to control waste content, whereas any activities performed after waste generation/packaging to identify prohibited items, hazardous waste content, or physical form are waste characterization activities, not process controls. The AK record must contain specific process control and supporting documentation identifying when these process controls are used to control waste content. See Permit Attachment C, Section C-2 for programmatic requirements related to process controls. (Section C4-3b)	**F.)** CCP-PO-001 S. C4-3f, C4-3b CCP-QP-021 (ALL) WP 13-QA.03 (ALL) **G.)** CCP-TP-005 S. 4.2 - 4.4 & Att. 1 CCP-TP-500 S. 4.0, Att. 1	Y	F. Internal Audit **(AK-26)** G. AK Source Document Summaries for OR-ISTP-CH-HET, P255 **(AK-9)** AK Source Document Summaries for OR-NFS-CH-SOIL, P218, P315 **(AK-11)** ORNLRHVE13004 **(AK-36)**	Y	
150	Does the site have implemented procedures which comply with the following criteria to establish acceptable knowledge records: A. Acceptable knowledge information shall be compiled in an auditable record, including a road map for all applicable information. B. The overview of the facility and TRU mixed waste management operations in the context of the facility's mission shall be correlated to specific waste stream information. C. Correlations between waste streams, with regard to time of generation, waste generating processes, and site-specific facilities shall be clearly described. For newly generated wastes, the rate and quantity of waste to be generated shall be defined. D. A reference list shall be provided that identifies documents, databases, Quality Assurance protocols, and other sources of information that support the acceptable knowledge information. E. Container inventories for TRU mixed waste in retrievable storage shall be delineated into waste streams by correlating the container identification to all	**A-E:** CCP-TP-005 S. 1.1, 4.2, 4.3, 4.4, 4.10, 4.11 & Att. 1, 4 & 8 CCP-TP-001 S. 2.7	Y	A. CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)**	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	of the required and additional AK information. (Section C4-3c)			AK Documentation Checklist, Attachment 1, for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-13)** B. CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S4.2, 4.6, 5.4 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S4.2, 4.6, 6.4, 7.4 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S4.3, 4.6, 5.4 **(AK-3)** C. CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S4.6.2, 4.4, 5.1, 5.2, 5.3 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8, S4.6.2, 4.4, 6.1, 6.2, 6.3, 7.1, 7.2,		

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				7.3 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3,S4.6.2, 4.7,5.1, 5.2, 5.3 **(AK-3)** D. AK Information List for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-14)** E. IDC Container Screenshots for containers in waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-20)** AK Tracking Spreadsheet for CH waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL and RH waste stream OR-REDC-RH-HET **(AK-21)** AK Attachment 8 Container List for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-17)**		
151	If the generator site submitted an AK Sufficiency Determination Request for a specific waste stream, did the site provide all of the requisite information for which approval is sought? (Section C-0b)	CCP-TP-005 S. 4.7	Y	N/A	N/A	An AK Sufficiency Determination is not being sought for any ORNL waste streams at this time.

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	RE-EVALUATING ACCEPTABLE KNOWLEDGE					
152	Does the generator site have written procedures for the augmentation of all acceptable knowledge information using testing. Testing consists of radiography and visual examination. Do site procedures indicate that the following testing will be conducted based upon the results of the Determination Request AKSD denied - 100% RTR or VE (Section C4-1, C-0b)	CCP-TP-005 S. 4.4, 4.5 & 4.7	Y	CCP AK Summary Report for ORNL Isotopes Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1 **(AK-1)** CCP AK Summary Report for NFS CH TRU Waste Stored at ORNL, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, CCP-AK-ORNL-001 R8 **(AK-2)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3 **(AK-3)** <u>BDRS</u> OR-RTR6-0092 **(AK-29)** OR-RTR6-0342 **(AK-30)** OR-RTR6-0353 **(AK-31)** OR-RTR6-0437 **(AK-32)** OR-RTR6-0438 **(AK-33)** OR-RTR7-0002 **(AK-34)** OR-RTR7-0003 **(AK-35)** ORNLRHVE13004 **(AK-36)**	Y	
155	Does the generator site have procedures for reevaluating acceptable knowledge if the results of the waste characterization indicate that the waste to be shipped does not match the approved waste stream or if the data from radiography or visual examination for waste streams without an AK Sufficiency Determination exhibit this discrepancy? Does this procedure describe how the waste is reassigned, acceptable knowledge reevaluation, and appropriate hazardous waste numbers are assigned? (Section C4-3e)	CCP-TP-005 S. 4.8 S. 4.9 Att. 10	Y	AK Discrepancy Resolutions at Characterization and AK Reevaluations **(AK-19)**	Y	
156	Do site procedures indicate that debris wastes are assigned toxicity characteristic EPA numbers based on AK regardless of the quantity or concentration?	CCP-TP-005 S. 4.4.17	Y	CCP AK Summary Report for ORNL Isotopes	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	(C4-3e)	Att. 5		Programs CH TRU Waste, OR-ISTP-CH-HET, CCP-AK-ORNL-008 R1, S5.4.3.2, 5.4.3.3 Tables 5-4, 5-5 **(AK-1)** CCP AK Summary Report for ORNL REDC RH TRU Waste, OR-REDC-RH-HET, CCP-AK-ORNL-500 R3, S5.4.2.2, Tables 5-2, 5-3 **(AK-3)** AK Att. 5, Hazardous Constituents for waste streams OR-ISTP-CH-HET and OR-REDC-RH-HET **(AK-15)**		

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	CRITERIA FOR ASSEMBLING AN ACCEPTABLE KNOWLEDGE RECORD DELINEATING THE WASTE STREAM					
158	If wastes are reassigned to a different waste matrix code based on site visual examination or radiography or Permittee confirmation activities, does the generator site have written documentation to ensure that the following steps are followed: A. Review existing information based on the container identification number and document all differences in hazardous waste number assignments B. If differences exist in the hazardous waste numbers that were assigned, reassess and document all required acceptable knowledge information (Section C4-3b) associated with the new designation C. Reassess and document all testing data associated with the waste D. Verify and document that the reassigned waste matrix code was generated within the specified time period, area and buildings, waste generating process, and that the process material inputs are consistent with the waste material parameters identified during radiography or visual examination E. Record all changes to acceptable knowledge records F. If discrepancies exist in the acceptable knowledge information for the revised waste matrix code, document the segregation of the affected portion of the waste stream, and define the actions necessary to fully characterize the waste (Section C4-3e)	CCP-TP-005 S. 4.8 S. 4.9 Att. 10	Y	AK Discrepancy Resolutions at Characterization and AK Reevaluations **(AK-19)**	Y	
	DATA QUALITY REQUIREMENTS					
168	Are acceptable knowledge processes consistently applied among all generator sites, and does each generator site comply with the following data quality requirements for acceptable knowledge documentation: A. Precision - The qualitative determinations, such as compiling and assessing acceptable knowledge documentation, do not lend themselves to statistical evaluations of precision. However, the acceptable knowledge information will be addressed by the independent review of acceptable knowledge information during internal and external audits. B. Accuracy - The percentage of waste containers which require reassignment to a new waste matrix code and/or designation of different hazardous waste numbers based on testing data and discrepancies identified by the Permittees during waste confirmation will be reported as a measure of acceptable knowledge accuracy.	A. CCP-PO-001 S. C4-3f CCP-QP-021 (ALL) WP 13-QA.03 (ALL) B. CCP-TP-005 S. 4.6 C. CCP-TP-005 S. 4.0	Y	A. Internal Audit **(AK-26)** B. AK Accuracy Reports for waste streams OR-ISTP-CH-HET,OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-27)** **C.** AK Documentation Checklist, Attachment 1, for waste streams OR-ISTP-CH-HET, OR-NFS-CH-HOM-A, OR-NFS-CH-SOIL, and OR-REDC-RH-HET	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	C. Completeness - The acceptable knowledge record must contain 100 percent of the information (Permit Attachment C4-3). The usability of the acceptable knowledge information will be assessed for completeness during audits.			**(AK-13)**		
168a	D. Comparability - Comparability is ensured through sites meeting the training requirements and complying with the minimum standards outlined for procedures that are used to implement the acceptable knowledge process. All sites must assign hazardous waste numbers in accordance with Permit Attachment C4-4 and provide this information regarding its waste to other sites who store or generate a similar waste stream. E. Representativeness - Representativeness is a qualitative parameter that will be satisfied by ensuring that the process of obtaining, evaluating, and documenting acceptable knowledge information is performed in accordance with the minimum standards established in Permit Attachment C4. Sites also must assess and document the limitations of the acceptable knowledge information used to assign hazardous waste numbers (e.g., purpose and scope of information, date of publication, type and extent to which waste parameters are addressed). (Section C3-3)	D. CCP-TP-005 S. 2.2 S. 4.4 CCP-QP-002 S. 4.2.1 E. CCP-TP-005 S. 2.2 S. 4.0 CCP-QP-002 S. 4.2.1	Y	D. Acceptable Knowledge Expert (AKE) and Site Project Manager (SPM) Training files **(GEN-18)** E. Acceptable Knowledge Expert (AKE) and Site Project Manager (SPM) Training files **(GEN-18)** AK Source Document Summaries for waste stream OR-ISTP-CH-HET **(AK-9)** AK Source Document Summaries for waste stream OR-NFS-CH-HOM-A **(AK-10)** AK Source Document Summaries for waste stream OR-NFS-CH-SOIL **(AK-11)** AK Source Document Summaries for waste stream OR-REDC-RH-HET **(AK-12)**	Y	
169	Does the generator site address quality control by tracking its performance with regard to the use of acceptable knowledge by: 1) assessing the frequency of inconsistencies among information, and 2) documenting the results of waste discrepancies identified by the generator/storage site during waste characterization or the Permittees during waste confirmation using radiography, review of radiography audio/video recordings, or visual examination, or review of visual examination records. In addition, the acceptable knowledge process and waste stream documentation must be evaluated through internal assessments by generator/storage site quality assurance organizations. (Section C4-3e)	CCP-TP-005 S. 4.6 S. 4.9 CCP-QP-021 (ALL) WP 13-QA.03 (ALL) CCP-PO-001 S. C4-3f	Y	AK Accuracy Reports for waste streams OR-ISTP-CH-HET,OR-NFS-CH-SOIL, and OR-REDC-RH-HET **(AK-27)** Internal Audit **(AK-26)** AK Discrepancy	Y	

	WAP Requirement[2] CCP/ORNL Audit A-14-03 Table C6-2 Acceptable Knowledge (AK) Checklist[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				Resolutions in the AK Record **(AK-18)** AK Discrepancy Resolutions at Characterization and AK Reevaluations **(AK-19)**		

1. NMED expects a traceability analysis to be performed, the results of which should be presented on this checklist under the "Examples of Implementation" column. Further, the traceability analysis process and results should be discussed in the Final Audit Report.

2. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements are meant to determine whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.

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CCP-AK-ORNL-008

Central Characterization Program
Acceptable Knowledge Summary Report
For

Oak Ridge National Laboratory
Isotopes Programs
Contact-Handled Transuranic Waste

Waste Stream:
OR-ISTP-CH-HET

Revision 1

January 9, 2014

Mike Ramirez
Printed Name

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	07/06/2010	Initial issue.
1	01/09/2014	1. Revised to incorporate Nuclear Waste Partnership (NWP) transition changes. 2. Revised to incorporate changes required by the November 30, 2010 Waste Isolation Pilot Plant (WIPP) Permit renewal. 3. Made changes to be consistent with Attachment 12 of CCP-TP-005, *CCP Acceptable Knowledge Documentation.* 4. Section 4.1: Expanded the description of the Transuranic Waste Processing Center (TWPC). 5. Section 4.4.2: Added a discussion of polychlorinated biphenyl (PCB) decontamination at the TWPC. Also included the Cask Processing Enclosure. 6. Section 4.5.3: Clarified Resource Conservation and Recovery Act (RCRA) suspect discussion and historical management. 7. Sections 4.6.1 and 5.2: Update waste stream volume. 8. Sections 2.1 and 5.4.1: Moved batteries to "other metals" and manipulator boots to "plastic" for consistency with other Oak Ridge National Laboratory (ORNL) acceptable knowledge (AK) reports. Also made minor additions to the waste stream description. 9. Section 5.4.2.1: Added a discussion of the variability of the radionuclides. 10. Section 5.4.3: Revised discussion of historical waste management. 11. Table 5-5: Added a couple of commercial products. 12. Sections 5.4.3.1 and 5.4.3.2: Expanded discussion of U.S Environmental Protection Agency (EPA) hazardous waste number assignments.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
1	01/09/2014	13. Section 5.4.3.6: Revised PCB discussion. 14. Section 5.5: Clarified the identification and management of reactive materials and high dose items. 15. Made other editorial changes and corrections

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LIST OF ACRONYMS AND ABBREVIATIONS

AFL	Actinide Fabrication Laboratory
AHF	Alpha Handling Facility
AK	Acceptable Knowledge
Am	americium
APA	Actinide Processing Area
BBA	Box Breakdown Area
Be	beryllium
C	carbon
CPE	Cask Processing Enclosure
CCP	Central Characterization Program
Cf	californium
CFR	Code of Federal Regulations
CSFF	Curium Source Fabrication Facility
CH	contact-handled
CHMB	Contact Handled Marshalling Building
CHSD	Contact Handled Staging Area
Ci	Curie
Cm	curium
Co	cobalt
Cs	cesium
DAC	Drum Aging Criteria
D&D	Decontamination and decommissioning
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DP	Defense Programs
DVB	Drum Venting Building
EPA	U.S. Environmental Protection Agency
Eu	europium
Gd	gadolinium
HEPA	High Efficiency Particulate Air
HLW	high-level waste
I	iodine
IFDP	Isotopes Facilities Deactivation Project
IRML	Isotope Research Materials Laboratory
ISF	Isotopes Shipping Facility
LANL	Los Alamos National Laboratory
Mr/hr	millirem per hour
MT	Material Type
Na	sodium
NDA	nondestructive assay
NMIT	Nuclear Material Intra-Laboratory Transfer
Np	neptunium
NWPA	Nuclear Waste Policy Act of 1982
ORNL	Oak Ridge National Laboratory

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

OSM	Other Special Materials
PB	Processing Building
PCB	polychlorinated biphenyl
ppm	parts-per-million
Pb	lead
Pm	promethium
Pu	plutonium
POC	pipe overpack container
QA	quality assurance
Ra	radium
RCRA	Resource Conservation and Recovery Act
R&D	research and development
RDL	Radioisotope Development Laboratory
REDC	Radiochemical Engineering Development Center
RH	remote-handled
RMC	Research Materials Collection
RTR	Real-Time Radiography
SNAP	Systems for Nuclear Auxiliary Power
SNF	spent nuclear fuel
Sr	strontium
SSA	Southeast staging Area
TDEC	Tennessee Department of Environment and Conservation
TFF	Target Fabrication Facility
Th	thorium
TRU	transuranic
TRUCON	TRUPACT-II Content Code
TSCA	Toxic Substances Control Act
TWPC	Transuranic Waste Processing Center
U	uranium
VE	visual examination
WIPP	Waste Isolation Pilot Plant
WIPP-WAC	*Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
WIPP-WAP	*Waste Isolation Pilot Plant Hazardous Waste Facility Permit Waste Analysis Plan*
Wt%	weight percent

1.0 EXECUTIVE SUMMARY

This Acceptable Knowledge (AK) Summary Report has been prepared for the Central Characterization Program (CCP) for contact-handled (CH) transuranic (TRU) waste generated and managed by the Oak Ridge National Laboratory (ORNL) and the Y-12 National Security Complex (Y-12) located on the U.S. Department of Energy (DOE) Oak Ridge Reservation in the city of Oak Ridge, Tennessee. The CH-TRU waste described in this report was generated by the Isotopes Programs in Buildings 3028, 3029, 3030, 3031, 3032, 3033-A, 3038, and 3047 at ORNL and Building 9204-3 at Y-12, as well as deactivation/safe shutdown of these facilities. As necessary, the waste is repackaged at the Transuranic Waste Processing Center (TWPC) in the Processing Building (PB) (Building 7880) at ORNL. This report was prepared in accordance with CCP-TP-005, *CCP Acceptable Knowledge Documentation* (Reference 1) to implement the AK requirements of the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan* (WIPP-WAP) (Reference 2) and DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WIPP-WAC) (Reference 5).

The WIPP-WAP AK requirements are addressed in CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (Reference 3). The WIPP-WAC AK requirements are addressed in CCP-PO-002, *CCP Transuranic Waste Certification Plan* (Reference 8). Additionally, this report provides the AK information required by CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)* (Reference 16).

The CCP is tasked with certification of TRU waste for transportation to and disposal at the Waste Isolation Pilot Plant (WIPP). This report was developed in accordance with CCP-TP-005 (Reference 1) which describes how AK is collected, reviewed, and managed by the CCP. The CCP is responsible for collection, review, and management of AK documentation in accordance with CCP-TP-005 and reviews and approves this AK Summary Report. CCP maintains responsibility for this AK Summary Report and all CCP-TP-005 generated forms and records as quality assurance (QA) records. In addition, CCP maintains a copy of the "historical source documents" as non-QA records.

One waste stream is included in this report with the designation OR-ISTP-CH-HET. The waste stream number in DOE/TRU-2013-3425, *Annual Transuranic Waste Inventory Report – 2013,* is also identified as OR-ISTP-CH-HET (Reference 9). The letters ISTP are not an ORNL facility designator but simply an abbreviation for "isotopes" to denote that this waste stream is from the Isotopes Programs facilities. This debris waste stream was generated in several Isotopes Programs facilities whose primary mission was production and distribution of isotopes used in nuclear medicine, radiation processing, industrial controls, and other applications as well as research in scientific and engineering disciplines.

This AK Summary Report, along with referenced supporting documents, provides a defensible and auditable record of AK for the designated waste stream from the Isotopes Programs facilities. The references and AK source documents used to prepare this report

are listed in Sections 7.0 and 8.0. The source documents cited throughout this report are identified by alphanumeric designations corresponding to a unique Source Document Tracking Number (e.g., C001, I001, M001, P001, U001, DR001).

This AK Summary Report includes information relating to the mission and process operations of Buildings 3028, 3029, 3030, 3031, 3032, 3033-A, 3038, 3047, and 9204-3, waste identification, characterization, and waste management practices. Information contained in this report was obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, and interviews with cognizant personnel.

This report and supporting source documentation provide the mandatory waste program and waste stream-specific information required by the WIPP-WAP (Reference 2).

2.0 WASTE STREAM IDENTIFICATION SUMMARY

Site Where Transuranic Waste Was Generated and Stored

Generation and Storage Location:

Oak Ridge National Laboratory
1 Bethel Valley Road
Oak Ridge, TN 37831

Y-12 National Security Complex
Bear Creek Road
Oak Ridge, TN 37831

U.S. Environmental Protection Agency (EPA) ID TN1890090003

Facility Where Transuranic Waste Was Generated

This waste was generated in Buildings 3028, 3029, 3030, 3031, 3032, 3033-A, 3038, and 3047 at ORNL and Building 9204-3 at Y-12. Refer to Section 4.1 for a description of these facilities. Waste repackaging is performed at the TWPC in Building 7880.

Facility Mission:

The waste described in this AK Summary Report was generated in several Isotopes Programs facilities whose primary mission was production and distribution of isotopes used in nuclear medicine, radiation processing, industrial controls, and other applications as well as research in scientific and engineering disciplines. As it specifically related to the generation of TRU waste, these facilities produced and distributed "Other Special Materials (OSM)," which are radioactive isotopes with atomic numbers 84 (polonium) and above, sometimes referred to as "heavy elements." Refer to Section 4.2 for additional details.

Waste Streams

2.1 Waste Stream OR-ISTP-CH-HET

Summary Category Group: S5000

Waste Matrix Code Group: Heterogeneous Debris Waste
Waste Matrix Code: S5400, Heterogeneous Debris

TRUPACT-II Content Code (TRUCON): OR 125/225, SQ 154

Maximum Layers of Confinement: Maximum of three (3)

Waste Stream Description:

Waste stream OR-ISTP-CH-HET is comprised primarily of organic and inorganic debris waste items and generally consists of cellulosics, plastic, rubber, glass, ceramic, graphite, and metal. Specific waste items include iron-based metals (e.g., banding, cables, pipe nipples, caps, conduit, containers, discs, drain traps, dust pans, electrical boxes, fittings, flanges, gauges, glovebox floor sweepings, hand tools, hardware, labware, lids, light fixtures, needles, pans, pins, piping, planchets, portal covers, rebar, rods, saw blades, scrap metal, sealed radiation sources, sleeves, strapping, tool bits, tubing, valves, weights, welding fixtures, wire mesh, and wire), aluminum-based metals (e.g., cages, cans, foil, glove portal inserts, pans, piping, respirator cartridges, rods, scrap, and screen), other metals (e.g., alkaline and nickel-cadmium batteries, beryllium [Be], brass, copper, lead [Pb], tantalum, plutonium [Pu], and uranium [U]), other inorganic materials (e.g., actinide oxide powder, absorbent, asbestos insulation, ceramics, concrete, filter media, glassware and broken glass, graphite, mortar/pestle, and paint chips), cellulosics (e.g., absorbent pads, brooms, brushes, cardboard, cloth, containers, cork, cotton swabs, fiberboard, gauze, leather gloves, masking tape, paper, sponges, and wood), plastics (e.g., bags, caps, containers, electrical cord, fittings, foam, Herculite® industrial fabric, hose, ion-exchange resin, labware, Lexan®, liner remnants, manipulator boots, nylon rope, plexiglass, pipe, sheeting, sleeves, styrofoam, suits, syringes, tape, tie straps, tubing, and Velcro®), rubber (e.g., aspirators, belts, gasket material, gloves, grommets, hoods, hose, o-rings, respirators, shoe covers, stoppers, and suits), electrical devices and equipment, metal-framed and wood-framed High Efficiency Particulate Air (HEPA) filters with inorganic filter media, and small amounts of homogenous materials such as grease and absorbed liquids (Refer to Section 5.4.1 for additional details).

The two most prevalent radionuclides, by mass, in this waste stream are thorium (Th)-232 and U-238. The two most prevalent TRU radionuclides, by mass, in this waste stream are neptunium (Np)-237 and Pu-239.

The EPA hazardous waste numbers assigned to this waste stream are D005, D006, D007, D008, D009, D011, D019, D022, F002, and F005 (Refer to Section 5.4.3).

Prohibited items present in this waste stream include heat-sealed bags, containerized and un-containerized liquid, sealed containers greater than four liters, impenetrable objects, such as lead and other dense materials, aerosol cans, compressed gas cylinders, waste with a surface dose rate greater than 200 millirem per hour (mR/hr), unapproved supplemental sealing devices (i.e., metal hose clamps) for plastic bags, and radionuclide pyrophorics (Refer to Section 5.5). Certified real-time radiography (RTR) and/or visual examination (VE) are performed by CCP to ensure the waste does not contain prohibited items in accordance with the WIPP-WAC and WIPP-WAP.

Solid wastes were placed into plastic bags, plastic bottles, paper cartons, or metal cans that were bagged-out of the glovebox and sealed by twist and tape or heat-sealing. In cases where the normally approved containers did not provide adequate shielding, shielded containers (e.g., lead-lined) were used. The wastes were then placed into 55-gallon U.S. Department of Transportation (DOT) Specification 17C drums lined with a plastic drum liner bag. An inner drum (e.g., 30-gallon steel drum) may also be present. When contaminated gloveboxes were disposed, the glovebox was placed into a large plywood box or metal container. DOT Specification 7A Type A 55-gallon drums with approved filter vents are used for waste packaging (and repackaging) at the TWPC. Drums are lined with a cardboard liner and a 6-mil poly liner bag; rigid liners are not used. When a drum is ready to be closed, the liner bag is twisted, and a cable tie wrap is wrapped around the twisted section and tightened using a banding tool. Additional tape is then wrapped around the twisted section. Waste materials with high surface dose rates may be repackaged into a 55-gallon drum containing a standard pipe overpack container (POC). The standard POC consists of a stainless steel pipe component (with a filter vent in the lid) centered in a 55-gallon drum using dunnage consisting of fiberboard and plywood spacers within a rigid polyethylene liner and lid with a vent hole (Refer to Section 5.6).

Waste stream OR-ISTP-CH-HET meets the WIPP-WAP waste stream definition. The waste stream consists of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. This waste stream is comprised of TRU-mixed heterogeneous debris waste generated during isotopes production and distribution, and ancillary operations that supported this activity (research & development [R&D], facility maintenance, and facility deactivation) (Refer to Section 4.6.2).

3.0 ACCEPTABLE KNOWLEDGE DATA AND INFORMATION

TRU waste destined for disposal at WIPP must be characterized prior to shipment. Development of knowledge of the waste materials and processes that generate and control the waste is required to provide a clear and convincing argument about the characteristics of the waste (Reference 2). The AK characterization documented herein complies with the AK requirements of the WIPP-WAP (Reference 2) and was developed in accordance with the applicable requirements of CCP-PO-001 (Reference 3) and CCP-TP-005 (Reference 1).

This waste was characterized using AK from a variety of sources, including safety analysis reports, research project reports, waste packaging and shipping forms, site databases, and correspondence.

The references and AK sources used to prepare this report are listed in Sections 7.0 and 8.0, respectively. The AK sources referenced within this report by alphanumeric designation (e.g., C001, I001, M001, P001, U001, DR001) correspond to the Source Document Tracking Number using the following convention:

- C – Correspondence
- I – Internal Procedures and Notes
- M – Miscellaneous data
- P – Published documents
- U – Unpublished documents
- DR – Discrepancy resolutions

The alphanumeric "I" designator (i.e., I001) was originally assigned to source documents (primarily internal procedures) collected by Weston Solutions, Inc. during the initial AK program conducted at ORNL. These documents have been assigned the same Source Document Tracking Numbers to maintain traceability to earlier AK Summary Reports; however, this designator has not been assigned during subsequent CCP AK collection and review activities.

4.0 REQUIRED PROGRAM INFORMATION

This section provides the mandatory TRU waste program information required by the WIPP-WAP for waste stream OR-ISTP-CH-HET (Reference 2). This section provides descriptions of the facilities and operations associated with the generation of TRU waste from the Isotopes Programs facilities. Included are a brief description of the TRU waste generating facilities, a summary of the mission, defense determination, and descriptions of historical and current operations associated with the generation of the waste stream.

4.1 Facility Location and Description

The ORNL and Y-12 sites are located on the DOE Oak Ridge Reservation. ORNL is located within the Bethel and Melton Valleys of Roane County, Tennessee, and Y-12 is located on Bear Creek Road in Anderson County in Tennessee. The Oak Ridge Reservation is located about 20 miles northwest of Knoxville, Tennessee (Reference P081). Figure 1, Map of the Oak Ridge Reservation, shows the locations of the ORNL and Y-12 sites. The locations of the TRU waste generating facilities are presented in Figure 2, Map of the Isotopes Facilities at Oak Ridge National Laboratory, and Figure 3, Map of Building 9204-3 at Y-12 (References P348, P407, U044). A brief description of the Isotopes Programs facilities are provided in this section. Operations in these facilities are described in Section 4.4.1.

CH-TRU waste generated in the Isotopes Programs facilities is stored in Buildings 7572, 7574, 7826, 7834, 7879, and 7883 which are located in the Melton Valley area of ORNL (References M171, P272). The locations of the TRU waste storage buildings are shown in Figure 4, Map of Transuranic Waste Processing Center and Solid Waste Storage Areas (Reference P272).

The TWPC is located within an approximate 5 acre area in the Melton Valley area of ORNL. Processing of CH-TRU waste is conducted in the PB at the TWPC. Waste processing is limited to characterization, sorting, segregation, size reduction, and repackaging as required to produce waste suitable for disposal at WIPP. Waste containers from the ORNL main site are transferred to the TWPC for unloading and storage in the Contact Handled Marshalling Building (CHMB), Contact Handled Staging Area (CHSA), Drum Venting Building (DVB), Southeast Staging Area (SSA), Drum Aging Criteria (DAC), or the Multi-Purpose Building. The PB and TWPC storage areas are shown in Figure 5, Site Layout for the Transuranic Waste Processing Center (References M230, P256, P272, P432). TWPC operations are described in Section 4.4.2.

4.1.1 Building 3028, Curium Source Fabrication and Target Fabrication Facilities

Building 3028 was constructed in 1950 and is located on the northwest corner of Isotope Circle in the ORNL Isotopes Area (see Figure 2). An airlock on the east separates Building 3028 from Building 3047. Building 3028 was divided into three separate facilities: the Short-Lived Fission Products Facility on the west side of the facility, the

Curium Source Fabrication Facility (CSFF) on the east side of the facility, and the Target Fabrication Facility (TFF) located on the three upper floors of the building. The Short-Lived Fission Products Facility did not generate TRU waste. The CSFF was located on the first floor and consisted of six hot cells. The TFF was located on the second, third, and fourth floors. Operations in these laboratories were performed in vacuum-inert-gas type gloveboxes or plexiglass enclosures. The layout of Building 3028 is provided in Figure 6, Building 3028 First Level Floor Plan, Figure 7, Isometric View of the Building 3028 Curium Source Fabrication Facility, and Figure 8, Building 3028 Upper Floors – Target Fabrication Facility Layout, at the end of this report (References I012, P342, P346, P400, P455, P481, P528, U007).

4.1.2 Building 3029, Source Development Laboratory

Building 3029 was constructed in 1952 and is a single-story building located on the northwest corner of the central portion of Isotope Circle (see Figure 2). Building 3029 was divided into an operating area consisting mainly of four manipulator cells and a cell access area which contained a cobalt (Co)-60 storage and irradiation facility. The hot cell operations did not generate TRU waste. Building 3029 also included an Alpha Handling Facility (AHF) that consisted of two gloveboxes located in the northeast corner of the building that supported curium (Cm) source fabrication or Isotope Sales activities in Building 3028. The layout of Building 3029 is provided in Figure 9, Isometric View of the Building 3029 Source Development Laboratory (References P022, P346, P529, P867, P933, P1085).

4.1.3 Building 3030, Radioisotope Production Laboratory C

Building 3030 is a single-story building located on the west end of the central portion of Isotope Circle (see Figure 2). Building 3030 contained one manipulator-type hot cell which did not generate TRU waste (References P022, P101). There were no processes in Building 3030 that generated TRU waste, and there are no TRU waste drums exclusively from Building 3030. The only TRU waste from Building 3030 consists of several americium (Am)-241/Be neutron sources that presumably were being used in the building, and then were taken to Building 3038 and disposed (References M191).

4.1.4 Building 3031, Radioisotope Production Laboratory D

Building 3031 is a single-story building located second from the west end of the central portion of Isotope Circle immediately to the north of Building 3038 (see Figure 2). This facility had one manipulator cell and three laboratory hoods. These operations did not generate TRU waste. However, Building 3031 contained a glovebox during the 1970s that was used for operations with Am-241. A floor plan showing the location of this glovebox was not identified (References P081, P175, P235, P849, P1324, U038).

4.1.5 Building 3032, Radioisotope Production Laboratory E

Building 3032 was constructed in 1950 and was a single-story building located near the middle of the central portion of Isotope Circle immediately east of Building 3031 (see Figure 2). This facility did not have a hot cell, but had a series of five hoods utilized for radiochemical analysis. Operations in these hoods did not generate TRU waste; however, Building 3032 had previously housed gloveboxes used for operations with Am-241. A floor plan for Building 3032 showing the location of these gloveboxes was not identified (References P022, P101, P334, P840, P933, P1325, U038).

4.1.6 Building 3033-A, Actinide Fabrication Laboratory

The Building 3033 Annex (3033-A) was a single-story building constructed in 1960 by bridging the space between Buildings 3033 and 3034. The Actinide Fabrication Laboratory (AFL) facility is located in the central portion of Isotope Circle (see Figure 2). The AFL contained three portable gloveboxes and a radiochemical hood. The gloveboxes were equipped to operate under an argon atmosphere. A floor plan is provided in Figure 10, Building 3033-A Actinide Fabrication Laboratory Layout (References P022, P101, P335, P933, P1291, P1292, U038).

4.1.7 Building 3038, Alpha Handling Facility, Isotopes Shipping Facility, and Isotope Research Materials Laboratory

Building 3038 was a single-story building that began operations in 1949 and is located on the southwest corner of Isotope Circle (see Figure 2). The facility was divided by concrete block interior walls into four separate facilities: the AHF in the western portion of the building (3038-W), the Isotopes Shipping Facility (ISF) in the middle portion of the

the central section was used for radiometric counting. Several of the IRML gloveboxes were equipped with argon atmosphere capability or Dri-Train purification systems for achieving an inert atmosphere (References P453, P458, P1272).

4.1.8 Building 3047, Radioisotope Development Laboratory

Building 3047 was constructed in about 1962 and is located in the north east corner of Isotopes Circle (see Figure 2). This Radioisotope Development Laboratory (RDL) facility housed five hot cells, four laboratories, three alpha-handling laboratories, a decontamination room, offices, a change room, and storage and service areas. Four of the hot cells and three of the laboratories were in one of the two containment zones of the building. The three alpha-handling laboratories (Rooms 110, 211, and 212) were in the other containment zone and contained one alpha hot cell (Room 110). The alpha hot cell was shielded by water-filled, steel tanks, and a glovebox provided air-tight access to the cell. A floor plan is provided in Figure 15, Building 3047 Radioisotope Development Laboratory Layout (References P289, P291, P294, P1287, P1312).

4.1.9 Building 9204-3, Electromagnetic Isotope Separation Facility

Building 9204-3 was constructed in 1944 and is located in the south central portion of the Y-12 complex (see Figure 3). Building 9204-3 is a two-story facility with an additional basement and mezzanine. Most of the building was devoted to stable isotopes production. In about 1962, an area at the east end of the building was modified for the purposes of separating actinide isotopes. This area became known as the Actinide Processing Area (APA) and included a 24-inch radius calutron separation unit that was used to separate isotopes, and a series of glovebox operations that included a components wash area and actinide chemical processing area. A floor plan of Building 9204-3 is provided in Figure 16, Building 9204-3 Actinide Processing Area Layout (References P119, P235, P346, P348, P941, P1351).

4.2 Facility Mission

Isotopes, both radioactive and stable, are invaluable tools in medicine, commerce, and research of many types. The DOE and its predecessor agencies began providing isotopes to the user community in 1946. When isotopes became available from U.S. private producers, the DOE withdrew from distribution of isotopes when it determined that such isotopes were reasonably available from other sources. Some isotopes, however, were not available from U.S. private production, either because private production capacity did not exist, private producers had elected not to provide the materials, or for other reasons. DOE continued to provide isotopes for which there was no U.S. private production and which could be produced by the DOE within the limits of its resources and regulations. Isotope-related services were also provided by DOE under the same criteria. DOE distributed isotopes and provided services to the user community in the public interest in accordance with its commitment to support research, encourage U.S. private sources of supply, and develop beneficial applications of isotopes (References P546, P548).

The waste described in this AK Summary Report was generated in several Isotopes Programs facilities whose primary mission was production and distribution of isotopes used in nuclear medicine, radiation processing, industrial controls, and other applications as well as R&D in scientific and engineering disciplines. As it specifically related to the generation of TRU waste, these facilities produced and distributed OSM, which are radioactive isotopes with atomic numbers 84 (polonium) and above, sometimes referred to as the "heavy elements" (References P175, P532, P546). The Isotopes Programs consisted of four main elements (Reference U038):

- Radioisotopes services – Production and technical services not available from private industry, R&D support to DOE and outside customers, packaging of all ORNL radioisotope products for shipment, and shipping and receiving of all radioactive materials for ORNL.

- Isotope enrichment – Production of high-purity stable and radioactive isotopes for research, industrial, medical, and governmental uses via the electromagnetic isotope separation and processing facilities and management of the ORNL isotope inventory referred to as the Research Materials Collection (RMC).

- IRML – Target fabrication, preparation of isotope research materials, fabrication of neutron dosimeters, and a wide array of isotope R&D activities.

- Isotopes Distribution (Sales) Office – World-wide distribution of isotopes and related isotopic materials, coordination of procurement of isotopes and services both from and for other DOE facilities, and management of the ORNL Sales Pool of radioisotopes.

4.3 Defense Waste, Spent Nuclear Fuel, and High-Level Waste

4.3.1 Defense Waste Assessment

DOE/WIPP-02-3122 requires generator sites to use AK to determine if the TRU waste streams to be disposed at WIPP meet the definition of TRU "defense" waste (Reference 5). Based on guidance from the DOE, a TRU waste is eligible for disposal at WIPP if it has been generated in whole or part by one of the atomic energy defense activities listed in section 10101(3) of the *Nuclear Waste Policy Act of 1982* (NWPA) (References 5, 6, and 7).

The Isotopes Programs provided service in three areas: 1) DOE Office of Defense Programs (DP); defense-related isotopes, 2) unique isotopes for sale to commercial processors and the world-wide research and business community; primarily medical grade isotopes, and 3) isotopes for DOE Office of Energy Research programs at ORNL and other DOE facilities (References P050, P051, P175).

TRU waste generating activities of the IRML were conducted in a variety of facilities depending on the time frame, and the type and needs of the customer. Parts of the same facilities were occupied by several entities within the Isotopes Programs. However,

sources of TRU wastes were not always identified with the specific waste generating entity within a facility. This has some significance because many more of the IRML activities were associated with DP than those of the isotopes production, development, enrichment, and distribution organizations (Reference U038).

Some of the IRML work was classified, and as much as 50 percent of the work conducted in the facilities operated by the IRML at a given time was reportedly defense-related. However, classified work was often conducted in an unclassified fashion by not revealing the purpose to the staff who carried out the work, and by omission of any such information from working records, such as logbooks (References P225, P227, U038).

Requests for support services from DP customers were largely received on an ad hoc basis, and were handled through the Isotopes Sales Office at ORNL. A work order was issued for the activity by the Isotopes Sales Office, using one of the existing account numbers for general sale or distribution of radioactive materials. It was therefore not possible to trace an activity back to a programmatic source using conventional sources of information such as progress reports, logbooks, and financial management data (References C034, U038).

The DP customer would sometimes supply the radioactive material to the IRML for fabrication of special components (e.g., weapons diagnostics), but more often the IRML staff would utilize stocks of materials available at ORNL, either from those produced by the Electromagnetic Isotope Separation Facility (Building 9204-3) or from those in the ORNL Sales Pool or the RMC. Records for internal transfers of controlled materials from these stocks to the IRML are available prior to 1980, but do not provide traceability to a DP activity because these only reflected ORNL bookkeeping on its own materials. When significant quantities of controlled materials were included in TRU waste, the Nuclear Material Intra-Laboratory Transfer (NMIT) form completed by the IRML staff would carry a project number related to the source of the materials rather than to the DP sponsor. When wastes with smaller quantities of materials were disposed of, the generic Isotopes Sales Office account number on the UCN-2822 waste disposal form bore no relationship to the sponsoring program. This same situation also applied to other Isotopes Programs activities at ORNL (References C034, U038).

Transfer records of finished components from the IRML to its customers are available in the ORNL Isotopes Inventory Files. These records indicate that between 1970 and 1992, 21 percent (247 of 1,172) of the isotopes shipments produced by the IRML were to DOE production facilities, weapons laboratories, and other defense laboratories. The percentage of shipments made to these facilities approached 50 percent in 1976, and the frequency of shipments was one to two per month through 1985. The Isotopes Sales Office also provided materials to DP customers, but much less than that for the IRML. Records indicate that between 1970 and 1991, 9 percent (90 of 1,004) of the shipments from the Isotopes Sales Office were to DOE production facilities, weapons laboratories, and other defense laboratories (Reference U038). In addition, 25 percent (78 of 314) of the shipments from the Building 9204-3 RMC were to DOE production facilities, weapons

laboratories, and other defense laboratories (References P1357, P1358, P1359, P1360, P1361, P1362, P1363, P1364, P1365, P1366, P1367, U038).

The following are examples of some specific defense activities that generated TRU waste in waste stream OR-ISTP-CH-HET:

- Cm-242 and Cm-244 sources were produced in Building 3028 beginning in the mid-1960s for the Systems for Nuclear Auxiliary Power (SNAP) Program. The purpose of this program was to demonstrate the use of isotopic power devices in space, undersea, and remote terrestrial locations, which included military uses (References P047, P089, P119, P175).

- Some of the Cm-244 inventory in Building 3028 not used in curium fuel tests was transferred to the ORNL Radiochemical Engineering Development Center (REDC) in the 1970s for use as feed material for californium (Cf)-252 production (Reference U038). The Cf-252 neutron sources produced at the REDC had many applications, including neutron radiography of weapons components and military aircraft (Reference 11).

- Small samples of highly enriched Pu-239 from the Building 9204-3 calutrons were shipped to Rocky Flats nuclear weapons facility in 1976 and 1977 (References P1357, P1358).

- Dosimeters were fabricated from U-233 and Th-232 by the ORNL Solid State Division for Westinghouse-Bettis between 1976 and 1978 for use in the Shippingport Reactor core characterization program (References P091, P227). During this time period, the Advanced Water Breeder Applications program, under the technical direction of the Office of the Deputy Assistant Secretary for Naval Reactors, was involved in the core characterization program (Reference 12).

- Sealed sources containing U-232, U-235, Np-237, Pu-238, Pu-239, and Am-241 were fabricated by the ORNL Isotope Section of the Operations Division and shipped to Los Alamos National Laboratory (LANL) in 1981 for use in calibration of a TRU waste survey instrument to be installed and operated at ORNL (Reference P1363).

- A new scheme for neutron assay of the TRU waste drums was designed and tested at ORNL in 1982. As part of the testing, a Pu-238 source was assayed in various matrices and found to be detectable at the levels anticipated in Savannah River Site waste (Reference P1363).

- Weapons-grade Pu-239 sources were fabricated in Building 3033-A by the IRML in 1985 and 1986 for use as standards in the verification of a neutron assay system developed for nondestructive assay (NDA) of TRU waste (References P1366, P1367, U038).

- Am-241 oxide diagnostic tracer discs were fabricated by the IRML in 1985 and

1986 for Lawrence Livermore National Laboratory to be used for the Whitney Program. This work was performed in Buildings 3038-E and 3047 (References P1366, P1367, U038).

- Cm-244 metal was prepared by the IRML in 1988 and 1989 for LANL for use as a nuclear weapons diagnostic package. The curium oxide was reduced to metal in Building 3038-E, and the package was assembled in Building 3033-A (References C034, P1147, U038).

Although much of the TRU waste generated in the Isotopes Programs facilities was not from defense activities, waste from defense projects and non-defense projects was not segregated into separate drums, and there was no requirement to do so (References C087, C089, C097, U038). Therefore, TRU waste from defense and non-defense projects is commingled.

There are several atomic energy defense activities that apply to this waste stream, including naval reactors development, weapons activities including defense inertial confinement fusion, defense nuclear materials production, defense nuclear waste and materials by-products management, defense nuclear materials security and safeguards and security investigations, and defense R&D. The one defense activity that is probably the best representation of the waste stream as a whole is "defense nuclear materials production" because the primary waste generating activity was isotopes production and distribution.

A Defense Determination Approval Form for waste generated in the Isotopes Programs facilities was approved by DOE Oak Ridge Operations (Reference M192).

4.3.2 Spent Nuclear Fuel and High-Level Waste Assessment

Public Law 102-579, *Waste Isolation Pilot Plant Land Withdrawal Act* (as amended), bans the disposal of spent nuclear fuel (SNF) and high-level waste (HLW), as defined by the NWPA, at WIPP. According to the NWPA, "spent nuclear fuel" is defined as "fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing." "High-level waste" is defined by the NWPA as "the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations, and other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation." These requirements are also defined in DOE M 435.1-1 which is the mandatory requirements manual for implementing DOE Order 435.1 (References 6, 7, I022, I023, I043).

Based on an evaluation of the SNF and HLW requirements by the ORNL operating contractor and DOE-Oak Ridge Operations, it was determined that the ORNL did not process SNF and, therefore, does not generate HLW (References U038, U647). Waste stream OR-ISTP-CH-HET may include fuel materials in the form of encapsulated heat

sources, pellets, and oxide powder; however, these materials are unirradiated and are not reactor driver fuel. Therefore, these materials do not meet the definition of SNF. For this reason, the HLW requirements in DOE M 435.1-1 are not applicable, and these requirements were not included in the ORNL Implementation Plan for DOE Order 435.1 (Reference P569). Therefore, this waste stream does not contain SNF or HLW.

4.4 Description of Waste Generating Operations

The TRU waste generating operation in the ORNL and Y-12 Isotopes Programs facilities up until 1991 is generally described in Section 4.4.1. Since 2006, waste stream OR-ISTP-CH-HET has been undergoing repackaging at the TWPC to remove prohibited items. TWPC operations are described in Section 4.4.2.

On December 11, 1989, DOE Headquarters instructed ORNL to prepare the Isotopes Programs facilities for deactivation/safe shutdown. The goal of the Isotopes Facilities Deactivation Project (IFDP) was to place the facilities in a radiologically and industrially safe and stable condition for an extended period of minimum surveillance and maintenance prior to eventual decontamination and decommissioning (D&D). Implementation of IFDP activities began in 1991 and were completed in June 2004 (References M171, M191, P235, P327, P335, P341, P342, P346, P510, P867).

4.4.1 Isotopes Programs Facilities

This section provides an overview of the operations in each Isotopes Programs building that generated TRU waste. More detailed waste generating activities are provided in Section 5.3.

4.4.1.1 Building 3028, Curium Source Fabrication and Target Fabrication Facilities

The CSFF consisted of hot cells used to convert aqueous solutions of Cm-242 and Cm-244 into pellets that were encapsulated into heat sources for the SNAP Programs that began in the mid-1960s. The heat sources were used to produce thermoelectric power for spacecraft. For a short time in 1971, the hot cells were also used to parcel out and weigh TRU oxides (primarily Pu-238) for distribution via the Isotopes Sales Office. At the termination of the SNAP Programs, the CSFF was operated as the Cm-244 Fuel Development Facility which packaged Cm-244 oxide for the Isotopes Sales Office from 1975 until it was shut down in 1979. After decontamination of the curium hot cells in 1981 and 1982, the AHF operations in Building 3038 were transferred to Building 3028, and the facility was re-designated the Alpha Powder Facility which weighed and packaged various actinide oxides (References C096, P022, P189, P190, P336, P400, P481, P528, P1351, U007, U038).

The upper floors of Building 3028 were converted into the TFF for the IRML in the 1960s. Work in this facility included vacuum evaporation, conversion of the alpha-emitting oxide to metal, rolling, and welding. After the TFF moved to Building 3038 in 1977, the upper

floors of Building 3028 were occupied by the Nuclear Medicine Technology Group which did not generate TRU waste (References M191, P022, P101, P175, P346, P400, P481, P1351, U038).

Building 3028 was operated by the Isotopes Division until July 1975 when the division was dissolved. The building was under the administrative control of the Operations Division from July 1975 until June 1988 at which point it was operated by the Chemical Technology Division (References M191, P400, P1147).

4.4.1.2 Building 3029, Source Development Laboratory

Building 3029 was a hot cell facility designed for production of radiation sources for industrial, medical, and research application, including Co-60, strontium (Sr)-90, cesium (Cs)-137, and promethium (Pm)-147. The facility also contained several gloveboxes that processed iodine (I)-131. These operations did not generate TRU waste. Building 3029 also included an AHF where Pu-238, Cm-242, and Cm-244 were encapsulated (welded) in support of curium source fabrication or Isotope Sales activities in Building 3028. The AHF moved to Building 3038 in 1972, and the gloveboxes were decontaminated (References P022, P101, P529, P1085, P1351, U038).

Building 3029 was operated by the Isotopes Division until July 1975 when the division was dissolved (Reference P1085). TRU waste has not been generated in Building 3029 since 1972 (Reference M171).

4.4.1.3 Building 3030, Radioisotope Production Laboratory C

Building 3030 contained one manipulator-type hot cell used to process irradiated cyclotron and reactor targets to produce numerous unique radioisotopes (References P022, P101). This hot cell did not generate TRU waste. There are no TRU waste drums exclusively from Building 3030. The only TRU waste from Building 3030 consists of several Am-241/Be neutron sources packaged in a drum from Building 3038 (References M191, U038).

4.4.1.4 Building 3031, Radioisotope Production Laboratory D

Building 3031 contained one hot cell used in the final separation stage of gadolinium (Gd)-153 from europium (Eu) targets. The Gd-153 was used in nuclear medicine research (References P022, P101). Building 3031 also contained a glovebox that was devoted to production of small Am-241 sources for the Isotopes Sales Office during the 1970s (Reference U038).

One drum of TRU waste was generated in Building 3031 in 1971 (References M171, M191). Building 3031 was operated by the Isotopes Division until July 1975 when the division was dissolved (Reference M191).

4.4.1.5 Building 3032, Radioisotope Production Laboratory E

Prior to 1970, Building 3032 housed the analytical facility for radiochemical support of the isotopes production activities. Building 3032 did not contain a hot cell, and only a chemical laboratory hood and bench operations with hoods were reportedly located in this building. However, interviews with former staff indicated Building 3032 had also housed gloveboxes for preparation of Am-241 for the Isotopes Sales Office for use in production of Am-241/Be neutron sources. These same gloveboxes had reportedly been used during the early-1960s to prepare Am-241 sources in support of Cm-242 production (References P022, P101, U038).

Two drums of TRU waste were generated in Building 3032 in 1972 (References M171, M191). Building 3032 was operated by the Isotopes Division until July 1975 when the division was dissolved (Reference M191).

4.4.1.6 Building 3033-A, Actinide Fabrication Laboratory

Building 3033-A included a small area for carbon (C)-14 production and the AFL which was a larger main operating area for preparation of research materials by personnel of the IRML. Operations of the C-14 Facility were suspended in 1973. The AFL contained gloveboxes for the fabrication of neutron dosimeter materials as well as the weighing and packaging of milligram to gram quantities of actinide materials. This area was also used to fabricate ceramic oxide wire. In addition to receipt and control of nuclear materials, other operations in Building 3033-A were often coordinated with those at other facilities, such as Building 3038, in order to fulfill requests for services (References P022, P101, P1351, U038).

Building 3033-A was operated by the Isotopes Division until July 1975 when the division was dissolved. Between 1975 and 1982, Building 3033-A was operated by the Solid State Division. The building was under the administrative control of the Operations Division from 1982 until 1988 at which point it was operated by the Chemical Technology Division (References M191, P532, P1351).

4.4.1.7 Building 3038, Alpha Handling Facility, Isotopes Shipping Facility, and Isotope Research Materials Laboratory

The Building 3038 AHF contained hot cells and gloveboxes for handling alpha- and neutron-emitting materials, and the preparation of targets and sources. In 1984, the work performed in the AHF was relocated to Building 3028 in preparation for a program to separate U-234 from aged Pu-238. A room in the southwest corner of the building (referred to as the AHF Annex) contained gloveboxes used to encapsulate actinide materials (primarily Am-241, Np-237, and Pu-238) for the Isotopes Sales Office. The ISF housed various parts of the radioactive materials shipping operations for the Isotopes Sales Office. The shipping area consisted of a barricade area for the storage of liquid isotopes for pipette dispensing, canning, and packaging operations. The east portion (3038-E) was used as an analytical laboratory to perform analysis of short-lived

radioisotopes supporting the Isotopes Sales Office until February 1977 when the area was converted into the IRML for isotopes development and production. From its inception, the IRML prepared targets for particle accelerators and for studies of neutron interactions. The northern part of the IRML was dedicated to production work, and the southern part was used for R&D activities (References P022, P101, P398, P458, P1351, U038).

Building 3038 was operated by the Isotopes Division until July 1975 when the division was dissolved. At that time, the overall responsibility of the AHF was the Operations Division, but the gloveboxes in the AHF were under the control of the Solid State Division. The IRML was also the responsibility of the Solid State Division after 1975. Beginning in 1982, Building 3038 in its entirety was controlled by the Operations Division, and then in 1988, Building 3038 became the responsibility of the Chemical Technology Division (References M191, P224, P236, P398, P453, P753, P1351).

4.4.1.8 Building 3047, Radioisotope Development Laboratory

The Building 3047 RDL produced radioisotopic materials and performed R&D. IRML activities were carried out primarily in the water-shielded manipulator alpha cell and gloveboxes in Room 110. The alpha-handling laboratories in Rooms 211 and 212 operated in support of isotopes production and R&D for the Isotopes Sales Office. TRU waste generated in the alpha-handling laboratories included preparation of Cm-244 and Cf-252 targets, arc melting of actinide material, and various experiments. Most of the radioactive processing equipment was set up for each experiment and dismantled at the conclusion of the experiment (References P101, P289, P291, P294, P1351, U038).

Building 3047 was operated by the Isotopes Division until July 1975 when the division was dissolved. The building was under the administrative control of the Operations Division from July 1975 until June 1988 at which point it was operated by the Chemical Technology Division (References M191, P298, P862, P876, P1351).

4.4.1.9 Building 9204-3, Electromagnetic Isotope Separation Facility

Building 9204-3 at Y-12 was part of a complex of electromagnetic isotope separation facilities originally designed to separate uranium isotopes for nuclear weapons during the Manhattan Project. The east end of Building 9204-3, known as the APA, was modified for the special separations program that enriched a wide variety of actinide isotopes for research purposes. The calutrons were used to produce purified isotopes of thorium, uranium, plutonium, americium, and curium, but primarily plutonium for non-weapons-related research and safeguards applications. The calutrons in the APA operated continuously from 1962 until September 1975 when they were placed in a standby condition. These calutrons started up again in May 1979 for a Pu-242 enrichment campaign, and then following the completion of this campaign, the facility was cleaned and placed in a standby condition in 1980 (References M191, P098, P119, P526, P1351, P1360, P1361, U038).

The APA also contains several glovebox lines designed for recovery and recycle of products, components washing and servicing, and preparation of shipments of electromagnetically separated heavy element isotopes from the RMC, which was maintained as part of the electromagnetic isotope enrichment program (References P348, P526, U038).

Building 9204-3 was operated by the Isotopes Division until July 1975 when the division was dissolved. The Chemical Technology Division operated the facility from July 1975 until October 1981. The building was under the administrative control of the Operations Division from October 1981 until June 1988 at which point it was operated again by the Chemical Technology Division (References M191, P098, P164, P532).

4.4.2 Transuranic Waste Processing Center

As necessary, drums containing CH-TRU waste in storage are moved individually to the TWPC PB (Building 7880) glovebox airlock. Once inside the glovebox airlock, the drum is moved to the drum tipper where the lid is removed and the drum contents are emptied into sorting trays. The waste articles are manually sorted and segregated via glove ports to remove prohibited items and repackaged at one of the four load-out stations along the glovebox. Boxes containing CH-TRU waste are moved into the box breakdown area (BBA) in the PB via airlocks. Within the BBA, the box lid is removed. The waste is inspected, removed, size reduced, and sorted manually within the BBA, and either packaged into new drums directly from the BBA or processed through the glovebox as described above. Prohibited items identified during repackaging of drums and boxes are removed from the waste stream or are remediated (References P251, P254, P255, P256).

The TWPC approach to processing remote-handled (RH) TRU solid wastes is similar to that used for CH solid wastes except that RH wastes are processed in the TWPC Hot Cell. RH concrete casks may contain RH-TRU, CH-TRU, and/or low-level waste. Waste suspected to be CH-TRU waste is placed into a CH drum that is attached to the bottom of the TWPC Hot Cell, and no further VE of the item is required in the TWPC Hot Cell. Occasionally, waste initially repackaged in the TWPC Hot Cell as RH-TRU has a surface dose rate less than 200 mR/hr and the waste must be transferred to another 55-gallon drum designated for CH-TRU waste that is positioned in the CH drum out station below the hot cell sorting table. The Cask Processing Enclosure (CPE) in the PB is designed as a processing area where concrete casks determined to contain CH waste can be processed in a manner similar to that of the BBA as described above. Prohibited items are not packaged into CH drums during cask repackaging. Secondary waste generated during repackaging operations in the TWPC Hot Cell and CPE may include solidified liquids (e.g., Nochar) (refer to Table 5-5 for liquids used in the process), amalgamated mercury, personal protective equipment, and other miscellaneous process materials and equipment generated during routine operations(References P432, P583, P584).

Glovebox internal walls are periodically wiped down using damp rags. Secondary wastes created during waste processing, such as rubber glovebox gloves and tools, are placed

into TRU waste drums that are included in this waste stream (References P252, P253, P432). If polychlorinated biphenyls (PCBs) are encountered during waste processing, Big Orange E (nonhazardous solvent containing d-Limonene) is used if necessary for glovebox, BBA, CPE, and hot cell decontamination. PCB decontamination waste may be included in this waste stream (References M194, P582).

A diagram for solid waste processing at the TWPC is shown in Figure 17, Transuranic Waste Processing Center Solid Waste Flow Diagram. A diagram for processing CH-TRU waste at the TWPC is shown in Figure 18, Transuranic Waste Processing Center CH Solid Waste Diagram (References P254, P432, P1116, U046).

4.5 Waste Identification and Categorization

4.5.1 Physical Characteristics

Waste generators completed a UCN-2109 form in which a waste description was recorded. The waste description indicates that wastes were not segregated by physical form (e.g., plastic, metal, glass). Included with the UCN-2109 is a waste container log sheet which indicates that individual packages within a drum contain a mixture of physical material types. The predecessor to the UCN-2109 form was the UCN-2822 which includes waste type codes and provides a brief waste description as well as the volume of combustible waste. The waste type codes include (References C153, M191):

- BW – Biological Waste
- CE – Contaminated Equipment
- DD – Decontamination Debris
- DS – Dry Solids
- SS – Solidified Sludge
- NC – Not Classified

The waste type codes assigned to the drums in waste stream OR-ISTP-CH-HET are CE, DD, DS, and NC. Earlier versions of the UCN-2822 form did not include waste type codes, but since the form was revised in April 1975, it will indicate the burnable volume percent and occasionally will include a brief description of the waste. Prior to April 1975, generators were required to package burnable and non-burnable wastes in separate drums (Reference M191). However, review of RTR and VE data for drums generated before April 1975 indicates that burnable and non-burnable wastes were not always segregated (Reference M189, M190). A data log sheet with a brief description of the waste is sometimes included with the UCN-2822 form. Attached to the UCN-2822 form is information from RTR (e.g., percent combustible and prohibited items) conducted by ORNL (Reference M191).

A limited number of the drums in this waste stream were examined by RTR and/or VE at the TWPC in 2006 and 2007. The RTR and VE are being used as AK because they were

not conducted under the CCP TRU Waste Certification Program at ORNL. Most of the RTR data sheets include a description of the waste items observed, but waste material parameter weights were not estimated. A few of the RTR data sheets only indicated whether prohibited items were present and did not provide waste descriptions. VE was conducted on 36 drums which includes waste material parameter weight estimates as well as a description of the waste items (References M189, M190).

The physical form characteristics of waste stream OR-ISTP-CH-HET are described further in Section 5.4.1.

4.5.2 Radiological Characteristics

Radiological data for each waste container are reported on form UCN-2822. This form lists the principal isotope(s) based on process knowledge and a best estimate of the quantity. The quantity was based on the dose rate of the waste packet and a calculation of curie (Ci) content of the beta/gamma emitters using a specified formula. In many instances, the estimate is listed as less than (e.g., <0.1 Ci Pu-239). The estimates from the UCN-2822 are entered into the ORNL tracking database (*eMWaste*); however, the less than sign was omitted (e.g., <0.1 Ci was entered as 0.1 Ci) (References M171, M191).

An NMIT form is sometimes found with the UCN-2822 which indicates the total element weight and the isotope weight for each Material Type (MT) present. About 60 of the original containers in waste stream OR-ISTP-CH-HET have an NMIT form (References M171, M191). See Section 5.4.2 for additional details.

Form UCN-2822 was replaced by form UCN-2109 in the mid-1990s. The UCN-2109 lists the nuclides and activities as well as the method of determination. For the waste with a UCN-2109 form in this waste stream, several methods were used. In some cases, a dose-to-curie calculation was done using the surface dose rate combined with knowledge of the isotopes present. This method is described in Procedure RTS-025 (References M191, P876). In a few instances, material accountability records were used, but for most of the drums, isotope activities were measured using gamma spectroscopy NDA (Reference M191).

Nearly every drum in this waste stream was assayed by ORNL beginning in the mid-1980s using neutron counting and gamma spectroscopy NDA (Reference U038). About 60 of these drums were also assayed at the TWPC in 2006 and 2007 (Reference M188). These data were evaluated to assist in the development of an NDA Memorandum as required by CCP-TP-005 (Reference 1).

The specific radionuclides expected to be present in waste stream OR-ISTP-CH-HET based on generator data are provided in Section 5.4.2.

4.5.3 Chemical Characteristics

Approximately 90 percent of waste stream OR-ISTP-CH-HET was generated prior to ORNL implementing a Resource Conservation and Recovery Act (RCRA) program in about 1987. All of this waste has subsequently been identified by ORNL as RCRA-regulated. Most are identified as RCRA suspect (i.e., assumed to contain hazardous constituents but specific EPA hazardous waste numbers have not been assigned by ORNL). The RCRA suspect designation is the result of a 2003 Tennessee Department of Environment and Conservation (TDEC) inspection in which TDEC pointed out numerous instances of waste in storage that had not been properly characterized. TDEC indicated this waste was to be managed onsite as RCRA hazardous waste "Pending Analysis for Hazardous Waste". The RCRA suspect designation was removed from a few of the drums and EPA hazardous waste number D008 (lead) was assigned based on RTR conducted by ORNL several years ago (References M171, M191, P917, P1112, U038).

About 10 percent of the waste stream was generated since ORNL implemented a RCRA program. Several of these containers were assigned EPA hazardous waste number D006 (cadmium) and/or D008 (lead) by the generator. However, many were characterized by ORNL as nonhazardous waste (References M171, M191). The characterization of several of the nonhazardous containers was changed and assigned the EPA hazardous waste numbers corresponding to waste stream ORFWENC-008 in the 2006 TWPC AK Summary Report (References DR024, M171, U044).

Containers in this waste stream have been historically managed by the generator individually or in small populations for RCRA characterization purposes. Containers included in waste stream OR-ISTP-CH-HET were not managed as a single hazardous or non-hazardous waste stream. Therefore, this waste stream does not consist of containers historically segregated by the generator into separate mixed and non-mixed waste streams based on the hazardous constituent identified for specific containers. The chemical characteristics of waste stream OR-ISTP-CH-HET is described further in Section 5.4.3.

4.6 TRU Waste Management

Since April 1970, ORNL has been segregating TRU waste from other classes of waste and started storing it in a manner that would allow retrieval over a 20 year period. Since implementation of this segregation practice, TRU solid wastes with low external gamma exposure rates (less than 200 mR/hr) were packaged in 30- or 55-gallon carbon steel or stainless steel drums (References P087, P568, P1085).

4.6.1 Types and Quantity of TRU Waste Generated

The waste stream described by this report is characterized as TRU mixed waste in accordance with RCRA. The specific containers are provided in the Waste Containers List which is maintained as a quality record as required by procedure CCP-TP-005

(Reference 1). The number of containers in the waste stream is provided in Table 4-1, Waste Stream Volumes.

Table 4-1. Waste Stream Volumes

Waste Stream	Number of 55-Gallon Drums [1,2]	Volume (Cubic Meters)
OR-ISTP-CH-HET	610	126.9

1. Less than 5% of these 55-gallon drums are currently in 79-, 85-, or 110-gallon overpacks.
2. There are also three boxes that will be repackaged into drums (see Section 5.2 for more details).

4.6.2 Correlation of Waste Streams Generated from the Same Building and Process

The WIPP-WAP defines a waste stream as waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity (Reference 2). One debris waste stream has been delineated for the CH-TRU waste generated in Buildings 3028, 3029, 3031, 3032, 3033-A, 3038, 3047, and 9204-3 according to this definition. The basis and rationale for delineating waste stream OR-ISTP-CH-HET is as follows:

- The activity in these facilities that generated this waste stream is isotopes production and distribution, and ancillary operations that supported this activity (R&D, facility maintenance, and facility deactivation) (Refer to Sections 4.4 and 5.3).

- The waste stream is similar in material and physical form in that it is comprised of a variety of organic and inorganic debris waste items. Debris wastes were not segregated by physical form, and the volume percent combustible in each drum is highly variable (Refer to Sections 4.5.1 and 5.4.1).

- All of the drums in this waste stream have been characterized by ORNL as containing RCRA hazardous constituents or are suspected as containing RCRA hazardous constituents. However, containers included in the waste stream were not managed as single hazardous or non-hazardous waste streams. Therefore, this waste stream does not consist of containers historically segregated by the generator into separate mixed and non-mixed waste streams based on the hazardous constituent identified for specific containers (Refer to Sections 4.5.3 and 5.4.3).

4.7 Waste Certification Procedures

In the CCP program under which the subject waste stream will be certified for shipment to WIPP, CCP-TP-005 (Reference 1), directs compilation of AK. CCP certifies TRU waste under the program described in CCP-PO-002 (Reference 8).

5.0 REQUIRED WASTE STREAM INFORMATION: OR-ISTP-CH-HET

This section presents the mandatory TRU waste stream specific information required by the WIPP-WAP for waste stream OR-ISTP-CH-HET (Reference 2). The area of generation, waste stream volume, period of generation, prohibited items, waste packaging, and the physical, chemical, and radiological composition of the waste stream are described.

5.1 Area and Building of Generation

Waste stream OR-ISTP-CH-HET was generated in Buildings 3028, 3029, 3030, 3031, 3032, 3033-A, 3038, 3047, and 9204-3. A description of the area and buildings of generation of TRU waste are provided below (Reference DR025):

- Building 3028 – TRU waste was generated in the CSFF and Cm-244 Fuel Development Facility operated in Cells 1 through 6 until 1982 at which time it was converted to the Alpha Powder Facility. TRU waste was not generated in these hot cells between late-1982 and 1995, and therefore, the Alpha Powder Facility operation did not generate TRU waste except from deactivation of the hot cells in 1995. Building 3028 also housed the TFF until 1977. TRU waste is attributed to the glovebox operations in these areas, which operated on the second, third, and fourth floors of Building 3028 (References I012, M191, P175, P342, P346, P400).

- Building 3029 – TRU waste was generated from activities in the AHF gloveboxes (References M191, P346, P933, P1085).

- Building 3030 – TRU waste was generated from the disposal of Am-241/Be radiation sources in a drum from Building 3038 (References M191, U038).

- Building 3031 – TRU waste was generated in a glovebox which was devoted to production of small Am-241 sources (References M191, U038).

- Building 3032 – TRU waste was generated in gloveboxes used for the preparation of Am-241/Be neutron sources (References M191, U038).

- Building 3033-A – TRU waste was generated in the AFL gloveboxes (References M191, P022, P101, P1351, U038).

- Building 3038 – TRU waste was generated in hot cells and gloveboxes in the AHF and AHF Annex (3038-W), and hot cells and gloveboxes in the IRML (3038-E). No drums are specifically identified as being generated in the ISF (3038-M), but this area of the building handled TRU materials and could potentially have generated TRU waste (M191, M197, P453, P838, P1272, P1351).

- Building 3047 – TRU waste was generated in RDL glovebox and hot cell operations in the Rooms 110, 211, and 212 alpha handling laboratories (References M191, M197, P289, P291, P294, P1287, P1312).

- Building 9204-3 – TRU waste was generated by the calutron and glovebox operations in the APA (References M191, M197, P235, P346).

5.2 Waste Stream Volume and Period of Generation

Waste stream OR-ISTP-CH-HET includes 610 55-gallon drums (less than five percent of these are overpacked in 79-, 85-, or 110-gallon drums). The waste was originally generated from November 1970 to June 2004. There is one drum with an origin date of December 2002, but a log sheet included with the UCN-2109 indicates waste was added to this drum until June 2004. About 70 percent of the waste was generated in the 1970s, about 26 percent in the 1980s, and less than 5 percent since 1990. A break down by building is provided below (References M171, M191, M197, M217, M230):

- Building 3028 – 231 drums generated from November 1970 to June 1995
- Building 3029 – 6 drums generated from September 1971 to May 1972
- Building 3031 – 1 drum generated in September 1971
- Building 3032 – 2 drums generated from February 1972 to July 1972
- Building 3033-A – 21 drums generated from August 1972 to May 1992
- Building 3038 – 165 drums generated from October 1971 to June 2004
- Building 3047 – 58 drums generated from February 1972 to August 1999
- Building 9204-3 – 126 drums generated from December 1970 to August 1989

There are several drums where *eMWaste* identifies a single generation building, but a review of the container paperwork identified waste from multiple Isotopes Programs facilities in the same drum (Reference M191).

Repackaging of this waste stream at the TWPC to remove prohibited items began in 2006 and will continue (Refer to Section 5.5 for additional details on prohibited item removal) (Reference M187). The specific container numbers are provided in the Waste Containers List which is maintained as a quality record as required by procedure CCP-TP-005 (Reference 1).

There is also one oversized box (X10C9600555) of TRU waste generated in Building 9204-3 that requires repackaging at the TWPC (Reference M217). The number of drums to be produced from this repackaging effort is estimated at 15 drums assuming 7 cubic feet per 55-gallon drum (References M187, M197).

The facilities described in this report have been deactivated; however, it is possible that TRU waste will be generated in the future from final D&D in these buildings. No estimates have been made of the volume of TRU waste to be generated from final D&D.

5.3 Waste Generating Activities

This section describes the waste generating activities in several Isotopes Programs facilities. These facilities produced and distributed OSM with atomic numbers 84 (polonium) and above. The Isotopes Programs consisted of four main elements: 1) Radioisotopes production and technical services and R&D support, 2) the IRML, 3) Isotopes Sales Office, and 4) electromagnetic isotope separation (References P175, P532, P546, U038). The TRU waste generating operations in the Isotopes Programs facilities are described below. Waste repackaging is performed in the PB (Building 7880) at the TWPC as described in Section 4.4.2.

There are several figures in the back of this report that show layouts of gloveboxes, hot cells, and other equipment in these buildings, but process flow diagrams have not been included in this report due to the varied nature of the work performed. Technical reports cited throughout this section and referenced at the end of the AK Summary Report, such as safety analysis reports, technical reports, and division progress reports, include process flow diagrams or a detailed description of the waste generating process.

5.3.1 Building 3028, Curium Source Fabrication and Target Fabrication Facilities

Target Fabrication Facility (Gloveboxes)

The TFF was used to prepare target films, foils, and other shapes. The activities involved in the production of targets included (References P400, P481, P1351):

- Evaporating actinide oxides using an electron-bombardment heat source
- Converting the oxide to metal by simultaneous reduction-distillation
- Rolling, punching, and welding of the metals

Curium Source Fabrication Facility (Hot Cells)

The CSFF was used to fabricate heat sources of Cm-242 and Cm-244 and to conduct tests and experiments involving these radioisotopes. The preparation of the materials processed in the facility required a variety of operations consisting of (References P336, P400, P481, U007, U038):

- Precipitating the curium solution and filtering the solids
- Calcining the solids to an oxide
- Blending of the oxide for pressing into pellets
- Encapsulating the pellets by inert gas welding
- Helium leak testing and ultrasonic decontamination of the heat source

Alpha Powder Facility (Hot Cells)

The Alpha Powder Facility was designed to package and distribute gram quantities of alpha materials. Oxides of Am-241, Am-243, Cm-244, Np-237, and Pu-238 were packaged and shipped upon customer request (Reference P528). Operations included (References P101, P175, P528, P1351, U038):

- Weighing oxide powder and loading into an inner container
- Wiping of the inner container to remove contamination
- Placing the inner container in an outer stainless steel capsule.
- Inert gas welding of the outer capsule
- Vacuum leak testing and cleaning of the capsule

Hot Cell Decontamination

Decontamination of the CSFF in 1981 and 1982 prior to its new use as the Alpha Powder Facility was a significant TRU waste generation activity (References M171). The primary objective of this decontamination effort was to reduce the radioactivity in the cells and in the operating areas to an acceptable level for refurbishing the facility for a new program. The project objectives were to (Reference P190):

- Remove curium sesquioxide powder remaining in the cells,
- Remove obsolete contaminated equipment from the cells, and
- Decontaminate the cells to acceptable levels for personnel entry.

5.3.2 Building 3029, Source Development Laboratory

The AHF in Building 3029 consisted of two gloveboxes used to encapsulate (weld) and test small amounts of alpha-emitting isotopes (Pu-238, Cm-242, Cm-244) in support of curium source fabrication or Isotope Sales activities in Building 3028. These welding capabilities were relocated to the Building 3038 AHF Annex in 1972, and the gloveboxes were decontaminated (References P1085, P1351, U038).

5.3.3 Building 3031, Radioisotope Production Laboratory D

Building 3031 contained a glovebox which was devoted to production of small Am-241 sources for the Isotopes Sales organization during the early-1970s (Reference U038).

5.3.4 Building 3032, Radioisotope Production Laboratory E

Building 3032 contained gloveboxes for preparation of Am-241 for the Isotopes Sales Office during the early-1970s for use in production of Am/Be neutron sources (Reference U038).

5.3.5 Building 3033-A, Actinide Fabrication Laboratory

The AFL was used for the preparation of research materials by personnel of the IRML. Staff in this facility used TRU isotopes available from a variety of sources to meet both ad hoc requests for services and longer-term programmatic needs. Sources of radioisotopes at ORNL included the RMC of actinide isotopes maintained in Building 9204-3. Activities in the AFL included the following (References P750, P1292, P1351, U038).

Fabrication of Neutron Dosimeters

Neutron dosimeters were fabricated for placement in reactors and activated by neutrons to determine integral reaction rates from which fission characteristics at a particular location within the reactor could be computed.

- Milligram quantities of actinide oxides in the form of powders or ceramic oxide wires were weighed on a microbalance.
- The actinide materials were loaded into the vanadium capsules which were sealed by inert gas welding and decontaminated ultrasonically.

Fabrication of Ceramic Oxide Wire

- Actinide oxide powders were mixed with wax, and the mixture was extruded through a small orifice and wound on a collecting spool.
- The actinide oxide wire product was cut into small lengths and loaded into magnesium oxide tubes which were placed in aluminum oxide tubes.
- The aluminum oxide tubes were heated in a furnace to remove the wax binder, and the wires were cut into the appropriate lengths.

Packaging of Actinide Materials

Milligram to gram quantities of actinide materials were prepared for use by experimentalists in various areas of research. This work involved:

- Encapsulating actinide materials in standard metal powder cans
- Inserting top plugs into the cans and sealing by inert gas welding, or
- Placing inside another metal can and then sealing by welding
- Ultrasonically decontaminating the metal containers.

5.3.6 Building 3038, Alpha Handling Facility, Isotopes Shipping Facility, and Isotope Research Materials Laboratory

Building 3038 was used for the study of transuranium elements, fabrication of alpha- and neutron-emitting targets and sources, shipment of radioisotopes, and the study of

chemical processes involving tracer level activities. These processes were performed in various areas of the building as described in the following paragraphs (References P458, P1272, P1294, U038).

Alpha Handling Facility and Annex

The AHF, located in the western portion of the building, was utilized primarily for studying the physical and chemical characteristics of transuranium elements, fabrication of alpha- and neutron-emitting targets and sources, and fabrication of beta and low-energy gamma sources. Examples of AHF activities are outlined below (References P398, P458, P714, P1272, U038):

- Evaporated targets were produced by sweeping a small pellet of target feed material with an electron beam. The electron beam evaporated the target feed material which condensed evenly on a substrate.
- U-234 was obtained by separation from its Pu-238 parent isotope. This was accomplished by a series of steps involving dissolution, precipitation, filtration, calcination, evaporation, ion-exchange, and reduction.
- Fabrication and destructive testing of Pu-Be neutron sources. Sources were fabricated by combining plutonium oxide and beryllium powder in a metal capsule and sealed by inert gas welding.

A separate room in the southwest corner of Building 3038, referred to as the AHF Annex, began glovebox operations in 1972. This facility performed the following activities (References P458, P1351):

- Weighing and dispensing of milligram to gram quantities of oxide powders such as Am-241, Pu-238, and U-234.
- The actinide powders were encased in stainless steel capsules using inert gas welding and leak tested prior to shipment.

Isotope Research Materials Laboratory

The eastern portion of the building was converted to R&D and production facilities for the IRML in 1977. Gloveboxes in this facility were used for the fabrication of radioactive targets and the examination of materials by destructive and non-destructive means. The northern portion of the IRML was dedicated to target production, and the southern portion was dedicated to R&D activities (References P458, P1351, U038).

Target Production

- Evaporation
- Hot Pressing
- Metal Rolling

- Sputtering (target over-coating)
- Welding

Research and Development

- X-ray Fluorescence
- X-ray Diffraction
- Scanning Electron Microscopy
- Microprobe Analysis
- Low Geometry Counting
- Fabrication and Examination of Uranium and Plutonium Alloys
- Pm-147-doped crystal development

Isotope Shipping Facility

The ISF, located in the central portion of Building 3038, dispensed, canned, boxed, and labeled isotope containers prior to shipping as described below (References P458, P1272, U038):

- Barricade Storage Area – Heavy density concrete behind which were two "Lazy Susan" lead-shielded storage racks.
- Pipetting Station – Equipment for remote work with product bottles, including sampling, examining, solution transferring, and bottle capping.
- Canning and Packaging Station – Equipment for the shielding and sealing of containers prior to being boxed for shipment.

5.3.7 Building 3047, Radioisotope Development Laboratory

The Building 3047 RDL performed R&D and produced radioisotopic materials. The majority of the waste was from the Rooms 110, 211, and 212 alpha handling laboratories. Since Building 3047 was an R&D facility, there was no standardized routine chemical processing. Operations generally consisted of solvent extraction, ion exchange, precipitation, volatilization, condensation, distillation, dissolution, shearing, grinding, crystallization, heating, and cooling. A wide variety of activities were carried out on an experimental basis, such as (References P101, P289, P291, P294, P1316, P1351, U038):

- Fabrication of Cf-244 and Cf-252 targets
- Fabrication of various actinide metals and alloys by arc melting
- High-temperature experiments with encapsulated Cm-244
- Mechanical testing of sources

- Packaging of Pu-238 oxide
- Purification of Np-237
- Welding of target fuel pins

5.3.8 Building 9204-3, Electromagnetic Isotope Separation Facility

The APA in Building 9204-3 separated actinide isotopes for research purposes using electromagnetic separation using eight 24-inch radius calutron units (two plutonium separators and six separators for other transuranium elements). The APA also contained several glovebox lines designed for recovery and recycle of products, components washing and servicing, and preparation of shipments of enriched actinide isotopes from the RMC (References P348, P526, U038).

Heavy element isotope separation was accomplished by ionizing a suitable charge material in a vacuum tank, passing the ionized beam through a magnetic field which spread the various masses apart, and collecting the separated beams in receiver pockets. After the mass separation had been accomplished, the unresolved material was recycled and the separated isotope products were recovered from the receiver pockets. Only 10 to 20 percent of the starting material was collected in the product pockets, and 80 to 90 percent of the charge was volatilized onto the liner, source, and receiver parts, and was recycled and reused as charge material (Reference P526).

5.3.9 Isotopes Facilities Deactivation Project

Implementation of the IFDP began in 1991 and was completed in June 2004. The goal of the project was to place the Isotopes Programs facilities in a radiologically and industrially safe and stable condition for an extended period of minimum surveillance and maintenance prior to eventual D&D. Facilities that generated TRU waste since 1991 included Buildings 3028, 3038, 3033-A, and 3047. Deactivation activities included (References M171, M191, P235, P327, P335, P341, P342, P346, P831, P867):

- Nuclear material inventory was packaged and transferred to storage or disposal
- Waste and loose equipment from hot cells was removed and size-reduced
- Hot cells were wiped down
- Hot cell manipulator boots were replaced and in-cell filters removed
- Piping services to hot cells and gloveboxes were drained and plugged
- Gloveboxes were wiped down and painted to fix contamination
- Gloves from glovebox ports were removed and the ports sealed
- Gloveboxes were packaged for disposal

5.4 Types of Wastes Generated

This section describes the specific waste items, waste matrix code assignment, waste material parameter weight estimates, radionuclide contaminants, and hazardous waste determinations for waste stream OR-ISTP-CH-HET.

5.4.1 Materials Related to Physical Form

Waste stream OR-ISTP-CH-HET is comprised primarily of organic and inorganic debris waste items. UCN-2822 waste disposal forms may provide a description of the physical form of the waste, but typically they are very brief. A data log sheet is sometimes included with the UCN-2822 form which includes a short description of the waste. UCN-2109 forms, which replaced the UCN-2822 in the mid-1990s, also have a description of the waste (Reference M191). Waste item descriptions were also obtained from limited RTR and VE conducted at the TWPC as well as TWPC waste repackaging data forms (References M187, M189, M190, M197). Specific waste items present in this waste stream are as follows:

- Iron-based metal items including banding, cables, pipe nipples (may be capped), caps, conduit, containers (e.g., buckets, cans, cylinders, drums), discs, drain traps, dust pans, electrical boxes, fittings, flanges, gauges, glovebox floor sweepings, hand tools (e.g., caulk gun, channel locks, files, hack saws, hammers, hole punches, knives, pipe cutters, pliers, scissors, screwdrivers, tape measure, vices, wire brushes, wrenches), hardware (e.g., bolts, clamps, clips, connectors, nails, nuts, screws, washers), labware (e.g., beakers, funnels, ring stands, scalpels, spoons, stirrers, tongs, tweezers), lids, light fixtures, needles, pans, pins, piping, planchets, portal covers, rebar, rods, saw blades, scrap metal (e.g., angle iron, blocks, plate, tank pieces), sealed (stainless steel cladding) radiation sources (e.g., Am-241/Be, Pu-239/Be, Cf-252, radium [Ra]-226), sleeves, strapping, tool bits, tubing, valves, weights, welding fixtures, wire mesh, and wire

- Aluminum metal items such as cages, cans, foil, glove portal inserts, pans, piping, respirator cartridges, rods, scrap, and screen

- Other metals such as batteries (e.g., alkaline, nickel-cadmium), beryllium pieces, brass (e.g., brackets, fittings, pipe, valves), copper (e.g., cables, fittings, foil, plate, scrap, tubing, wire), lead (e.g., blankets, bricks, cylinders, pigs, scrap, sheeting, shielding, solder, tape), tantalum shielding, plutonium metal, and uranium metal (e.g., discs)

- Other inorganic materials including actinide oxide powder, absorbent (e.g., kitty litter, vermiculite), asbestos (e.g., insulation), ceramics (e.g., bowls, dowels, firebrick, pipe, porcelain), concrete, filter media, glassware and broken glass (e.g., beakers, bottles, funnels, jars, jugs, light bulbs, mirrors, tubes, vials), graphite (e.g., block, calutron collector pockets, die bodies, rings), Met-L-X (fire extinguishing powder; see Table 5-5), mortar/pestle, paint chips, and sand

- Cellulosic items such as absorbent pads, brooms, brushes, cardboard, cloth (e.g., cheesecloth, cotton glove liners, coveralls, gloves, mops, rags), containers (e.g., ice cream cartons), cork, cotton swabs, fiberboard, gauze, leather gloves, masking tape, paper (e.g., filters, sandpaper, smears, suits, tissue, towels, wipes), sponges, and wood (e.g., handles, rulers, shavings)

- Plastic items including bags, caps, containers (e.g., bottles, buckets, jugs), electrical cord, fittings, foam (e.g., ear plugs), Herculite® (industrial fabric), hose, ion-exchange resin (may be grouted), labware (e.g., funnels), Lexan®, liner remnants, manipulator boots, nylon rope, plexiglass, pipe, sheeting, sleeves, strippable coating (e.g., CC Wet and CC Fix), styrofoam, suits, syringes, tape (e.g., Teflon®, vinyl), tie straps, tubing, and Velcro®

- Rubber items such as aspirators, belts, gasket material, gloves, grommets, hoods, hose, O-rings, respirators, shoe covers, stoppers, and suits

- Electrical devices and equipment (e.g., ball mill rollers, calutron source units, circuit boards, compressors, cutting tools, evaporators, furnaces, heat exchangers, hot plates, motors, paint sprayers, power supply, presses, probes, pumps, scales, smoke detectors, vacuum cleaners)

- Metal-framed and wood-framed HEPA filters with inorganic filter media

- Small amounts of homogenous materials such as grease, grouted resin, and absorbed liquids (absorbents may include Absorbal, Nochar, Solid-a-sorb, vermiculite, etc.). See Table 5-5 for liquids used in the process.

5.4.1.1 Waste Matrix Code

As shown in the previous section, waste stream OR-ISTP-CH-HET is comprised primarily of organic and inorganic debris waste items and generally consists of cellulosics, plastic, rubber, glass, ceramic, graphite, and metal. The waste matrix code S5400 was assigned to this waste stream based on the evaluation of AK information relating to the physical form of the waste recorded on UCN-2822 and UCN-2109 waste disposal forms and historical RTR and VE data. The volume percent burnable/ combustible waste on the UCN-2822 and UCN-2109, and from historical RTR conducted by ORNL is highly variable ranging from 0 to 100 percent (Reference M191). The limited VE data also indicate a high degree of variability (Reference M190).

Accordingly, Waste Matrix Code S5400, Heterogeneous Debris, is applied to this waste stream. The definition of this Waste Matrix Code is provided in DOE/LLW-217, *DOE Waste Treatability Group Guidance* (Reference 4). This category includes waste that is at least 50 percent, by volume, debris materials that do not meet the criteria for assignment as either an Inorganic Debris (S5100) or Organic Debris (S5300). This evaluation is documented in a memorandum (included with Attachment 6 completed per CCP-TP-005) (Reference 1).

Some drums in this waste stream may contain small amounts of homogenous waste materials such as absorbed liquids. However, individual drums are expected to contain less than 50 percent, by volume, of these materials. However, eight drums generated in Building 9204-3 were identified as containing pump oil absorbed with vermiculite (Reference M171). Based on a review of historical RTR, these drums contain greater than 50 percent, by volume, absorbed oil and therefore are not included in waste stream OR-ISTP-CH-HET because they are considered homogeneous waste (Reference M126). Any drum identified by RTR as containing more than 50 percent, by volume, homogenous waste or soil will be removed from this debris waste stream.

5.4.1.2 Waste Material Parameters

The waste material parameter weight estimates for waste stream OR-ISTP-CH-HET were derived from limited VE performed at the TWPC in 2006 and 2007. There are 36 drums from this waste stream that have TWPC VE data. The VE was not performed under the CCP TRU Waste Certification Program, and therefore, the data are considered AK (Reference M190). In 2006 and 2007, the TWPC conducted RTR on approximately 80 drums in this waste stream; however, RTR did not provide an estimate of the waste material parameter weights (Reference M189). An analysis of the VE data was performed, the results of which are presented in Table 5-1, Waste Stream OR-ISTP-CH-HET Waste Material Parameters. This evaluation is documented in a memorandum (included with Attachment 6 completed per CCP-TP-005) (Reference 1).

Table 5-1. Waste Stream OR-ISTP-CH-HET Waste Material Parameters

Waste Material Parameter	Weight Percent (Wt%)	Weight Percent Range
Iron-based Metals/Alloys	32.4%	0% – 89.2%
Aluminum-based Metals/Alloys	1.7%	0% – 18.1%
Other Metals	9.3%	0% – 80.0%
Other Inorganic Materials	2.0%	0% – 25.6%
Cellulosics	16.2%	0% – 73.2%
Rubber	8.9%	0% – 90.0%
Plastics (waste materials)	29.3%	0% – 90.0%
Organic Matrix	<0.1%	0% – 2.4%
Inorganic Matrix	0.3%	0% – 6.3%
Soils/Gravel	0%	0% – 0%

5.4.2 Radiological Characterization

5.4.2.1 Radiological Characterization of Waste Stream OR-ISTP-CH-HET

The radiological characterization of waste stream OR-ISTP-CH-HET provided in Table 5-2, Waste Stream OR-ISTP-CH-HET Radiological Characterization, is based on generator data (not decay-corrected) reported on waste disposal forms and in the

eMWaste database (refer to Section 4.5.2). To determine isotopic ratios for the waste stream as a whole, the total gram value for each individual radionuclide was divided by the total mass of all radioactive constituents in the waste stream and converted to a percentage. This result is listed as "Total Radionuclide Wt%." To determine the radionuclide wt% range for individual containers, the radiological mass in each container in the waste stream was summed. The mass of each individual radionuclide in a container was divided by the total radiological mass for that container and converted to a percentage. The minimum and maximum results are listed as "Radionuclide Wt% Range for Individual Containers." The same process was applied to determine "Total Radionuclide Ci%" and "Radionuclide Ci% Range for Individual Containers." As shown in Table 5-2, Waste Stream OR-ISTP-CH-HET Radiological Characterization, the two most prevalent radionuclides are as follows (References M171, M191).

- The two most prevalent radionuclides by mass are Th-232 and U-238 at 40.9 percent and 25.5 percent, respectively. Th-232 was only reported in four drums, and three of these contain 450 to 960 grams of Th-232 which accounts for more than 99 percent of the Th-232 in the waste stream. U-238 was only reported in 11 drums, and seven of these contain 44 to 400 grams of U-238 which accounts for about 99 percent of the U-238 mass in the waste stream. Because Th-232 and U-238 have such low specific activities, both can be difficult for gamma spectroscopy NDA to accurately quantify.

- The two most prevalent TRU radionuclides by mass are Np-237 and Pu-239 at 15.3 percent and 6.9 percent, respectively. Np-237 was reported in 43 drums, and 18 of these contain 1.4 to 379 grams of Np-237 which accounts for about 99 percent of the Np-237 mass in the waste stream. Pu-239 was reported in 120 drums, and 25 of these contain 0.1 to 19.8 grams of Pu-239 which accounts for 99 percent of the Pu-239 mass in the waste stream.

The radionuclide weight percent of individual radionuclides varies on a container-by-container basis. Because of this variability, some containers will not include the waste stream predominant radionuclides but may include other radionuclides expected in this waste. The radiological evaluation for this waste stream is documented in the NDA Memorandum as required by CCP-TP-005 (Reference 1).

Table 5-2. Waste Stream OR-ISTP-CH-HET Radiological Characterization

Isotope	Total Radionuclide Wt% [1,4]	Radionuclide Wt% Range for Individual Containers [3,4]	Total Radionuclide Ci% [2,4]	Radionuclide Ci% Range for Individual Containers [3,4]	Suspected Present (Yes/No)	Number of Drums with Nuclide
WIPP Required Radionuclides						
Am-241	1.7%	0 - 100%	4.7%	0 - 100%	Yes	133
Pu-238	1.9%	0 - 100% [7]	27.0%	0 - 100% [6]	Yes	120
Pu-239	**6.9%**	0 - 100% [7]	0.4%	0 - 100% [6]	Yes	167
Pu-240	2.3%	0 - 99.9%	0.4%	0 - 76.3%	Yes	83
Pu-242	0.7%	0 - 100% [7]	Trace	0 - 100% [6]	Yes [5]	89
U-233	0.7%	0 - 71.9%	Trace	0 - 97.6%	Yes	8
U-234	Trace	0 - 99.6%	Trace	0 - 9.1%	Yes [5]	15
U-238	**25.5%**	0 - 99.9%	Trace	0 - 1.2%	Yes	11
Cs-137	Trace	0 - 36.3%	Trace	0 - 99.6%	Yes	9
Sr-90	Trace	0 - Trace	Trace	0 - Trace	Yes [5]	3
Additional Radionuclides Reported [8]						
Co-60	Trace	0 - Trace	Trace	0 - Trace	Yes	1
Pm-147	Trace	0 - 9.1%	Trace	0 - 53.4%	Yes	8
Sm-151	Trace	0 - Trace	Trace	0 - 0.7%	Yes	1
Eu-152	Trace	0 - Trace	Trace	0 - Trace	Yes	1
Bi-211	Trace	0 - Trace	Trace	0 - 9.1%	Yes	4
Ra-223	Trace	0 - Trace	Trace	0 - 20.8%	Yes	4
Ra-226	Trace	0 - 4.7%	Trace	0 - 1.4%	Yes	6
Th-227	Trace	0 - Trace	Trace	0 - 9.0%	Yes	3
Th-228	Trace	0 - Trace	Trace	0 - Trace	Yes	4
Th-229	Trace	0 - Trace	Trace	0 - Trace	Yes	1
Th-230	Trace	0 - Trace	Trace	0 - Trace	Yes	2
Th-232	**40.9%**	0 - 99.9%	Trace	0 - 0.4%	Yes	4
Pa-231	0.1%	0 - 99.9%	Trace	0 - 41.7%	Yes	9
U-232	Trace	0 - 8.1%	Trace	0 - 54.6%	Yes	1
U-235	2.9%	0 - 97.5%	Trace	0 - 3.4%	Yes	47
U-236	Trace	0 - 6.2%	Trace	0 - Trace	Yes	2
Np-237	**15.3%**	0 - 100%	Trace	0 - 100%	Yes	43
Np-239	Trace	0 - Trace	Trace	0 - 0.3%	Yes	4
Pu-241	0.3%	0 - 99.9%	21.4%	0 - 99.9%	Yes	87

Table 5-2. Waste Stream OR-ISTP-CH-HET Radiological Characterization (Continued)

Isotope	Total Radionuclide Wt% [1,4]	Radionuclide Wt% Range for Individual Containers [3,4]	Total Radionuclide Ci% [2,4]	Radionuclide Ci% Range for Individual Containers [3,4]	Suspected Present (Yes/No)	Number of Drums with Nuclide
Pu-244	Trace	0 - Trace	Trace	0 - Trace	Yes	4
Am-243	0.2%	0 - 100%	Trace	0 - 100%	Yes	35
Cm-242	Trace	0 - 100% [7]	0.8%	0 - 100% [6]	Yes	12
Cm-243	Trace	0 - Trace	Trace	0 - 0.9%	Yes	5
Cm-244	0.7%	0 - 100% [8]	45.2%	0 - 100% [7]	Yes	300
Cm-245	Trace	0 - 29.7%	Trace	0 - 0.2%	Yes	6
Cm-246	Trace	0 - 5.2%	Trace	0 - Trace	Yes	7
Bk-249	Trace	0 - Trace	Trace	0 - 25.0%	Yes	1
Cf-249	Trace	0 - Trace	Trace	0 - Trace	Yes	2
Cf-252	Trace	0 - 100% [8]	Trace	0 - 100% [7]	Yes	44

1. This listing indicates the total wt% of each radionuclide over the entire waste stream.
2. This listing indicates the total activity Ci percent of each radionuclide over the entire waste stream.
3. This listing is the percent range of each radionuclide on a container-by-container basis. Some containers with "0" listed as the lower range, will not contain the specified radionuclide.
4. "Trace" indicates <0.1 wt% for that radionuclide.
5. Pu-242, U-234, and Sr-90 cannot be quantified by gamma spectroscopy. They are calculated based on NDA Memorandum.
6. There will be no drums with 100% Pu-238, Pu-239, Pu-242, or Cm-242. It is reported this way because there are drums where only the one dominant nuclide was reported.
7. There are 188 drums with only Cm-244 reported and 6 drums with only Cf-252 reported. Cm-244 and Cf-252 are not TRU nuclides, but these drums may also contain unreported TRU nuclides and will be assayed to verify their TRU content.
8. Other isotopes measured by historical ORNL assay (gamma spectroscopy) but not reported in the *eMWaste* database include Na-22, Co-56, Zn-65, Y-88, Tc-99m, Ru-106, Sn-117m, I-131, Eu-154, Yb-169, Pb-212, Pa-233, and U-237. These isotopes are relatively short-lived and/or have relatively large A2 values, and therefore, will not contribute to 95 percent of the hazard.

5.4.2.2 Nuclear Material Type Codes

An NMIT form is sometimes included with the UCN-2822 which indicates the total element weight and/or the isotope weight for each MT. If applicable, ORNL used the total element weight and the isotope weight to calculate the wt% of the two dominant isotopes for the MT and entered the data into *eMWaste*. Table 5-3, Waste Stream OR-ISTP-CH-HET Material Types, provides a summary of the MT codes and the mass fractions for the approximately 60 containers in this waste stream that have an NMIT form (References M191, P1269, U038).

Table 5-3. Waste Stream OR-ISTP-CH-HET Material Types

Material Type Code	Material Type Description	Mass Fraction Range
	Uranium Material Types	
11	Depleted Uranium (<0.21% U-235)	0.0011% – 0.2% U-235
12	Depleted Uranium (0.21 - 0.24% U-235)	0.21% – 0.22% U-235
16	Depleted Uranium (0.31 - 0.50% U-235)	0.348% U-235
32	Enriched Uranium (5 - 10% U-235)	9.2% – 9.65% U-235
35	Enriched Uranium (35 - 45% U-235)	41.79% U-235
38	Enriched Uranium (92 - 94% U-235)	93.0% – 93.7% U-235
39	Enriched Uranium (>94% U-235)	99.208% – 99.94% U-235
71	Uranium-233 (<5 parts-per-million [ppm] U-232)	1 ppm U-232
72	Uranium-233 (5 - 10 ppm U-232)	5 ppm – 8 ppm U-232
81	Normal Uranium	0.711% U-235
	Plutonium Material Types	
41	Plutonium-242 (20 - 60%)	48.4% Pu-242
42	Plutonium-242 (>60%)	92.55% – 99.8% Pu-242
51	Plutonium (<4% Pu-240)	0.001% – 3.38% Pu-240
52	Plutonium (4 - 7% Pu-240)	4.92% – 6.93% Pu-240
53	Plutonium (7 - 10% Pu-240)	9.3% – 9.7% Pu-240
54	Plutonium (10 - 13% Pu-240)	10.0% – 11.88% Pu-240
55	Plutonium (13 - 16% Pu-240)	13.34% – 15.0% Pu-240
57	Plutonium (>19% Pu-240)	40.44% – 99.97% Pu-240
83	Plutonium-238	80.55% – 90.37% Pu-238
	Other Material Types	
44	Americium-241	100% Am-241
46	Curium	3.59% – 7.35% Cm-246
48	Californium	50.0% – 86.26% Cf-252
82	Neptunium-237	100% Np-237
88	Thorium	100% Th-232

5.4.3 Chemical Content Identification – Hazardous Constituents

EPA hazardous waste numbers were assigned to waste stream OR-ISTP-CH-HET in accordance with RCRA based on a review of available AK documentation to identify chemical usage and potentially hazardous materials that may have been introduced into the waste stream. Material Safety Data Sheet information for commercial products was also evaluated (Reference M194). Table 5-4, Waste Stream OR-ISTP-CH-HET EPA Hazardous Waste Numbers, lists the EPA hazardous waste numbers assigned to waste stream OR-ISTP-CH-HET. This waste stream has been historically managed in accordance with ORNL waste management practices in compliance with the requirements imposed by the TDEC. Documentation regarding how the site has

historically managed the waste, including the historical regulatory status of the waste, is described above in Section 4.5.3. The EPA hazardous waste number assignments have been applied on a waste stream basis; individual containers may not contain all of the hazardous materials listed for the waste stream as a whole.

Table 5-5, Waste Stream OR-ISTP-CH-HET Chemical List, is a list of chemicals and their use/source as it relates to the generation of this waste stream (chemical synonyms or abbreviations are in parenthesis). Several of the documents reviewed, such as division progress reports and isotope section progress reports, typically do not identify the building where the work was done. Building-specific documents that describe the facility operations were helpful in determining which chemicals were used in the process. However, it is possible that some of the chemicals listed in Table 5-5 may not have been used in the facilities or process that generated this waste stream but have been included as a conservative measure.

Table 5-4. Waste Stream OR-ISTP-CH-HET EPA Hazardous Waste Numbers

EPA Hazardous Waste Number	Constituent
F-Listed Solvents	
F002	Trichloroethylene
F005	Benzene
F005	Toluene
Toxicity Characteristic Compounds	
D005	Barium
D006[1]	Cadmium
D007	Chromium
D008[1]	Lead
D009	Mercury
D011	Silver
D019	Carbon tetrachloride
D022	Chloroform

1. These EPA hazardous waste numbers were also assigned by the Waste generator to containers in this waste stream.

Table 5-5. Waste Stream OR-ISTP-CH-HET Chemical List

Chemical/Material	Use/Source	EPA Hazardous Waste Number	AK Source
Acetic acid	Dissolution agent	NA	P1292, P1316
Acetone	Cleaning solvent	NA	P1292, P1312
Adogen 364 ((C8-10) trialkylamine)	Extraction agent	NA	P089
Ajax (trichlorocyanuric acid)	Degreaser / cleaner	NA	U569
ALARA 1146 (waterborne vinyl strippable coating)	Strippable paint for decontamination	NA	P190
Alkyl chlorates (non-specific)	Reagent	NA	P1312
Aluminum nitrate	Feed solution component / complexing agent	NA	P348, P526, P714, P874
Aluminum oxide (alumina)	Ceramic component	NA	P750, P1292
Ammonium bifluoride	Reagent	NA	P762
Ammonium carbonate	Precipitation agent	NA	P526
Ammonium chloride	Pm-doped crystal experiment	NA	U473
Ammonium hydrofluoride	Fluoridizing agent	NA	P1367
Ammonium hydroxide	pH control / precipitation agent	NA	P336, P348, P400, P458, P481, P526, P528, P714, P762, P874, P941, P1292, P1312
Ammonium iodide	Stripping agent / reducing agent	NA	P458, P874
Ammonium nitrate	Wash solution	NA	P941, P1312
Ammonium peroxysulfate	Stripping solution	NA	P1364
Ammonium salts (nonspecific)	Contaminant	NA	P1357
Amsco 125-82 (aliphatic hydrocarbons)	Solvent	NA	P089, P526
Amyl acetate	Lacquer component	NA	P226
Barium carbonate	Precipitation agent	D005	P526
Benzene	Solvent	F005	P175, P762, P1312
Beryllium	Neutron source component / test material	NA	P753, P1147, P1351, U468
Big Orange-E (d-Limonene)	Solvent used for PCB decontamination at the TWPC	NA	M194, P582
Boron nitride	Heater insulator material / fluorination test agent / test material	NA	P1357
Cadmium	Actinide coating material / batteries / shielding	D006	11, M187, M191, U038
Calcium	Reducing agent	NA	P225
Calcium sulfate (Drierite)	Desiccant	NA	P526
Carbon tetrachloride	Chlorination agent / charge material	D019	P098, P348, P399, P526, P941, P1357
Cellulose nitrate	Lacquer component	NA	P226
Cerium dioxide	Component of simulated waste solids	NA	P1361
Chloroform	Extraction agent / solvent	D022	P1312

Table 5-5. Waste Stream OR-ISTP-CH-HET Chemical List (Continued)

Chemical/Material	Use/Source	EPA Hazardous Waste Number	AK Source
Chromium	Uranium-chromium alloy preparation	D007	P225, P1363, U472
Chromium diuranium trinitride	Material of interest	D007	U587
Chromium oxide	Component of simulated waste solids	D007	P1361
Copper oxide	Coating	NA	U474
Cornstarch	Hydrocarbon binder	NA	P225
De-Icer spray (alcohol, ethylene glycol)	Unspecified use	NA	P876
Detergent (nonspecific)	Wash solution	NA	P481, P835, P847
Di-(2-ethylhexyl) phosphoric acid (HDEHP, D2EHPA)	Extraction agent	NA	P089, P400
Dibutyl phosphate	Byproduct	NA	P526
Diethyl benzene (DEB)	Organic solvent	NA	P089
Dimethyl oxalate	Precipitation agent	NA	P458, P874
Dioctylphthalate (DOP)	Filter test agent	NA	P289
Dowex 1 (styrene, divinylbenzene and ethylstyrene copolymer)	Ion-exchange resin	NA	P458, P526, P874
Elmer's white glue (polyvinyl acetate)	Used for "fixing" loose, radioactive contamination	NA	U124
Epoxy (non-specific)	Adhesive / resin cell liner / surface coating	NA	P190, P299, P336, P400, P481, P1366, U007
Ferric oxide	Component of simulated waste solids	NA	P1361
Ferrous sulfamate	Reducing agent	NA	P348, P526
Formic acid	Precipitation agent	NA	P526
Hydrochloric acid	Dissolution agent / strip solution / resin wash solution	NA	P089, P714, P762, P874, P941, P1292, P1312, P1316
Hydrofluoric acid	Dissolution agent / cleaning / eluant	NA	P348, P458, P526, P874, P941
Hydrogen peroxide	Precipitation agent	NA	P092, P348, P526, P941
Hydroxylamine hydrochloride	Reducing agent	NA	P762
Hydroxylamine nitrate	Reducing agent	NA	P458, P874
Ionac A580 (styrene and divinylbenzene copolymer)	Ion exchange resin	NA	P526, P941
Isopropanol (isopropyl alcohol)	Cleaning solvent	NA	P876, P1316
Kelsan aerosol cleaner (ethyl alcohol, isobutene)	Cleaning solution	NA	P876
Knocker Loose (petroleum distillates and aliphatic hydrocarbons)	Penetrating solvent	NA	P876
Lanthanum chloride	Pm-doped crystal experiment	NA	P1367, U473

Table 5-5. Waste Stream OR-ISTP-CH-HET Chemical List (Continued)

Chemical/Material	Use/Source	EPA Hazardous Waste Number	AK Source
Lead	Bricks / circuit boards / foil / leaded glass windows / paint chips / pigs / rubber glove lining / sheet / shielding	D008	11, M187, M191, P092, P101, P175, P227, P289, P291, P294, P327, P335, P346, P348, P453, P455, P526, P528, P876, U038, U475
Lead fluoride	Reagent used in experiments involving Pm-147	D008	U473
Lead indium phosphate	Frit material used in experiments involving Pm-147	D008	U473
Liquid wrench (napthenic petroleum distillates and petroleum base oil)	Penetrating oil	NA	P876
Lithium chloride	Tramex solvent extraction feed	NA	P089
Magnesium oxide	Ceramic component / dosimeter component	NA	P091, P227, P750, P1292, P1364, P1366, P1367
Mercury	Batteries / catalyst / mercury-containing devices (e.g., mercury vapor lamps, thermostats)	D009	11, 12, M187, M191, P289, P291, P1363
Mercury nitrate	Uranium-aluminum alloy leach solution	D009	P526
Met-L-X (sodium chloride, Saran [vinylidene chloride acrylonitrile copolymer], magnesium aluminum silicate)	Fire extinguishing powder for Class D (combustible metal) fires	NA	M187, M194
Methyl alcohol (methanol)	Solvent / cleaning solvent	NA	P089, P226
Mineral oil	Shielding in hot cell windows	NA	P101, P175, P327, P346, P453
N-dodecane (dodecane, NDD)	Organic solvent	NA	P1357, P1358, P1359
Nickel oxide	Component of simulated waste solids	NA	P1361
Nitric acid	Dissolution agent	NA	P089, P289, P336, P348, P400, P458, P481, P526, P714, P762, P874, P876, P941, P1292, P1312, P1316
Oil (nonspecific, cutting)	Vacuum pump / diffusion pump	NA	P876, P1316, P1351, U038
Oxalic acid	Precipitation agent / decontamination rinse	NA	P190, P348, P400, P481, P526, P876, P941, U007
Paraffin	Hydrocarbon binder	NA	P225
Permutit-SK (magnesium hydroxide, styrene and divinylbenzene sulfonated copolymer)	Anionic resin	NA	P526
Potassium permanganate	Oxidation agent	NA	P876, P1312
Resin (non-specific)	Ion-exchange column	NA	P458, P526, P876, P1316, U038

Table 5-5. Waste Stream OR-ISTP-CH-HET Chemical List (Continued)

Chemical/Material	Use/Source	EPA Hazardous Waste Number	AK Source
RTV silicone	Sealant	NA	P189
Sani-Flush (sodium bisulfate)	Decontamination solution	NA	P190
Scandium oxide	Ceramic component / dosimeter component	NA	P225
Silver	Circuit boards with silver solder	D011	11, 12, M187, M191, U038
Sodium biphosphate	Component of simulated waste solids	NA	P1361
Sodium chloride	Byproduct	NA	P1366
Sodium fluoride	Component of simulated waste solids	NA	P1361
Sodium hydroxide	Neutralization agent / pH control / precipitation agent / titrating agent	NA	P348, P458, P714, P874, P876, P1312
Sodium nitrite	pH control / oxidation agent	NA	P762
Stearic acid	Die lubricant	NA	P299, P1367
Strontium chloride	Pm-doped crystal experiment	NA	P1367
Sulfuric acid	Dissolution agent / decontamination agent	NA	P1292, P1312
Sulfurous acid	Reducing agent	NA	P348, P526, P941
Tantalum carbide	Crucible material	NA	P227, P1363, P1364
Thenoyltrifluoroacetone (TTA)	Extraction agent	NA	P762
Tin chloride	Reducing agent	NA	P089
Toluene	Cleaning solvent	F005	P1316
Tributyl phosphate (TBP)	Extraction agent	NA	P526, P1357, P1358
Trichloroacetic acid	Dissolution agent	NA	P1364, U468
Trichloroethylene	Cleaning solvent	F002	U580
Turco 4501 (potassium hydroxide, hydroxyl-diamine)	Decontamination solution	NA	P190
Urea	Solvent / reagent	NA	P091, P092, P224, P225, P226, P227, U475
WD-40 (petroleum distillates and petroleum base oil)	Lubricant	NA	P876
Xylene	Organic solvent	NA[4]	P762
Zeolite	Component of simulated waste solids	NA	P1361

5.4.3.1 F-Listed Constituents

Waste stream OR-ISTP-CH-HET is an F-listed hazardous waste because the debris wastes were mixed with hazardous wastes from non-specific sources as listed in Title 40, Code of Federal Regulations (CFR) Part 261, *Identification and Listing of Hazardous Waste*, Section 261.31, Subpart D (Reference 13). The following F-listed constituents were used and may contaminate the materials in this waste stream (Reference DR024):

- Trichloroethylene was identified in a logbook for Building 3047. This solvent was used to clean samples prior to acid etching. It is unclear whether the sample was an actinide material (Reference U580). However, Building 3047 was a radioisotope laboratory so even if the samples were not transuranium materials, they would have been radioactive samples, and it is assumed that waste would not have been segregated from TRU waste (Reference M171). Therefore, EPA hazardous waste number F002 is assigned.
- Benzene was identified in a Building 3038 plutonium processing procedure. A solution of thenoyltrifluoroacetone and benzene was used for plutonium extraction (Reference P762). Benzene was also identified as a major laboratory solvent used in Building 3047 although its specific use was not stated (Reference P1312). Additionally, an Isotopes Programs facilities assessment report identified benzene as an example of a hazardous chemical used, but the specific building and use were not provided (Reference P175). Since plutonium extraction is a solvent use, EPA hazardous waste number F005 is assigned.
- Toluene was identified in a safety analysis report for Building 3047. This solvent was utilized only infrequently for maintenance activities such as hot cell window cleaning (Reference P1316). Therefore, EPA hazardous waste number F005 is assigned.

The EPA has provided a regulatory clarification that the F001-listing is only appropriate when the listed solvents are used in a large-scale degreasing operation such as cold cleaning or vapor degreasing on an industrial scale (Reference 10). Large-scale degreasing operations were not identified in the Isotopes Programs facilities. Therefore, this waste stream is not assigned EPA hazardous waste number F001.

The F003-listed solvents acetone, methanol, and xylene were identified as potentially present in this waste stream as contaminants of debris waste (see Table 5-5). However, F003-listed waste is listed solely for ignitability, and this waste stream does not exhibit the characteristic of ignitability because the solvents are not in liquid form. Therefore, this waste stream is not an F003-listed hazardous waste.

5.4.3.2 Toxicity Characteristic Metals

Waste stream OR-ISTP-CH-HET exhibits the characteristic of toxicity for metals as defined in 40 CFR 261.24, Subpart C (Reference 13). The following toxicity characteristic metals and metal compounds were used and may contaminate the materials in this waste stream (Reference DR024):

- Barium carbonate was used as a precipitation agent in Building 9204-3 to remove the Th-234 daughter from depleted uranium (Reference P526). It is assumed waste generated from these non-transuranium materials would not have been segregated from TRU waste (Reference M171).
- Cadmium-plated copper was used in Building 9204-3 for neptunium oxide detector foils. Cadmium was also used in Building 3038 as a coating for plutonium and uranium isotopes. Cadmium shielding was identified in TRU waste from

Building 3033-A (Reference U038). Cadmium is also common in small batteries in electronic equipment (References 11, M187, M191, U038). The EPA hazardous waste number for cadmium was assigned by the waste generator to containers in this waste stream (Reference M171).

- Chromium was used in the study of uranium-chromium alloys by the Solid State Division and the Isotopes Section of the Operations Division (References P225, P1363, U472). Chromium diuranium trinitride was identified in an Isotopes Programs facilities logbook (Reference U587). It is assumed waste generated from these non-transuranium materials would not have been segregated from TRU waste (Reference M171). The Isotope Separations Section of the Chemical Technology Division conducted waste fixation studies on concrete specimens containing Cm-244. Chromium oxide was one of the components of the simulated waste solids solidified in concrete (Reference P1361). The documentation does not indicate the building(s) where this work was done; however, the ORNL divisions that performed this work operated the Isotopes Programs facilities.
- Lead is most commonly found in the form of shielding such as bricks, foil, pigs, sheet, rubber glove lining, and leaded glass windows (References P092, P101, P175, P227, P289, P291, P294, P327, P335, P346, P348, P453, P455, P526, P528, P876, U038). Other sources of lead include lead-based paint chips and electronic equipment containing circuit boards (References 11, M187, M191, P335, U038). In addition, lead fluoride and lead indium phosphate were used in Pm-147 experiments (Reference U473). Pm-147 is not a TRU isotope but was reported in drums of TRU waste (see Section 5.4.2). The EPA hazardous waste number for lead was assigned by the waste generator to containers in this waste stream (Reference M171).
- Mercury vapor lamps were used for lighting during hot cell operations in Building 3047 (References P289, P291). Alkaline batteries, which are present in this waste stream, also contain mercury (References 12, M187, M191, U038). Other mercury-containing devices (e.g., thermostats) have not been specifically identified in this waste stream, but have been found in other ORNL waste streams (Reference 11). Mercury catalyzed nitric acid was evaluated as a method for dissolving reactor control plates to permit their incorporation into hydrofracture grouts for disposal. This work was done by the Isotopes Section of the Operations Division, but the specific Isotopes Programs facility was not identified (Reference P1363). Nitric acid containing mercury nitrate was used in Building 9204-3 to dissolve uranium/aluminum alloy (Reference P526). It is assumed waste generated from this non-transuranium material would not have been segregated from TRU waste (Reference M171).
- Silver may be present in solder in electrical equipment which is present in this waste stream (References 11, 12, M187, M191, U038).

Since analytical data are not available to demonstrate the concentrations of these metals are less than the toxicity characteristic regulatory level, EPA hazardous waste numbers D005, D006, D007, D008, D009, and D011 are assigned to this waste stream.

5.4.3.3 Toxicity Characteristic Organics

Waste stream OR-ISTP-CH-HET exhibits the characteristic of toxicity for organic compounds as defined in 40 CFR 261, Subpart C (40 CFR 261.24)(Reference 13). The following toxicity characteristic organic compounds were used and may contaminate the materials in this waste stream (Reference DR024):

- Carbon tetrachloride was used in the Building 9204-3 calutron separation process to covert an actinide oxide (e.g., plutonium, uranium, curium, thorium) to a chloride. The carbon tetrachloride was heated and the vapor was passed over the heated actinide oxide (References P098, P348, P399, P526, P941, P1357).
- Chloroform was identified as a major laboratory solvent used in Building 3047 although its specific use was not stated (Reference P1312).

Since analytical data are not available to demonstrate the concentration of carbon tetrachloride and chloroform are less than the toxicity characteristic regulatory level, EPA hazardous waste numbers D019 and D022 are assigned to this waste stream.

Benzene and trichloroethylene were used in the process that generated this waste stream. As described above, the F-listed EPA hazardous waste numbers have been assigned for these compounds, and, therefore, EPA hazardous waste numbers D018 and D040 will not be assigned to this waste stream.

5.4.3.4 U-, P-, and K-Listed Wastes

Waste stream OR-ISTP-CH-HET does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33) (Reference 13). Based on the AK documentation reviewed, there is no evidence that unused commercial products were disposed of in TRU waste drums. Consequently, U- and P-listed EPA hazardous waste numbers are not assigned to this waste stream.

Hydrofluoric acid was used for cleaning, as a dissolution agent, and as an eluant (References P348, P458, P526, P874, P941). The hydrofluoric acid was used for its intended purpose and would not have been disposed of as an unused commercial product. Therefore, TRU waste contaminated with residual hydrofluoric acid does not meet the definition of a U134-listed waste.

One of the operations conducted by the Isotopes Programs facilities was the fabrication of neutron radiation sources using beryllium powder and Am-241, Pu-238, or Pu-239 oxide (References P753, P1147, P1351, P1357, U468). This process used commercial beryllium powder; however, the beryllium was used for its intended purpose and would not have been disposed of as an unused material. Therefore, TRU waste generated as a result of this operation does not meet the definition of a P015-listed waste. Some of these neutron sources were disposed of as TRU waste, and there was a program for

destructive testing of Pu-Be neutron sources (References M191, P1351, U038). This waste also does not meet the definition of a P015-listed waste.

The UCN-2109 disposal form was modified in 1995 to include beryllium. Only two percent (11 drums) of the drums in this waste stream have a UCN-2109 form with this beryllium field, and only one of these drums (X10C9310152) contains beryllium. This drum contains 684.1 grams of beryllium which is about 0.6 percent of the waste weight (Reference M191). The exact weight of the beryllium in drums generated before 1995 is not known but is expected to be less than one percent of the net weight of the waste.

Waste stream OR-ISTP-CH-HET does not contain hazardous waste from any of the specific sources in 40 CFR 261.32, and therefore, is not a K-listed waste.

5.4.3.5 Ignitables, Corrosives, and Reactives

Some of the chemicals identified in Table 5-5 may exhibit the characteristics of ignitability, corrosivity, and/or reactivity in their pure form. Based on the analysis of the generating process and waste management practices, ignitable, corrosive, or reactive materials would not have been placed in TRU waste drums in a liquid or unused form. As described in Section 5.5, prohibited liquids have been identified in several drums. The absence of prohibited materials will be verified during RTR. Prohibited liquids will be removed or immobilized prior to WIPP disposal to assure that ignitable, corrosive, and reactive chemicals are not included in waste stream OR-ISTP-CH-HET.

Ignitability

A solid waste exhibits the characteristic of ignitability as defined in 40 CFR 261.21 if it has any of the following properties: 1) It is a flammable liquid (flash point less than 60°C), 2) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture, or spontaneous chemical change, 3) It is an ignitable compressed gas, or 4) It is an oxidizer (a substance such as a chlorate, permanganate, inorganic peroxide, or a nitrate, that yields oxygen readily to stimulate the combustion of organic matter) (Reference 13).

Since at least 1968, solid waste handling procedures stated that liquids were disposed in the appropriate liquid disposal system and not intermixed with solid waste. Procedures also indicated that equipment was washed and drained before removal (References P568, P1085). Since ORNL first implemented the WIPP-WAC in 1984, free liquid, pyrophoric material, and compressed gases were verified to be absent in TRU waste in accordance with the ORNL Health Physics Manual, Procedure 5.1 (References P241, P244, P566, P917, P956). The Isotopes Programs facilities established their own procedure in 1986 for handling and packaging CH-TRU waste. This procedure stated that pyrophoric materials were not to exceed one percent of the waste weight, and free liquids, compressed gases, and explosives were prohibited (References P829, P863, P865, P875, P876).

Ignitable liquids used in the Isotopes Programs facilities included acetone, benzene, diethylbenzene, dodecane, isopropyl alcohol, methanol, toluene, xylene, and several commercial products (see Table 5-5). Even before ORNL implemented the WIPP-WAC, these facilities understood the hazards associated with flammable and pyrophoric materials and have always taken measures to prevent fire or explosion (e.g., prohibiting or limiting the amount of material that could be used in a glovebox or hot cell and the use of fire sensors and water detectors in gloveboxes). Solutions containing oxidizing compounds were also used in the Isotopes Programs facilities, including aluminum nitrate, ammonium peroxysulfate, ammonium nitrate, hydrogen peroxide, hydroxylamine nitrate, mercury nitrate, potassium permanganate, and sodium nitrite (see Table 5-5). Waste management practices in these facilities required liquids to be collected separately from solid waste. Liquids were released to the liquid waste system drains (References P294, P398, P400, P528, P529, P1085, P1272, P1292, U007).

To ensure the waste does not exhibit the characteristic of ignitability, liquid in excess of TSDF-WAC limits will be removed or immobilized, and compressed gases (e.g., aerosol cans) will be removed or vented at the TWPC prior to WIPP disposal. Therefore, waste stream OR-ISTP-CH-HET is not assigned EPA hazardous waste number D001.

Corrosivity

A solid waste exhibits the characteristic of corrosivity as defined in 40 CFR 261.22 if it has any of the following properties: 1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, or 2) It is a liquid and corrodes steel at a rate greater than 0.25 inches per year (Reference 13).

Since at least 1968, solid waste handling procedures stated that liquids were disposed in the appropriate liquid disposal system and not intermixed with solid waste. Procedures also indicated that equipment was washed and drained before removal (References P568, P1085). Since ORNL first implemented the WIPP-WAC in 1984, free liquids were verified to be absent in TRU waste in accordance with the ORNL Health Physics Manual, Procedure 5.1 (References P241, P244, P566, P917, P956). The Isotopes Programs facilities established their own procedure in 1986 for handling and packaging CH-TRU waste. This procedure stated that free liquids were prohibited (References P829, P863, P865, P875, P876).

Corrosive liquids used in the Isotopes Programs facilities included acids (e.g., acetic, formic, hydrochloric, hydrofluoric, nitric, oxalic, sulfuric, sulfurous, and trichloroacetic) and caustics (e.g., ammonium hydroxide, sodium hydroxide)(see Table 5-5). Even before ORNL implemented the WIPP-WAC, waste management practices in these facilities required liquids to be collected separately from solid waste. Liquids were released to the liquid waste system drains (References P294, P398, P400, P528, P529, P1085, P1272, P1292, U007).

To ensure the waste does not exhibit the characteristic of corrosivity, liquid in excess of TSDR-WAC limits will be removed or immobilized at the TWPC prior to WIPP disposal.

Therefore, waste stream OR-ISTP-CH-HET is not assigned EPA hazardous waste number D002.

Reactivity

A solid waste exhibits the characteristic of reactivity as defined in 40 CFR 261.23 if it has any of the following properties: 1) It is normally unstable and readily undergoes violent change without detonating, 2) It reacts violently with water, 3) It forms potentially explosive mixtures with water, 4) When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment, 5) It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment, 6) It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement, 7) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure, or 8) It is a forbidden explosive, or Class A or Class B explosive as defined in 49 CFR 173, *Shippers – General Requirements for Shipments and Packagings* (References 13, 14).

Since at least 1968, solid waste handling procedures stated that liquids were disposed in the appropriate liquid disposal system and not intermixed with solid waste. Procedures also indicated that equipment was washed and drained before removal (References P568, P1085). Since ORNL first implemented the WIPP-WAC in 1984, free liquid and compressed gases were verified to be absent in TRU waste in accordance with the ORNL Health Physics Manual, Procedure 5.1 (References P241, P244, P566, P917, P956). The Isotopes Programs facilities established their own procedure in 1986 for handling and packaging CH-TRU waste. This procedure stated that free liquids, compressed gases, and explosives were prohibited (References P829, P863, P865, P875, P876).

Reactive compounds used in the Isotopes Programs facilities included alkyl chlorates, aluminum nitrate, ammonium nitrate, calcium metal, cellulose nitrate, hydrogen peroxide, hydroxylamine hydrochloride, and hydroxylamine nitrate (see Table 5-5). Reactive cyanide or sulfide compounds have not been identified in the process that generated this waste stream. Even before ORNL implemented the WIPP-WAC, these facilities understood the hazards associated with reactive materials and have always taken measures to prevent fire or explosion (e.g., prohibiting or limiting the amount of material that could be used in a glovebox or hot cell and the use of fire sensors and water detectors in gloveboxes). Compounds that could decompose explosively, such as alkali chlorates and ammonium nitrate, were used in the hot cells only in small quantities unless they were in solutions known to be safe and to have no chance of being concentrated to dryness. Waste management practices in these facilities also required liquids to be collected separately from solid waste. Liquids were released to the liquid waste system drains (References P294, P398, P400, P528, P529, P1085, P1272, P1292, U007).

To ensure the waste does not exhibit the characteristic of reactivity, liquid in excess of TSDF-WAC limits will be removed or immobilized and compressed gases (e.g., aerosol

cans) will be removed or vented at the TWPC prior to WIPP disposal. Therefore, waste stream OR-ISTP-CH-HET is not assigned EPA hazardous waste number D003.

5.4.3.6 Polychlorinated Biphenyls

A portion of the containers in waste stream OR-ISTP-CH-HET may contain regulated levels of PCBs, and therefore, are regulated as Toxic Substance Control Act (TSCA) wastes under 40 CFR 761, *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions* (Reference 15).

The final rule banning PCB manufacturing, processing, distribution in commerce, and use was promulgated in 1979 (www.epa.gov/pcb). As a result of these new regulations, ORNL began an effort to identify and track transformers and other large pieces of equipment containing PCBs. Transformers and large pieces of equipment containing greater than 50 ppm PCBs were not identified in any of the Isotopes Programs facilities (References P1100, P1101, P1102, P1103, P1104, P1105, P1106, P1107, P1108, P1109). Large high and low voltage capacitors were not included in the PCB equipment inventory until 1985 (Reference P1109). Large capacitors from Building 9204-3 were listed as being in storage in 1989; however, these capacitors were non-radioactive and therefore would not be in TRU waste (Reference P1103). Several large capacitors were shown as being in service in 1991 in Building 3047 Rooms 109, 113, 212, and 215 (Reference P1104). Room 212 contained gloveboxes, but only two drums of TRU waste were generated after 1991, and both were from Room 110 (References M171, M191, P294).

Light ballasts (containing small PCB capacitors) from Building 3038 were listed as being in storage in 1990; however, these ballasts were non-radioactive and therefore would not be in TRU waste (Reference P1105). Other miscellaneous PCB liquid and solid wastes were generated in Building 9204-3 and have been shipped off-site for disposal since 1982; however, these PCBs were nonradioactive and would not be in TRU waste (References P1103, P1105, P1106, P1108).

ORNL implemented a procedure for PCB management in August 1981, although this version of the procedure has not been located. The next revision of this procedure was in January 1987. The 1987 revision and subsequent revisions have been located (References P1082, P1083). Over 70 percent of this waste stream was generated before August 1981, and about 80 percent of this waste stream was generated before January 1987. ORNL implemented the UCN-2109 form in the early- to mid-1990s. This form indicates whether the waste contains PCBs. Only about three percent of the containers in this waste stream have a UCN-2109 form (Reference M191). Based on discussions with ORNL personnel, some drums in this waste stream may contain equipment with small PCB capacitors and pumps that contained PCB oil. The oil was supposed to be drained from the pumps and not placed into TRU waste, but oil potentially contaminated with PCBs has been identified in a few drums in this waste stream. Examples of equipment containing small capacitors include fluorescent light ballasts and electric motors such as a vacuum pump motor. These items may be present in waste generated before 1979.

There may not have been a concerted effort to inventory pumps or electrical equipment containing small capacitors to determine if they contained PCBs so these items are potentially present in waste generated after 1979 (References C308, M187).

The TWPC has been identifying PCBs during waste repackaging on the *Contact Handled Waste Repackaging Data Form* since December 2010. Beginning in June 2012, known or suspect PCB materials discovered during waste repackaging were segregated from the waste to the extent possible with the exception of PCB Bulk Product waste items (References M187, P254).

Drums found to contain pumps, small capacitors contained in electric motors and light ballasts, or other potential PCB-containing items during RTR or VE will be managed in accordance with the PCB disposal requirements of the WIPP-WAC (References 5, 8).

5.5 Prohibited Items

RTR was first performed by ORNL on nearly every container in waste stream OR-ISTP-CH-HET in the mid- to late-1980s. Prohibited items were found in many of the drums in the waste stream. The prohibited items consist of containerized and un-containerized liquid (124 drums), sealed containers greater than four liters (79 drums), impenetrable objects, such as lead and other dense materials (77 drums), aerosol cans (11 drums), compressed gas cylinders (2 drums), and waste with a surface dose rate greater than 200 mR/hr (2 drums). The 79 drums with sealed containers greater than four liters are all 30-gallon drums that have been overpacked into 55-gallon drums (Reference U038). As discussed below, 30-gallon drums were at one time an acceptable package. During the time period ORNL performed RTR on this waste, other types of sealed containers greater than four liters (e.g., 5-gallon buckets) were acceptable. Therefore, it is likely that there are many more drums in this waste stream with sealed containers greater than four liters. There also may be more drums containing waste with a surface dose rate greater than 200 mR/hr due to the presence of shielded inner containers (e.g., lead pigs).

Limited RTR (79 drums) and VE (37 drums) were performed at the TWPC in 2006 and 2007. The prohibited items identified were liquids (12 drums), sealed containers greater than four liters (28 drums), impenetrable objects (7 drums), and pressurized containers (2 drums) (References M189, M190).

Heat-sealing was one of the sealing methods used for plastic bags removed from gloveboxes (References P568, P905, P1085). It is possible that unvented heat-sealed bags will be greater than four liters (fully expanded volume) but will have a surface area less than 390 square inches. For this reason, every drum in this waste stream will be repackaged to breach all of the heat-sealed bags (References M187, M190, P254).

Metal hose clamps may have been used by the generator as a supplemental sealing devise for plastic bags (Reference P905). Hydrogen diffusion rate testing indicates that metal hose clamps are not an acceptable closure method (Reference P276). Any waste in which RTR or VE identifies metal hose clamps must be remediated.

Some drums in this waste stream may contain radionuclide pyrophorics that are prohibited because they are not generally dispersed in the waste as required by Section 3.5.1 of the WIPP-WAC (Reference 5). Actinide metal foils were produced in the TFF using a rolling mill housed in an argon atmosphere glovebox so these thin metals would not spontaneously ignite (References P458, P1376, P1377). The foils were packaged in glass bottles with twist on lids. The glass bottle was then placed in a second container (e.g., capped pipe nipple, lead pig, tin can, or another glass bottle). The second container may also have been placed into a tin can (References M126, M196, P1376, U680). The foils were product material, but during cleanup of the Isotopes Programs facilities, some actinide materials in storage were disposed in TRU waste drums. Disposal of the actinide materials was documented on an NMIT form. The NMIT form includes a physical/chemical form code for the actinide material. As previously stated in Section 4.5.2, about 60 of the original containers in this waste stream have an NMIT form. Based on a review of these forms, the majority of the drums have codes that correspond to actinide oxides, but 16 drums were identified with a code that corresponds to an actinide metal. The oxides would not be pyrophoric, but the actinide metals are potentially pyrophoric if they are packaged in air tight inner containers (References M191, M640, P1378, U038). Even though only 16 drums have NMIT forms identifying actinide metals, waste generator records are sometimes incomplete. Therefore, to ensure radionuclide pyrophorics are completely reacted before disposal at WIPP, inner containers (regardless of size) in all drums in waste stream OR-ISTP-CH-HET are examined during waste repackaging, or by RTR or VE to determine if they contain a potentially pyrophoric or other reactive material. If pyrophoric or other reactive materials are identified, they are removed from the waste stream or remediated (References P254, P587).

If waste items are found during repackaging at the TWPC that have a surface dose rate greater than 200 mR/hr when placed directly behind the drum wall, the high dose items are placed into separate containers and managed as RH waste or may be packaged into a standard POC as CH waste if the surface dose rate on the outside of the POC is less than 200 mR/hr (Reference P254). Any drum identified by RTR as containing impenetrable inner containers undergoes certified VE where the shielded container is opened to determine the surface dose rate of the waste. Other prohibited items are also removed or remediated during repackaging at the TWPC. Certified RTR and/or VE are performed by CCP to ensure the waste does not contain prohibited items in accordance with the WIPP-WAC and WIPP-WAP (References 2, 5).

5.6 Waste Packaging

Solid wastes in waste stream OR-ISTP-CH-HET generated in gloveboxes and hot cells were packaged in three layers of plastic bags. Glass and other sharp objects were placed in a plastic or metal container and then in two layers of plastic bags. Heat sealing which used heat to soften the bonding areas of the plastic tubing was the preferred sealing method. A cut was then made through the weld. The twist and tape technique was used only where very low-level or no surface contamination was anticipated in the interior bag surfaces to be sealed. When the twist and tape method was used, hose

clamps or electrical cable ties may have been used as well. In cases where the normally approved containers did not provide adequate shielding for the radioactivity, properly shielded containers (e.g., lead-lined) were used (References P272, P568, P905, P1085).

ORNL began packaging TRU waste to the WIPP-WAC in 1984. Procedure 5.1 of the ORNL Health Physics Manual required TRU waste packages to meet the certification criteria of the WIPP-WAC and ORNL-5985, *Certification Document for Newly Generated Contact-Handled Transuranic Waste* (References P244, P917, P956, P1112). ORNL-5985 stated that solid wastes were placed into a secondary container (plastic bags, paper carton, metal can, etc.), bagged-out of the glovebox, and sealed by twist and tape or heat-sealing. The waste may also have been placed into a second bag that was also sealed by twist and tape or heat-sealing. Containers that held liquid were drained, and wet wipes were wrung out and dried. Waste materials with sharp edges, such as certain metal items, were wrapped and taped for puncture prevention (References P244, P566, P834, P838, P863, P876).

The *ORNL Contact-Handled Transuranic Waste Certification Program Plan* was established in 1987 to ensure that TRU waste was packaged to meet the required transportation and storage criteria for shipping to and storage at WIPP. Prior to its implementation, the standard acceptable drums used for CH-TRU waste were 30-gallon and 55-gallon DOT Specification 17C carbon steel or stainless-steel drums lined with a plastic drum liner bag. The 30-gallon drums were no longer allowed as the primary package for TRU waste after this plan was implemented, and all carbon steel drums were placed in overpacks (References P241, P244, P529, P829, P1084).

When contaminated gloveboxes were disposed, as much of the equipment as possible was removed and the inside was cleaned to remove as much loose contamination as practicable. The glovebox was then placed into a plywood box or a metal container. All plywood boxes were later placed inside metal boxes and the tops were secured either by welding or by bolting/gasket (Reference P244).

DOT Specification 7A Type A 55-gallon drums are used for waste packaging (and repackaging) at the TWPC. Drums are lined with a cardboard liner and a 6-mil poly liner bag; rigid liners are not used. When a drum is ready to be closed, the liner bag is twisted, and a cable tie wrap is wrapped around the twisted section and tightened using a banding tool. Additional tape is then wrapped around the twisted section (References M187, M189, M190, P251, P252, P253, P254, P256, P432, P585, P586). Hydrogen diffusion rate testing of cable tie wraps indicates that they are an acceptable closure method (Reference P276).

Occasionally waste initially repackaged in the TWCP as RH waste will have measured surface dose rate less than 200 mR/hr, and the waste must be transferred to a 55-gallon drum designated for CH-TRU waste. Waste anticipated to be RH-TRU waste is initially repackaged into 55-gallon drums lined with an open top lifting sack fitted with standing lift loops. This polypropylene liner may also include a cardboard form insert. The lifting sack facilitates moving the repackaged waste from the RH drum to a drum designated for CH

waste. When waste is moved from a RH drum to a CH drum, the open top lifting sack and cardboard insert become part of the CH waste (References M170, P584).

Waste materials identified during the repackaging of this waste stream with surface dose rates greater than 200 mR/hr may be repackaged into 55-gallon drums containing standard POCs. The standard POC consists of a pipe component centered in a DOT specification 7A Type A 55-gallon drum using dunnage consisting of fiberboard and plywood spacers within a rigid polyethylene liner. The POC is stainless steel cylindrical pipe with a bolted stainless steel lid sealed with an O-ring and is equipped with a manufacturer installed filter vent. The pipe component lid is secured with bolts, the rigid liner lid (which includes a vent hole) is snapped into place, and the drum lid is installed (Reference 16).

5.6.1 Filter Vents

ORNL began using filter vents in 1988; however, most of the waste in waste stream OR-ISTP-CH-HET was generated before 1988 (References M171, P241). Drums transferred from ORNL to the TWPC were vented. Because this waste stream potentially contains prohibited heat-sealed bags, every drum is being repackaged and will be vented at that time (References M187, P254). Each container will be inspected by CCP for the presence of an approved filter vent.

5.6.2 Layers of Confinement

Based on a review of TWPC VE data and TWPC repackaging data forms, the drums in waste stream OR-ISTP-CH-HET have up to three layers of confinement, including a filtered drum liner. The TWPC allows up to four layers of confinement; however, three is the maximum observed. Most drums have only one or two layers of confinement (References M187, M190, M191, P254).

6.0 CONTAINER SPECIFIC INFORMATION

The primary form completed by ORNL waste generators for this waste was the UCN-2822. The UCN-2822 was replaced by the UCN-2109 in the mid-1990s (Reference M191). The types of information included on this form are as follows:

ORNL Form UCN-2822

- Container number
- Generation date
- Origin of waste (building)
- Weight
- Waste type code
- Container type
- Radiological data
- Waste description
- Total volume and combustible volume

ORNL Form UCN-2109

- Container number
- Origin date
- Origin facility (building)
- Origin room/area
- Container type
- Waste description
- Radiological data
- Prohibited items
- Heat-sealed bags
- Ion-exchange resins
- Beryllium
- Combustible material
- Layers of confinement
- Sealing method
- EPA hazardous waste numbers

7.0 REFERENCES

1. CCP-TP-005, *CCP Acceptable Knowledge Documentation,* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.
2. *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan,* New Mexico Environment Department, Santa Fe, New Mexico
3. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan,* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.
4. DOE/LLW-217, *DOE Waste Treatability Group Guidance*, Idaho Falls, Idaho, INEL-Lockheed Idaho Technologies
5. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, Carlsbad, New Mexico, U.S. Department of Energy
6. Public Law 102-579, *The Waste Isolation Pilot Plant Land Withdrawal Act,* October 30, 1992 as amended by Public Law 104-201
7. 42 U.S.C 10101, *Nuclear Waste Policy Act of 1982*, U.S. Congress
8. CCP-PO-002, *CCP Transuranic Waste Certification Plan*, Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.
9. DOE/TRU-2013-3425, *Annual Transuranic Waste Inventory Report – 2013*
10. *McCoy's RCRA Unraveled. 2004 Electronic Edition.* McCoy and Associates, Inc.
11. CCP-AK-ORNL-002, *Central Characterization Program Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Radiochemical Engineering Development Center Contact-Handled Transuranic Waste, Waste Stream OR-REDC-CH-HET*
12. CCP-AK-ORNL-004, *Central Characterization Program Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Reactor Fuels Research & Development Contact-Handled Transuranic Waste, Waste Stream OR-RF-CH-HET*
13. 40 CFR 261, *Identification and Listing of Hazardous Waste*
14. 49 CFR 173, *Shippers – General Requirements for Shipments and Packagings*
15. 40 CFR 761, *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions*
16. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC),* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

8.0 AK SOURCE DOCUMENTS

Source Document Number	Title
C034	Memo to file re: Documentation of Defense-Related Activities Conducted in the Isotopes Research Materials Laboratory (IRML) at Oak Ridge National Laboratory (ORNL)
C087	Interview with Jack Collins: Historical operations and waste management at Building 9204-3 at Y-12
C089	Interview with Joe Devore: Historical operations and waste management at Building 3028
C096	Interview with Tom Miner: Historical operations and waste management at Building 3028
C097	Interview with Tom Miner: Historical operations and waste management at Building 3038
C153	Email Releasing ORNL Container Paperwork. Subject: The Release of Generator Disposal Forms (2822 and 2109) Forms.
C308	Interview of Jason Taylor, ORNL-PCB Coordinator from 1997 - 2004 re: PCB Management at ORNL
DR024	Discrepancy Resolution – Waste Stream OR-ISTP-CH-HET EPA Hazardous Waste Number Assignment
DR025	Discrepancy Resolution – Waste Stream OR-ISTP-CH-HET Generation Location Discrepancies
I012	Operational Safety Requirements for Building 3028
I022	DOE Order 435.1, Radioactive Waste Management
I023	Radioactive Waste Management Manual
I043	Implementation Guide for Use with DOE M 435.1-1
M126	RTR Video Tapes and DVDs from the WEAF Facility for Oak Ridge Waste
M170	Drawings and Specifications for Geotextile drum liners with standing lift loops.
M171	ORNL EM Waste Database Query
M187	EnergX Repack Forms for Waste Stream OR-ISTP-CH-HET
M188	EnergX NDA Data for Waste Stream OR-ISTP-CH-HET
M189	EnergX RTR Data for Waste Stream OR-ISTP-CH-HET
M190	EnergX VE Data for Waste Stream OR-ISTP-CH-HET
M191	UCN-2109 and UCN-2822 Forms and Associated Container Paperwork for Waste Stream OR-ISTP-CH-HET
M192	Defense Determination for TRU Waste Generated in the Isotopes Facilities at Oak Ridge National Laboratory
M194	MSDS Collection for Waste Stream OR-ISTP-CH-HET
M196	WEAF RTR Tapes (M126) Review
M197	Evaluation of Additional Drums for Waste Stream OR-ISTP-CH-HET
M217	eMWaste Database Query from ORNL Dated 01/03/2013
M230	Transuranic Waste Processing Center Database Query
M640	Nuclear Material Management and Safeguards System COEI/Composition Code Reference
P022	Site Descriptions of Environmental Restoration Units at Oak Ridge National Laboratory, Oak Ridge, Tennessee
P047	The Management of Radioactive Waste at the Oak Ridge National Laboratory: A Technical Review
P050	Oak Ridge National Laboratory Institutional Plan, FY1980 – FY1985
P051	Oak Ridge National Laboratory Institutional Plan FY 1981 – FY 1986
P081	Architectural/Historical Assessment of the Oak Ridge National Laboratory, Oak Ridge Reservation, Anderson and Roane Counties, Tennessee
P087	History of Disposal of Radioactive Wastes into the Ground at Oak Ridge National Laboratory
P089	The Preparation of Multi-gram Quantities of Curium-242 for SNAP-11
P091	Solid State Division Progress Report for Period Ending September 30, 1978
P092	Preparation of Actinide Specimens for the US/UK Joint Experiment in the Dounreay Prototype Fast Reactor

Source Document Number	Title
P098	Chemical Technology Division Annual Progress Report, for the Period April 1, 1979 to March 31, 1971
P101	Isotopes White Paper, Volume II: Appendices
P119	Oak Ridge Health Studies Phase I Report; Volume II - Part A Dose Reconstruction Feasibility Study
P164	Chemical Technology Division Annual Progress Report; Period Ending March 31, 1976
P175	Isotopes White Paper: Volume 1: Assessments of Selected Isotopes Circle Facilities, Evaluation of Isotope Processing Alternatives, and Funding Justification for LLW-CAT System for Isotopes Area
P189	Curium Source Fabrication Facility
P190	Final Report on the Decontamination of the Curium Source Fabrication Facility
P224	Solid State Division Progress Report Period Ending September 30, 1981
P225	Solid State Division Annual Progress Report Period Ending December 31, 1975
P226	Solid State Division Progress Report Period Ending February 29, 1980
P227	Solid State Division Annual Progress Report Period Ending April 30, 1977
P235	Work Plan for the Isotopes Facility Deactivation Project at Oak Ridge National Laboratory
P236	The Solid State Division, A Brief history (1952-1995)
P241	Oak Ridge National Laboratory Contact-Handled Transuranic Waste Certification Program Plan
P244	Certification Document for Newly Generated Contact-Handled Transuranic Waste
P251	Box Breakdown Area Operations
P252	Glove Box Operations
P253	Drum Bag In/Bag Out and Glove Ports
P254	Contact Handled Waste Repackaging
P255	Contact Handled Waste Acceptance Criteria
P256	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis
P272	Oak Ridge National Laboratory Waste Management Plan
P276	Determination of H2 Diffusion Rates through Various Closures on TRU Waste Bag-Out Bags
P289	Radioisotope Development Laboratory Building 3047 Hazards Report
P291	Radioisotope Development Laboratory Building 3047 Hazards Report
P294	Radioisotope Development Laboratory Building 3047 Safety Analysis
P298	Stable Isotope Separation in Calutrons: Forty Years of Production and Distribution
P299	Isotope Program (5000) Progress Report for Quarter Ending March 31, 1971
P327	ORNL Isotopes Facilities Shutdown Program Plan
P334	Final Deactivation Report on the Radioisotope Production Lab-E, Building 3032, at Oak Ridge National Laboratory
P335	Final Deactivation Report on the Radioactive Gas Processing Facility, Building 3033, and the Actinide Fabrication Facility, Building 3033A, at ORNL
P336	Report re: Isotopes Development Center, Hazards Report for Building 3028-E (Curium Source Fabrication Facility)
P341	Project Management Plan for the Isotopes Facilities Deactivation Project at ORNL
P342	Final Deactivation Project Report on the Alpha Powder Facility, Building 3028, at ORNL
P346	Work Plan for the Isotopes Facilities Deactivation Project at ORNL
P348	Radiation Safety and Control for The Electromagnetic Isotope Separation of the Heavy Metals in Building 9204-3, Y-12 Plant, Including Operational Procedures and Facility Layouts
P398	Safety Analysis of Isotopes Alpha Handling Facility including Appendix C: Isotopes Division Solid Waste Handling Procedure
P399	Isotope Program (5000) Progress Report For Quarter Ending December 31, 1969

Source Document Number	Title
P400	Safety Analysis of Building 3028
P407	ORNL Isotopes Facilities Shutdown Program Plan
P432	TRU Waste Processing Center Document Safety Analysis
P453	Basis for Interim Operation for the Isotopes Development Laboratory, Building 3038
P455	Phase 1 Safety Analysis Report Update Program (SARUP) Hazard Screening for the Radioisotope Laboratory A, Building 3028
P458	Final Safety Analysis Report for Building 3038
P481	A Multipurpose Building for Processing Alpha, Beta, Gamma and Neutron Emitters
P510	Action Description Memorandum for the Isotopes Facilities Shutdown at Oak Ridge National Laboratory
P526	The Chemical Processing Procedures of Radioactive Isotopes in the Special Separations Program
P528	Safety Analysis Review - Building 3028
P529	Safety Analysis of the Source Development Laboratory - Building 3029
P532	Resource Requirements for A Viable Isotopes Program at Oak Ridge National Laboratory
P546	Isotope Distribution Program Business Plan
P548	The Isotopes Production and Distribution Program Report of the Isotopes Business Strategy Working Group
P566	ORNL Health Physics Manual
P568	Isotopes Division Solid Waste handling Procedure
P569	Implementation Plan for U. S. Department of Energy Order 435.1, U. S. Department of Energy - Oak Ridge Operations, Oak Ridge, Tennessee
P582	PCB Decontamination
P583	Cask Processing Enclosure Operations
P584	Hot Cell Operations
P585	Remote Handled Drum In/Out Operations
P586	Cask Processing Enclosure Drum-In/Drum-Out
P587	Energetic Materials Management
P714	Problem Safety Summary: Bldg 3038: Separation of U-234 from Pu-238
P750	Problem Safety Summary: Bldg 3033 Annex: Building 3033 Annex Operations
P753	Problem Safety Summary: Bldg 3038 (Alpha Handling Facility Cells 4 & 5): Texas Nuclear Pu-239-Be Neutron Source Fabrication. Two Sources
P762	Internal Procedures / Radioisotope Development and Technology: Building 3038
P829	Operations Division, Isotope Production Department, Operating Procedure: CH-TRU Waste
P831	Chemical Technology, Radiochemical Technology, Special Projects, 3033 Annex: Packaging Nuclear Materials
P834	Glove Box Operation (Building 3038, AlphaHandling Facility Annex)
P835	Process Off-Gas System HEPA Filter Replacement (Building 3038, Radiochemical Technology)
P838	Glove Box Operations (North and South Laboratories Building 3038 East)
P840	SARUP Hazard Screening Document Radioisotope Production Laboratory E, Building 3032
P847	Manipulator Removal, Repair, and Replacement - Building 3038
P849	Hazard Identification and Facility Classification - Isotopes Division
P862	Problem Safety Summary for Building 3047, Isotope Circle - Decontamination of Cell D
P863	Transuranic Waste Handling (Contact-Handled)
P865	Solid Low Level Waste Handling (Bldg 3028, 3029, 3038, 3517)

Source Document Number	Title
P867	Isotopes Facilities Shutdown Program, ORNL, Buildings 3026-C, 3028, 3029, 3031, 3033 Annex, 3038, 3047, 3118, 3517, 7025, 9204-3
P874	Procedure for Separation & Purification of U-234 from Pu-238 in Building 3038, Alpha Handling Facility
P875	Procedure for Solid Low Level Waste Handling for Buildings 3019 Complex, 3026-C, 3028, 3029, 3030, 3031, 3032, 3033, 3033 Annex, 3036, 3038, 3047, 3118, 3503, 3517, and 7025
P876	Procedure for Transuranic Waste Handling in Buildings 3019 Complex, 3028, 3033 Annex, and 3047
P905	Health Physics Procedure - Handling and Transfer of Radioactive Materials within the Laboratory and Guide for the Transfer of Materials Between Contaminated Enclosure Systems and Non-Contaminated Areas
P917	Procedure 5.1 - Segregation and Management of solid Radioactive Waste Materials and supporting Solid Waste Management Documentation
P933	Excerpts of Building Descriptions for Building Numbers 3026C, 3026D, 3028, 3029, 3030, 3031, 3032, 3033, 3033(Annex), 3038E, 3038M, 3038NW, 3038SW, 3047, 3517,
P941	Electromagnetic Isotope Separations - Special Separations Program
P956	Segregation and Management of Solid Radioactive Materials
P1082	Lockheed Martin Energy Research Corporation, ORNL, Environmental Protection Procedure: Disposal of PCB (Polychlorinated Biphenyl) Oils
P1083	Environmental Protection Procedure: Polychlorinated Biphenyls (PCBs)
P1084	Environmental Protection Procedure: Solid Radioactive Waste Management
P1085	Safety Analysis of the Source Development Laboratory and Isotopes Division Solid Waste Handling Procedure
P1100	PCB Annual Report for Oak Ridge National Laboratory - 1986
P1101	PCB Annual Report for Oak Ridge National Laboratory - 1987
P1102	PCB Annual Report for Oak Ridge National Laboratory - 1988
P1103	PCB Annual Report for Oak Ridge National Laboratory - January 1, 1989 - February 5, 1990
P1104	PCB Annual Report for Oak Ridge National Laboratory - January 1, 1991 - December 31, 1991
P1105	PCB Annual Report for Oak Ridge National Laboratory - February 6, 1990 - December 31, 1990
P1106	PCB Annual Report for Oak Ridge National Laboratory - 1982
P1107	PCB Annual Report for Oak Ridge National Laboratory - 1983
P1108	PCB Annual Report for Oak Ridge National Laboratory - 1984
P1109	PCB Annual Report for Oak Ridge National Laboratory - 1985
P1112	Radioactive Solid Waste Operations Manual
P1116	Energy TRU Waste Processing Center Procedure: Absorbing Liquids
P1147	Chemical Technology Division Progress Report for the Period July 1, 1988 to September 30, 1989
P1269	Manual for Nuclear Materials Management and Safeguards System Reporting and Data Submission
P1272	Phase I Safety Analysis Report Update Program (SARUP) Hazard Screening; The Isotope Development Laboratory; Building 3038
P1287	Basis for Interim Operation for the Radioisotope Development Laboratory Bldg 3047
P1291	Operational Safety Requirements for Bldg 3033 Annex
P1292	Safety Analysis Report for Bldg 3033 Annex
P1294	Operational Safety Requirements for Bldg 3038
P1312	Phase I Safety Documentation The Radioisotope Development Laboratory - Building 3047
P1316	Safety Analysis Report for The Radioisotope Development Laboratory Building 3047
P1324	Draft Safety Assessment of Building 3031
P1325	Draft Safety Assessment of Building 3032

Source Document Number	Title
P1351	Radioactive Operations Committee Reviews of Isotopes Facilities, Buildings 3028, 3029, 3030, 3031, 3032, 3033A, 3038, 3047, and 9204-3
P1357	Isotopes Separations Progress Report for 1976
P1358	Isotopes Separations Progress Reports for 1977
P1359	Isotopes Separations Progress Reports for 1978
P1360	Isotope Separations Progress Reports for 1979
P1361	Isotope Separations Progress Reports for 1980
P1362	Isotope Separations Progress Reports for 1981
P1363	Isotopes Section Progress Reports for 1982
P1364	Isotopes Section Progress Reports for 1983
P1365	Isotopes Section progress Reports for 1984
P1366	Isotopes Section Progress Reports for 1985
P1367	Isotopes Section Progress Reports for 1986
P1376	Review of Isotopes Target Program, January 1965 – December 1967
P1377	Review of Isotopes Target Program, October 1963-December 1964
P1378	Nuclear Material Control and Accountability Manual
U007	Safety Analysis of Building 3028
U038	ORNL TRU Waste Historical Survey
U044	Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations
U046	RH Debris Waste Process Flow Descriptions
U124	Contamination Control Plan for Hot Cell (TWPC Hot Cell)
U468	RTC Facility Logbook; Buildings 7025; 3038E; 3038; 3033A; 3047 – J. M. Dailey (Isotopes)
U472	RTS Facility Logbook; Buildings 3038, 3038E, 3033A, 7025, 3047
U473	RTS Facility Logbook; Buildings 3038, 3038E, 3033A, 7025, 3047
U474	RTS Facility Logbook; Building 3033A; 7025; 3038E; 3038; 3047
U475	RTS Facility Logbook; Buildings 3038; 3038E; 3033A; 7025; 3047
U569	Logbook, Building 3047. P.R. Kuehn, Isotopes Facilities
U580	Logbook, Building 3047. P.R. Kuehn, Isotopes Facilities
U587	Logbook – RTS Facility Buildings 3038, 3038E, 3033A, 7025, 3047
U647	Issue Paper: Does Oak Ridge Have High-level Waste (HLW)?
U680	RTS Facility Logbook; W.S. Aaron; Buildings 3038, 3038E, 3033A, 7025, 3047

Figure 1. Map of the Oak Ridge Reservation

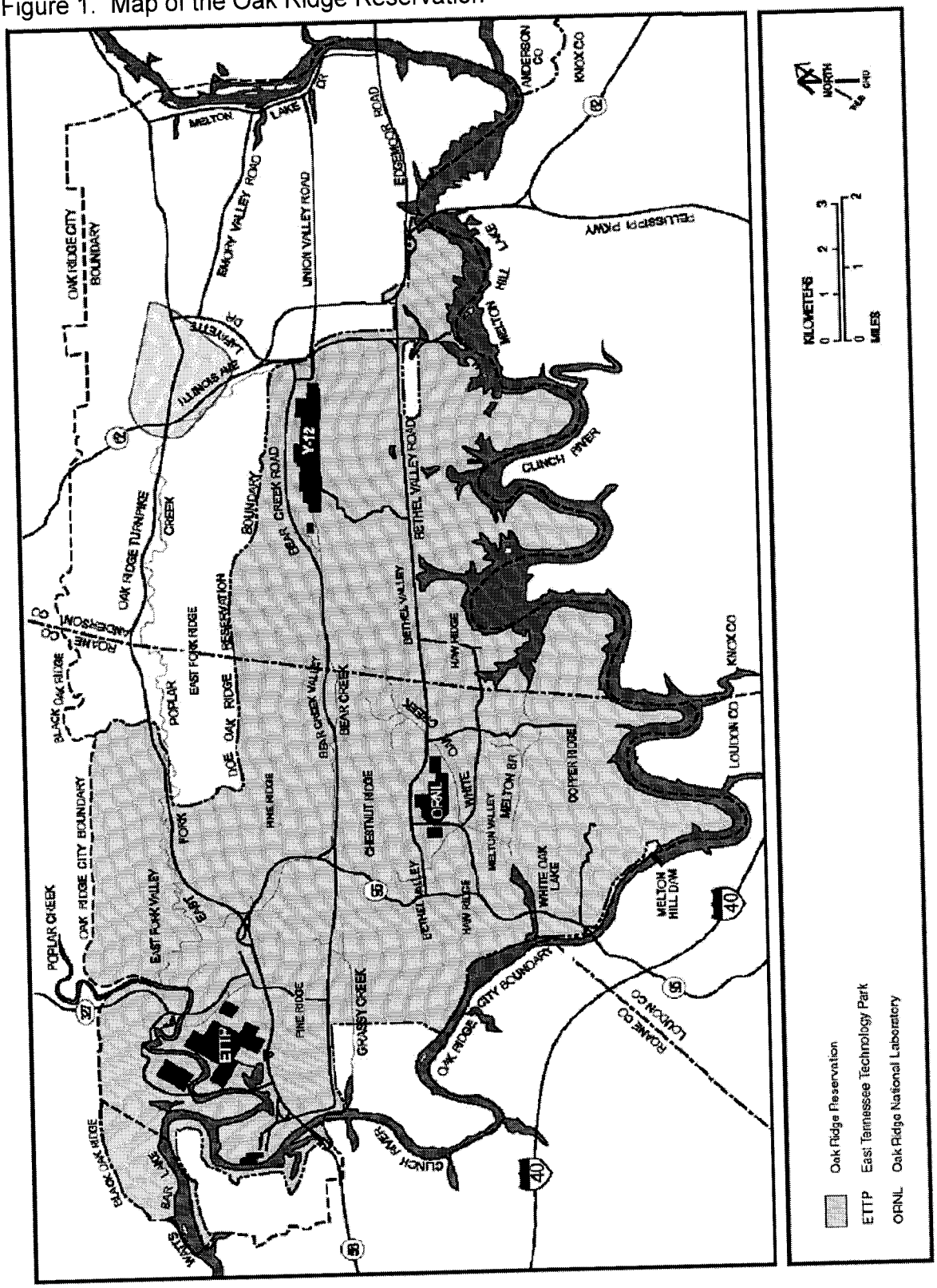


Figure 2. Map of Isotopes Facilities at Oak Ridge National Laboratory

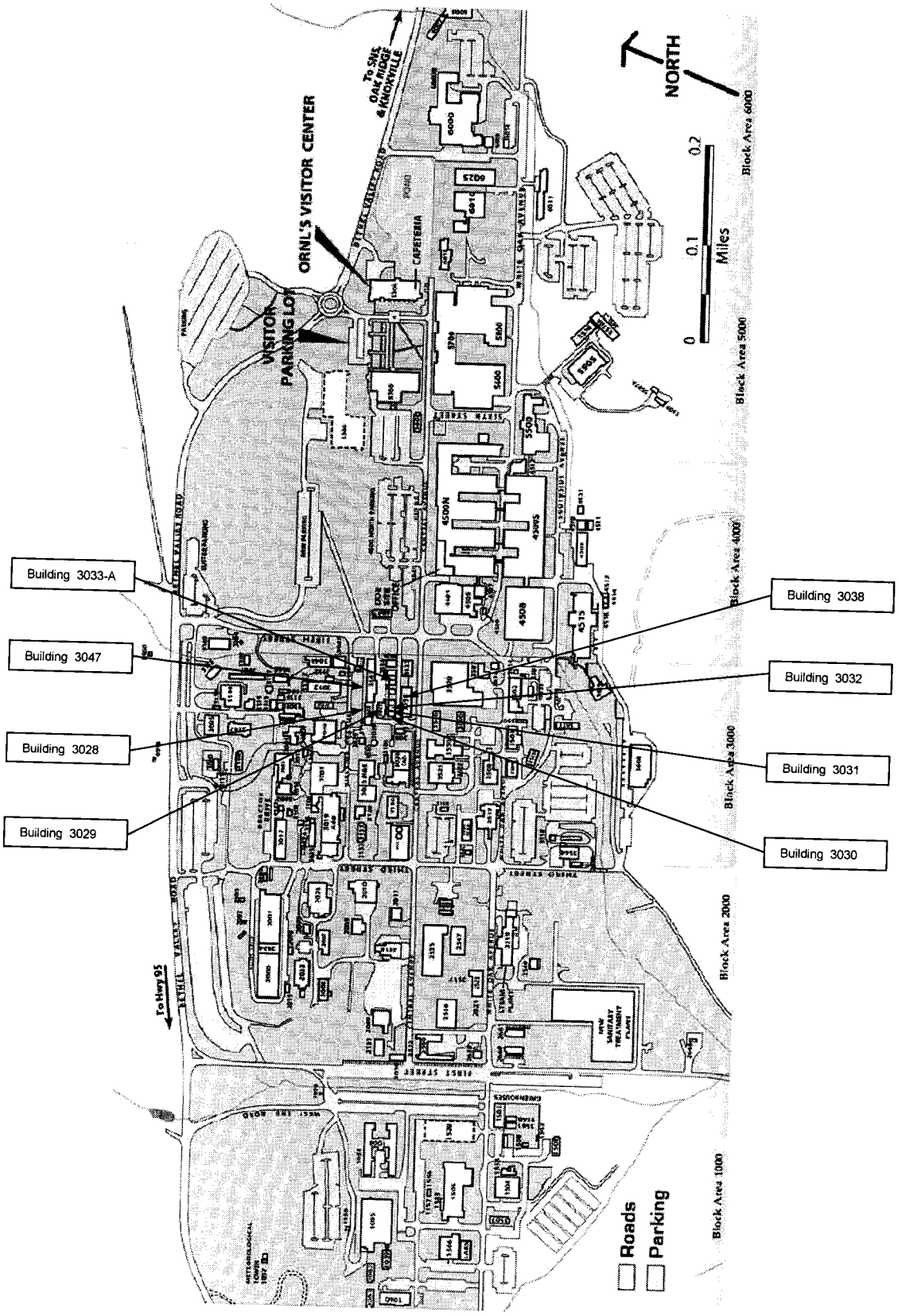


Figure 3. Map of Building 9204-3 at Y-12

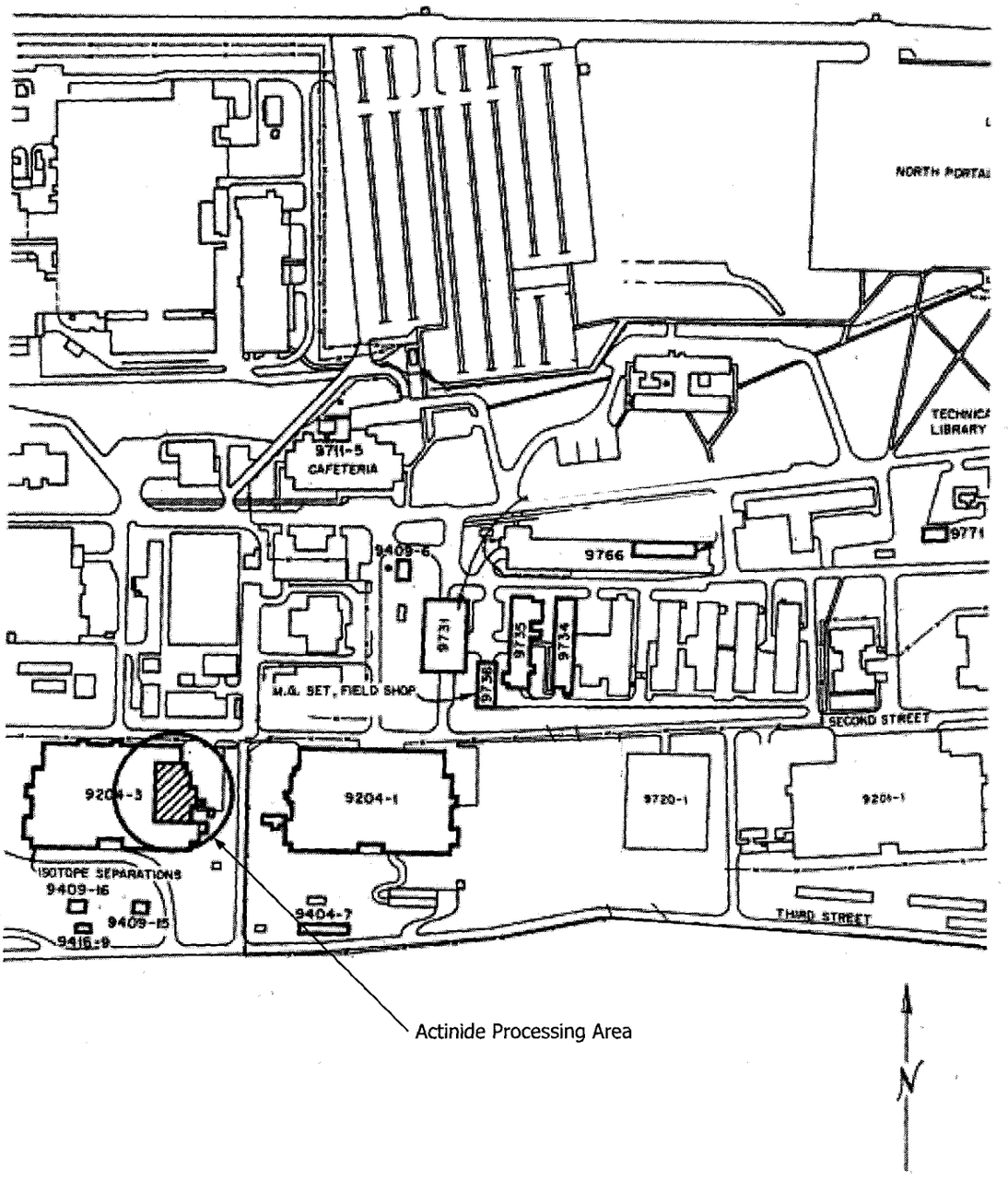


Figure 4. Map of Transuranic Waste Processing Center and Solid Waste Storage Areas

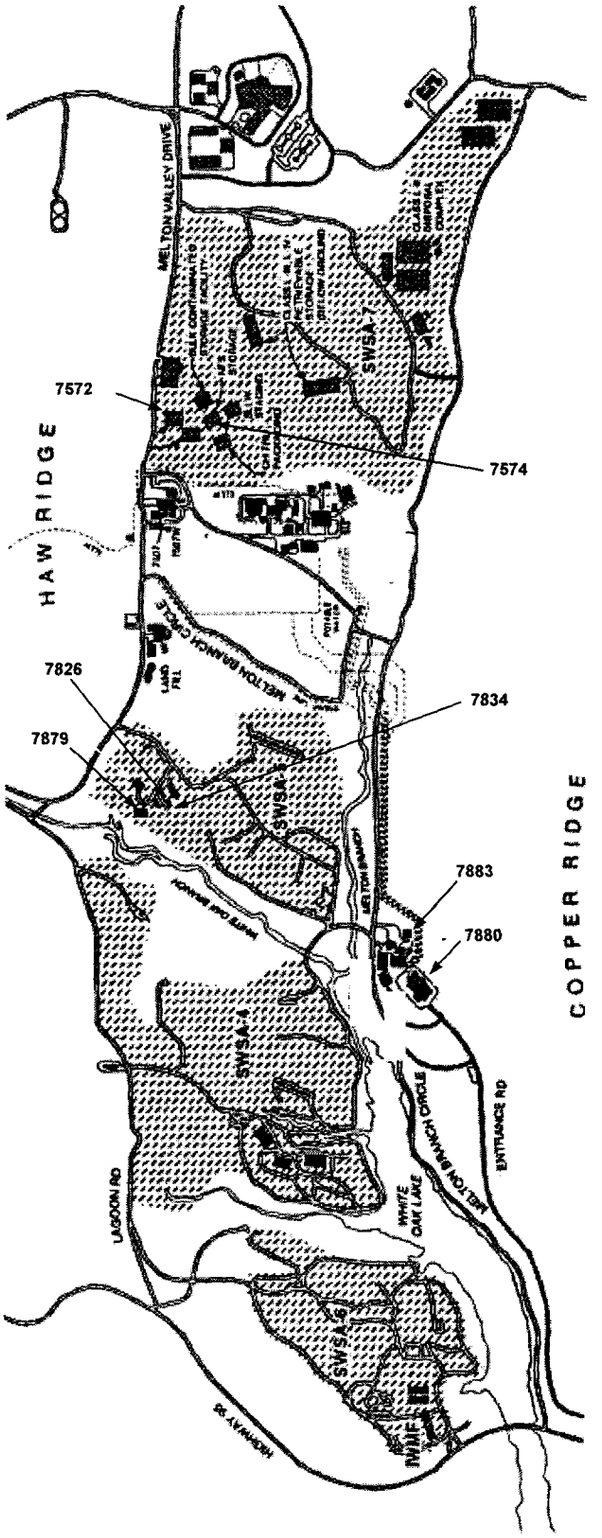


Figure 5. Site Layout for the Transuranic Waste Processing Center

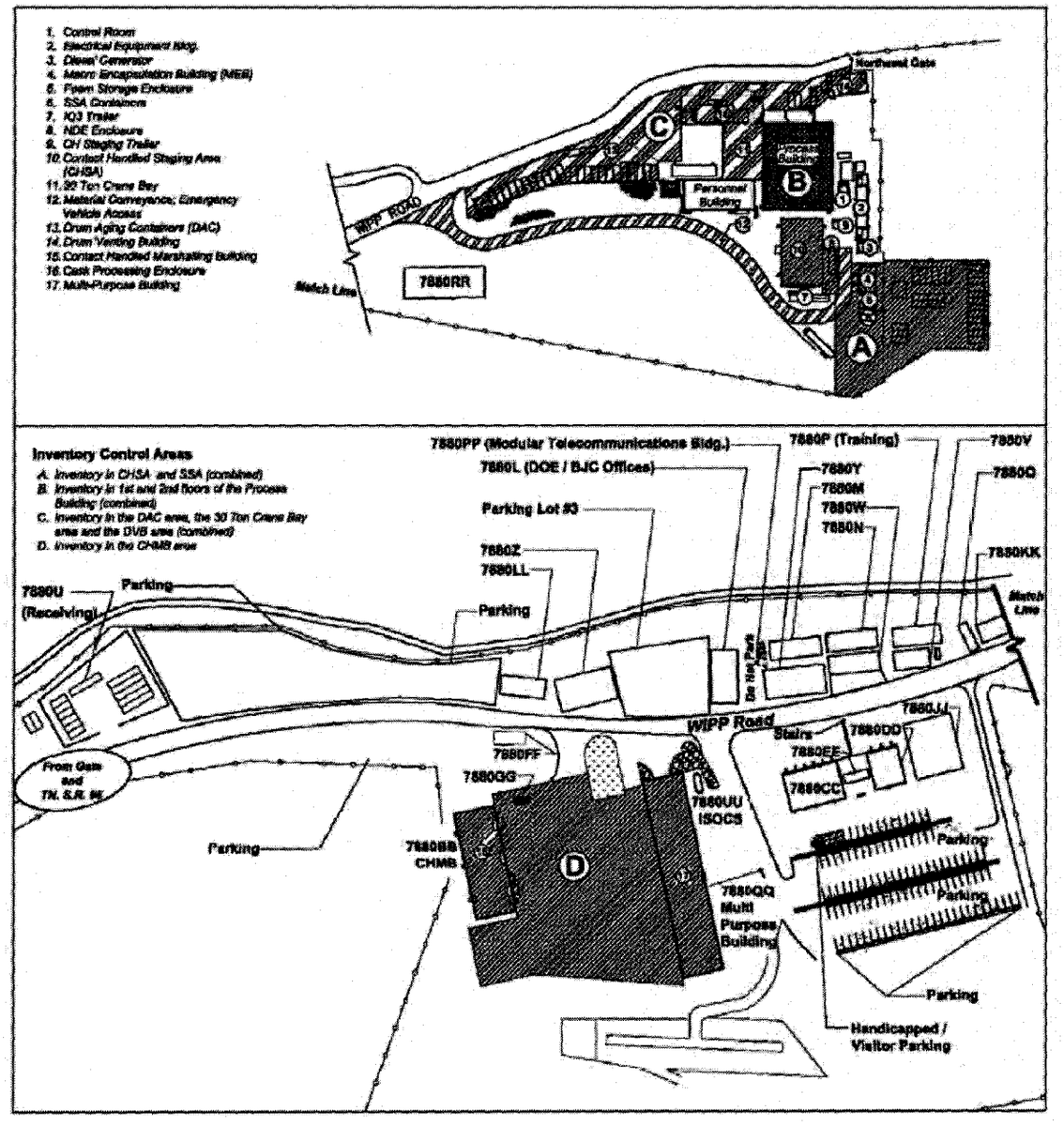


Figure 6. Building 3028 First Level Floor Plan

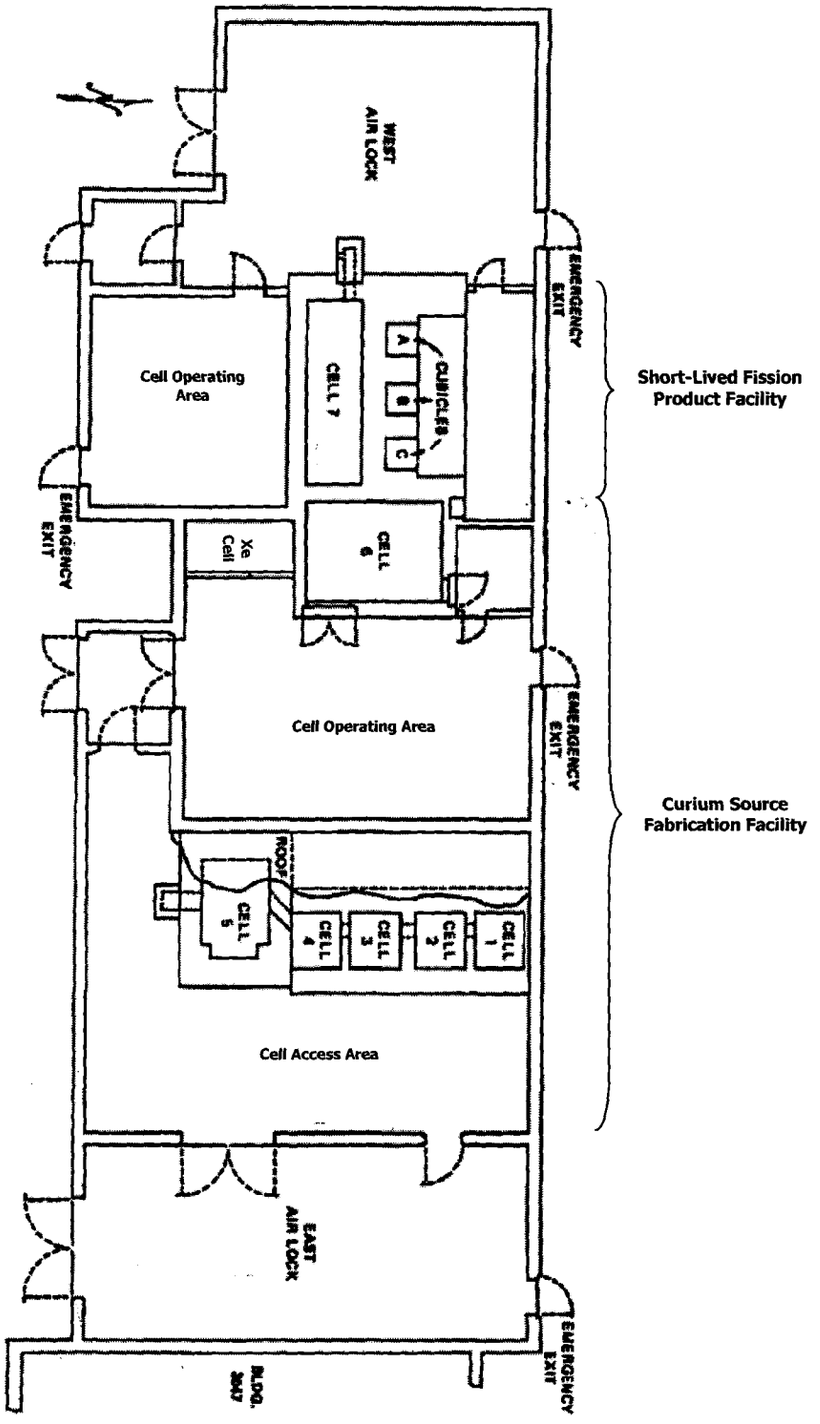


Figure 7. Isometric View of the Building 3028 Curium Source Fabrication Facility

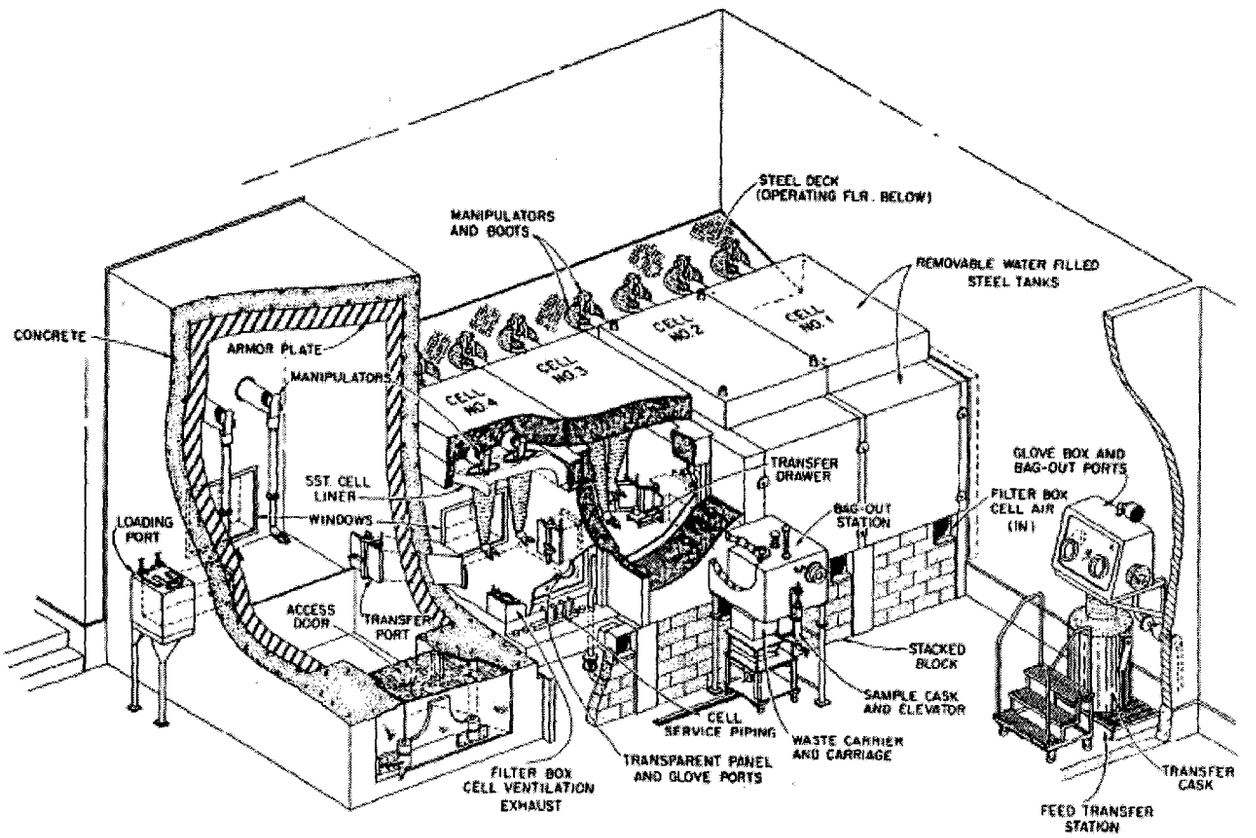
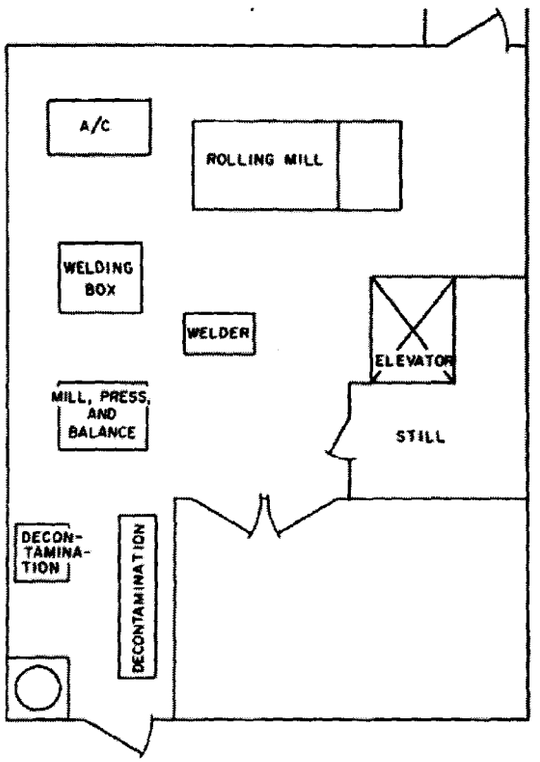
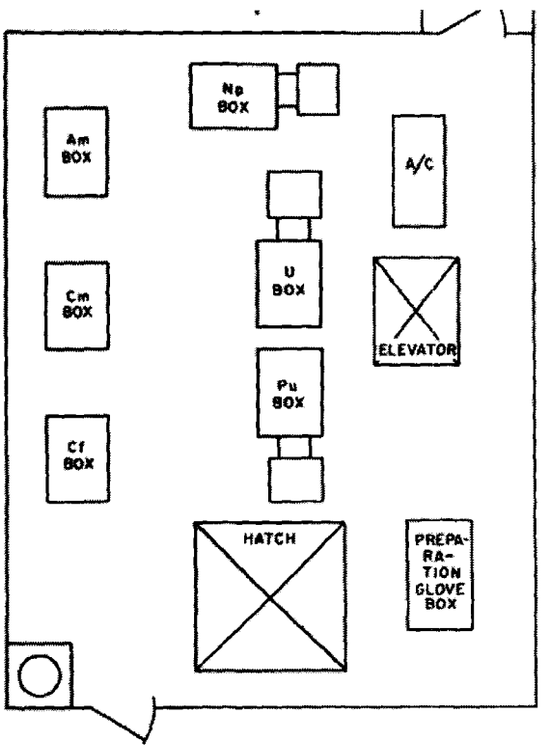


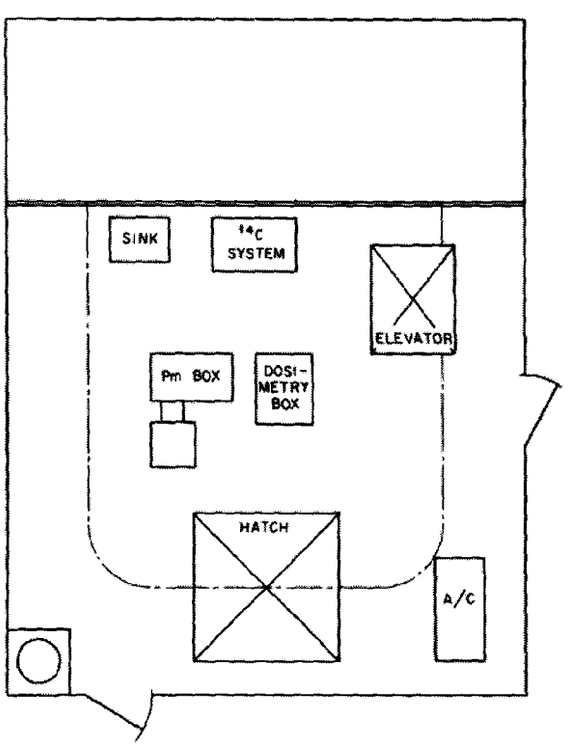
Figure 8. Building 3028 Upper Floors – Target Fabrication Facility Layout



Building 3028 Second Level



Building 3028 Third Level



Building 3028 Fourth Level

Figure 9. Isometric View of the Building 3029 Source Development Laboratory

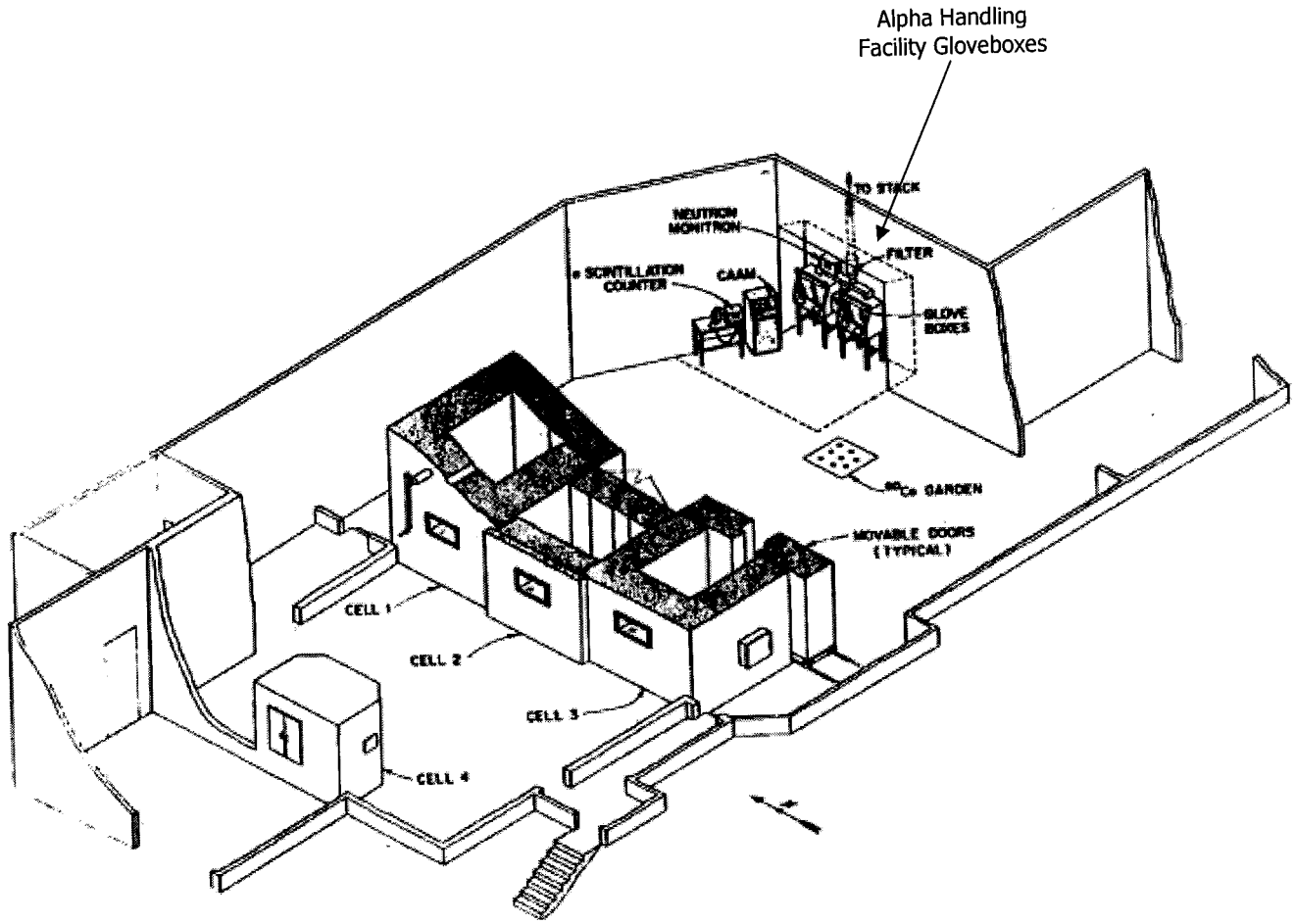


Figure 10. Building 3033-A Actinide Fabrication Laboratory Layout

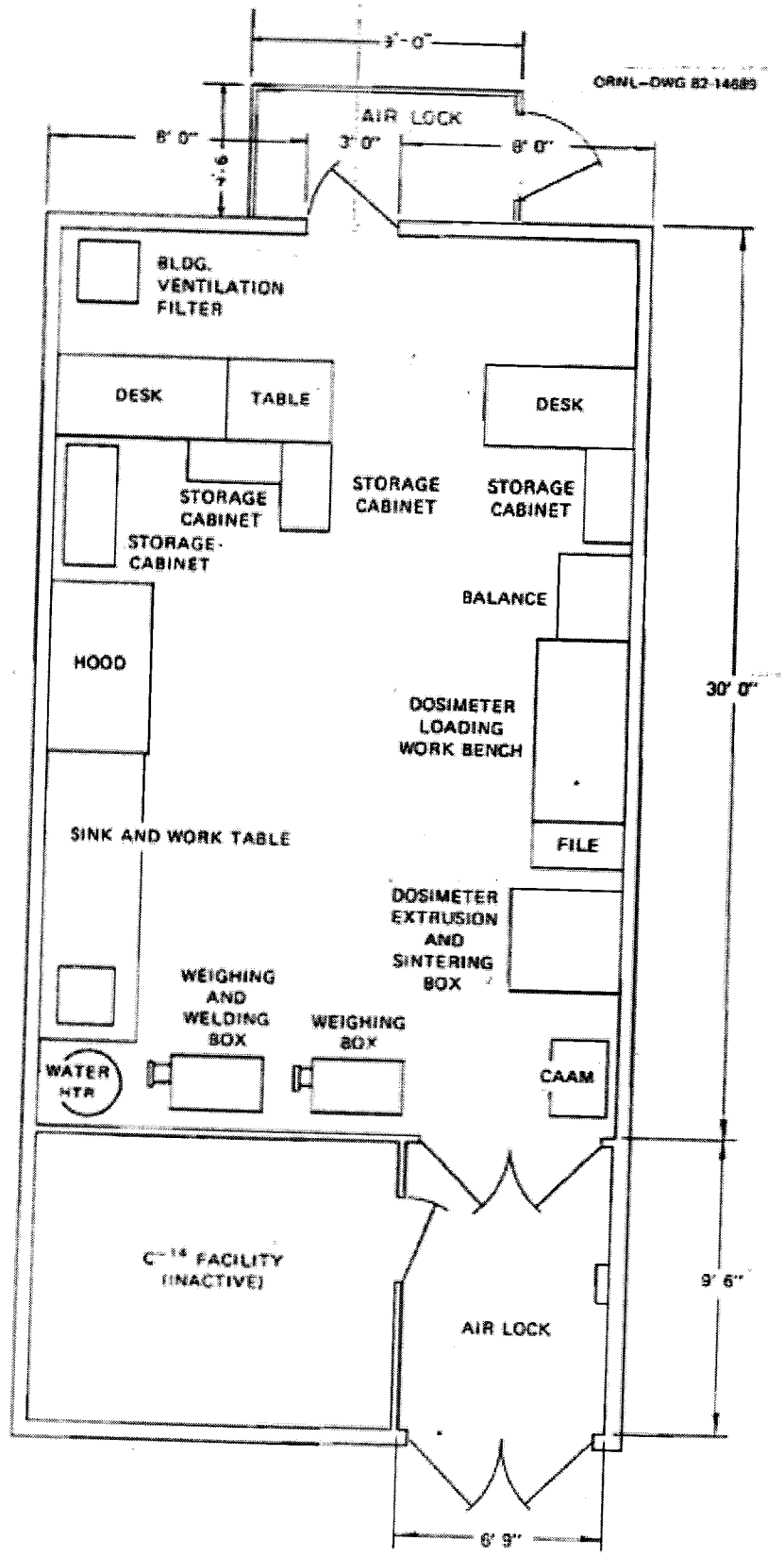


Figure 11. Building 3038 Floor Plan

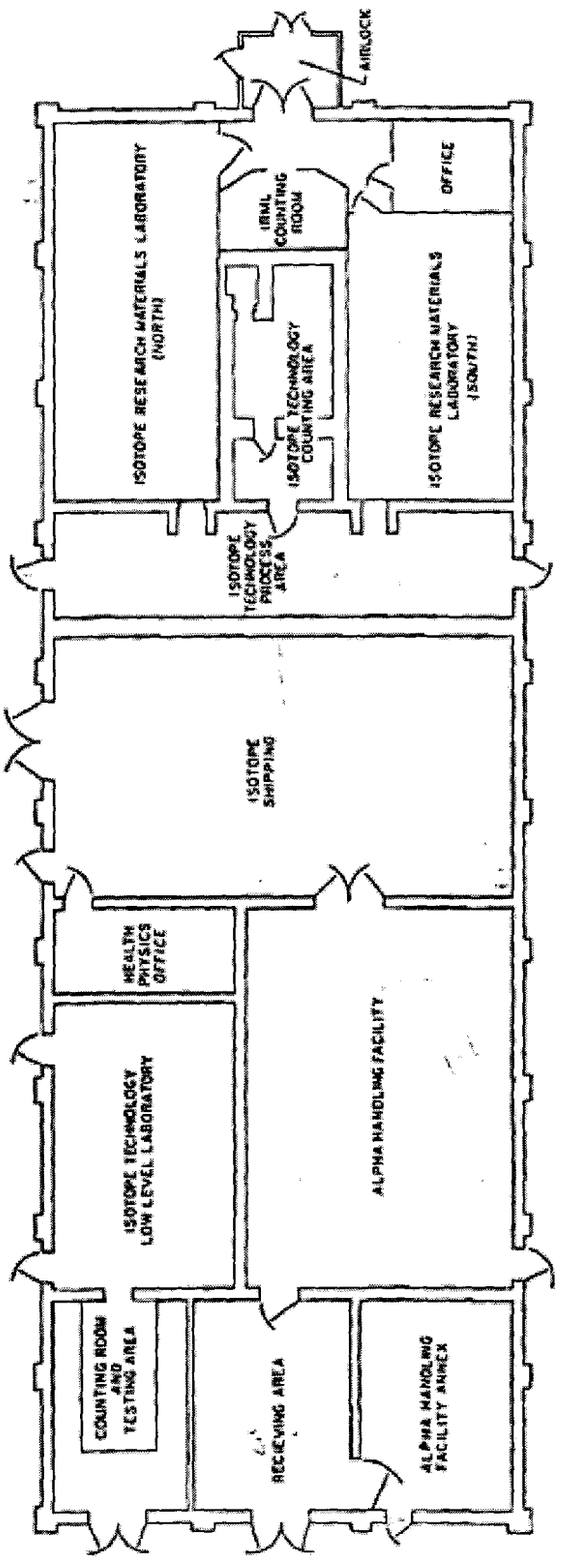


Figure 12. Building 3038 Isotopes Research Materials Laboratory Area Layout

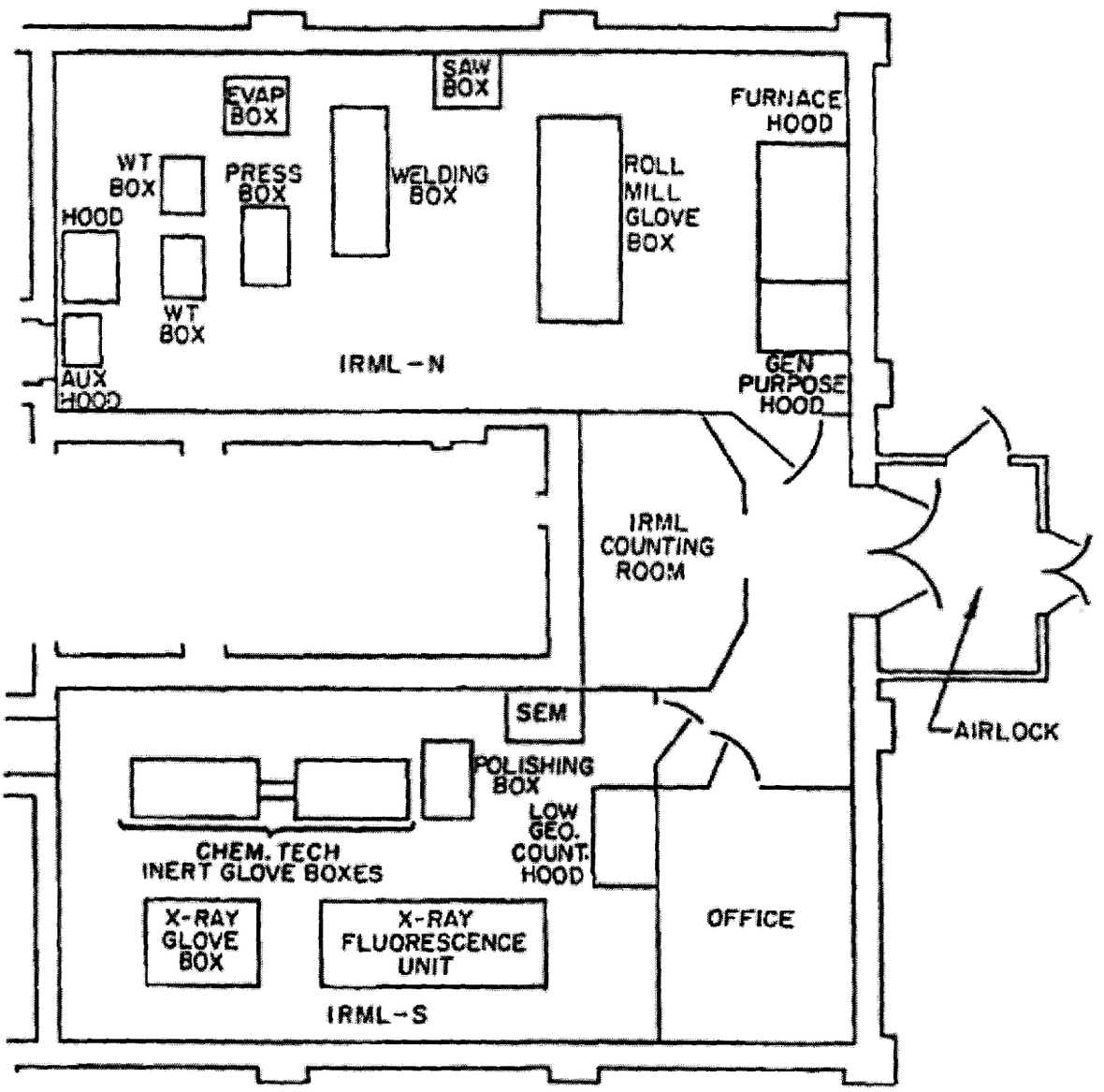


Figure 13. Building 3038 Alpha Handling Facility Layout

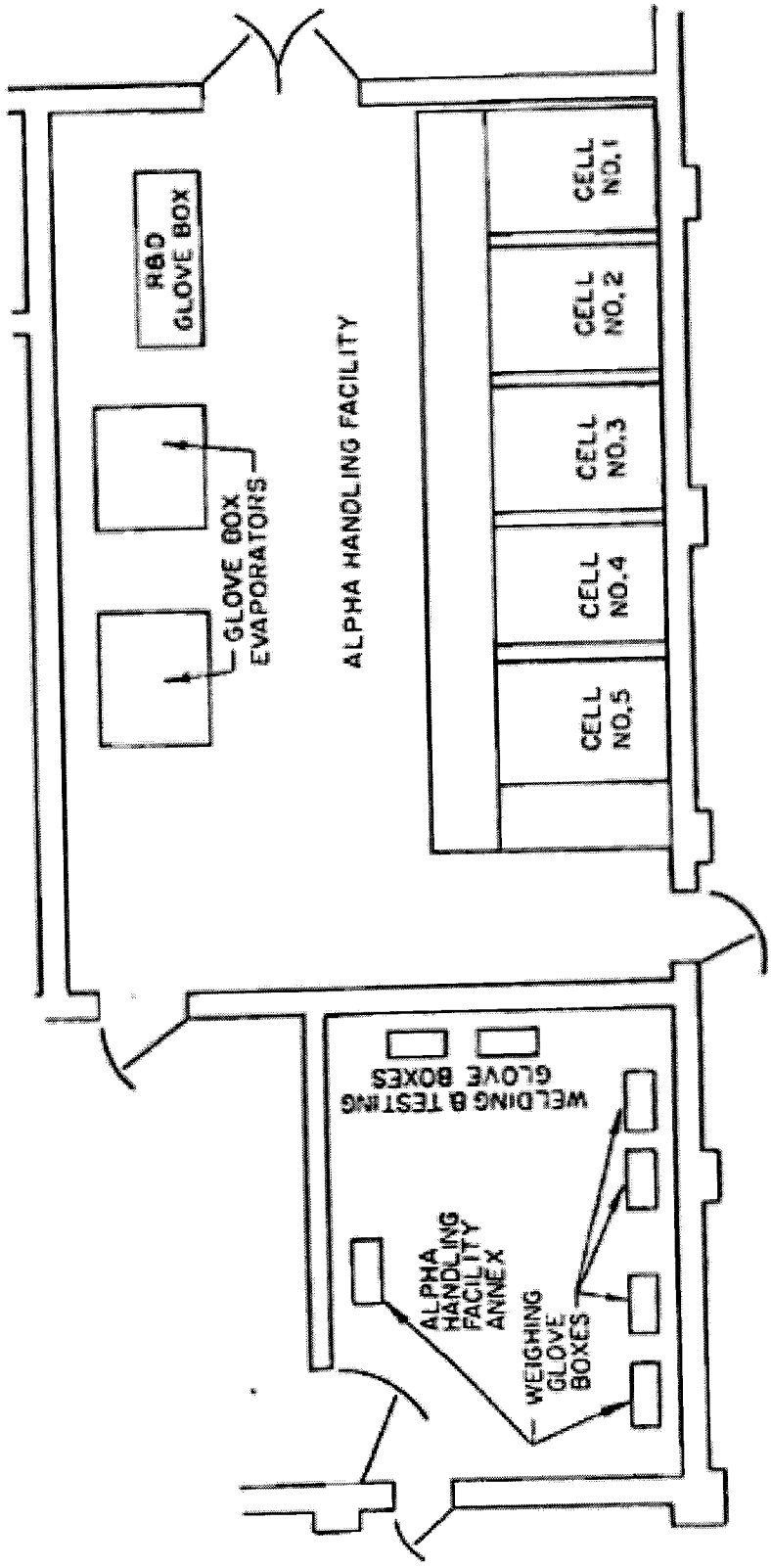


Figure 14. Building 3038 Isotope Shipping Area Layout

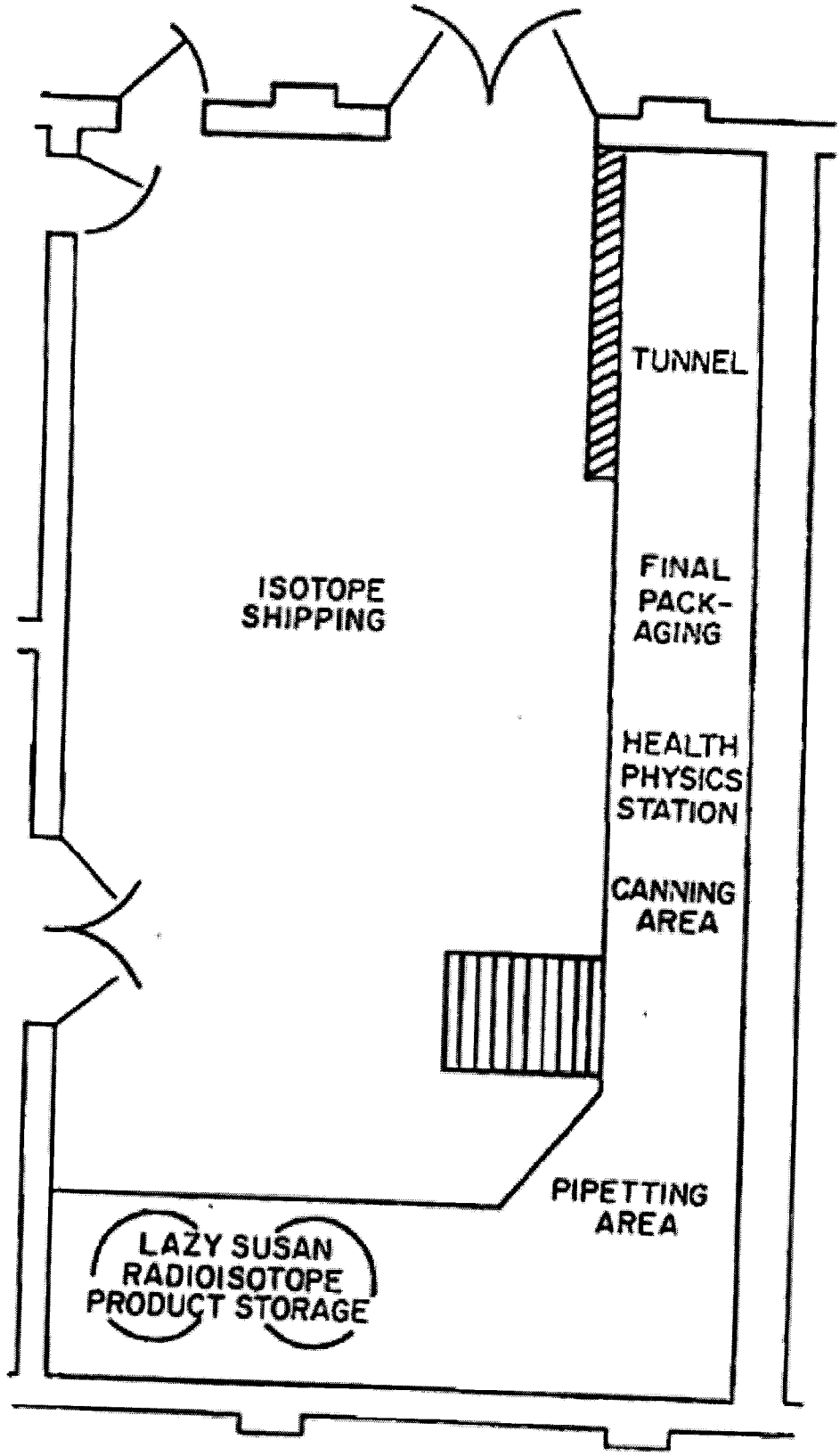


Figure 15. Building 3047 Radioisotope Development Laboratory Layout

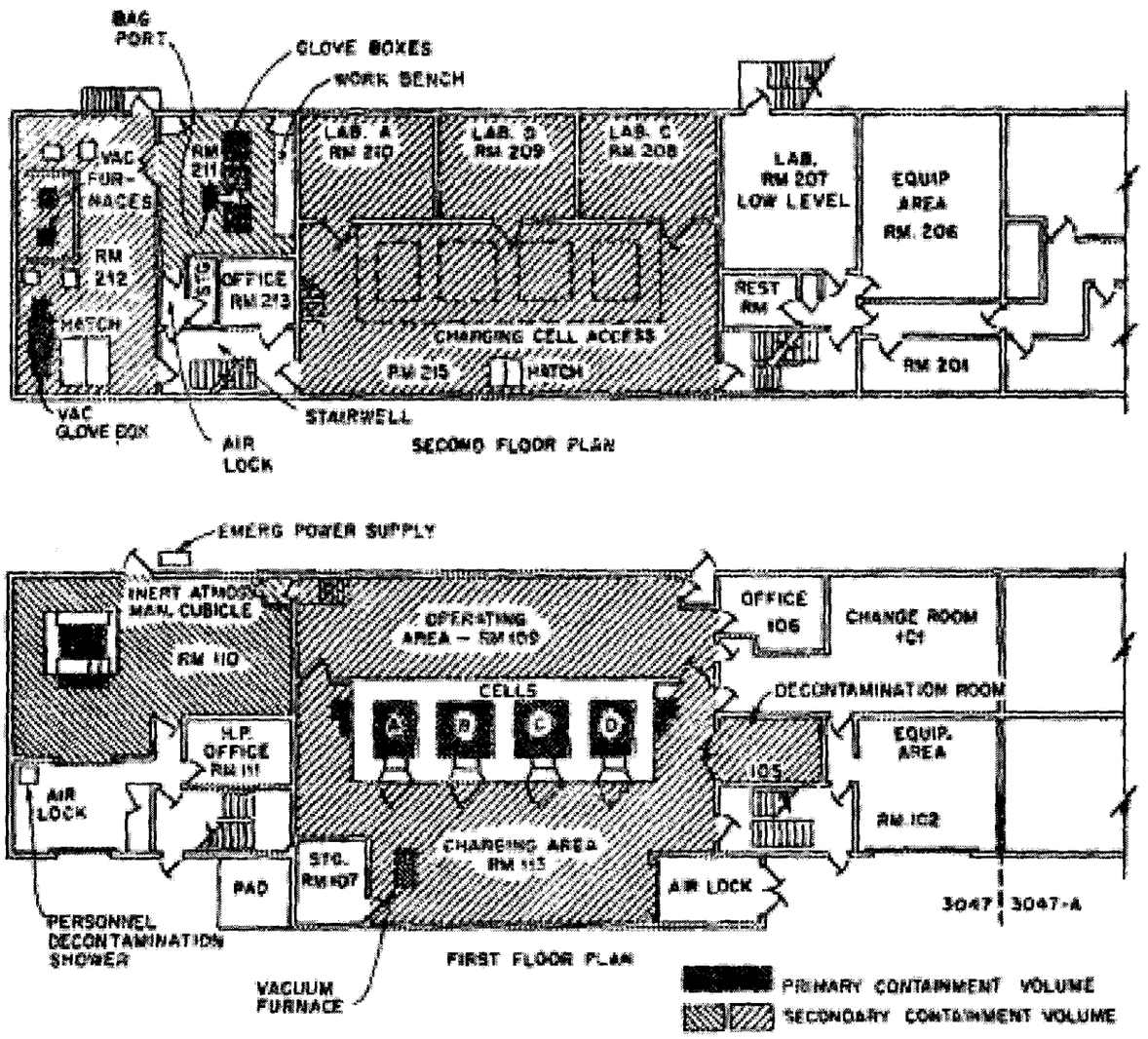


Figure 16. Building 9204-3 Actinide Processing Area Layout

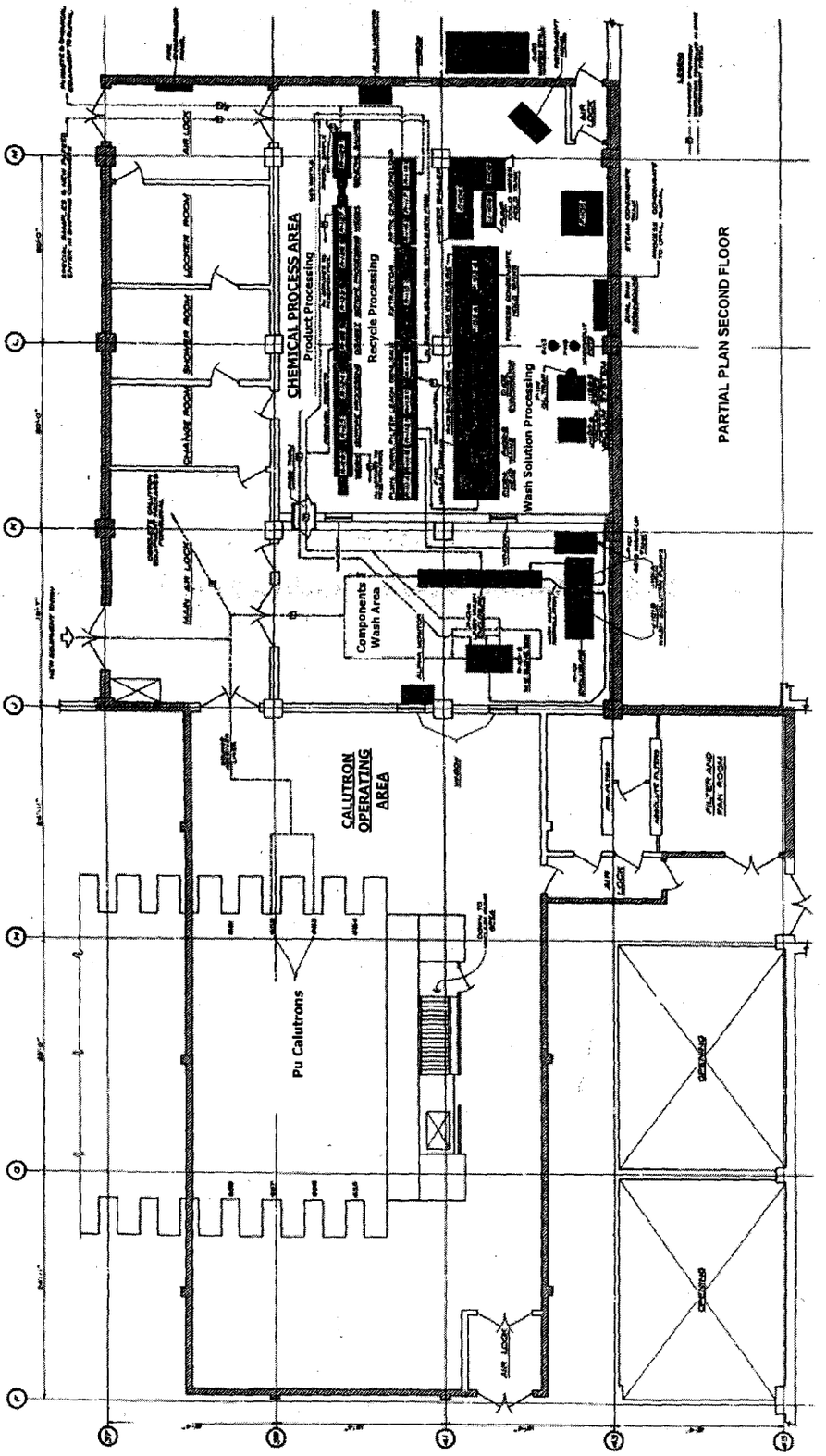


Figure 17. Transuranic Waste Processing Center Solid Waste Flow Diagram

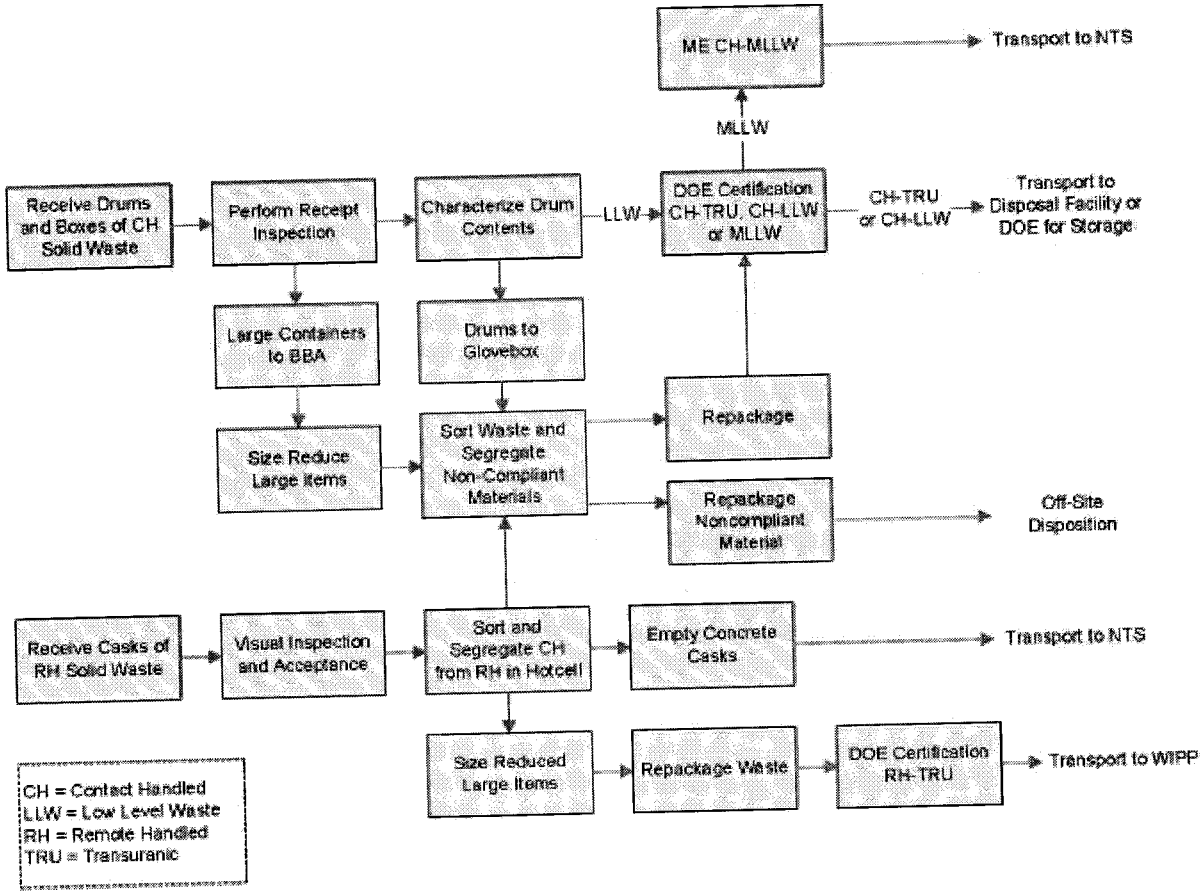
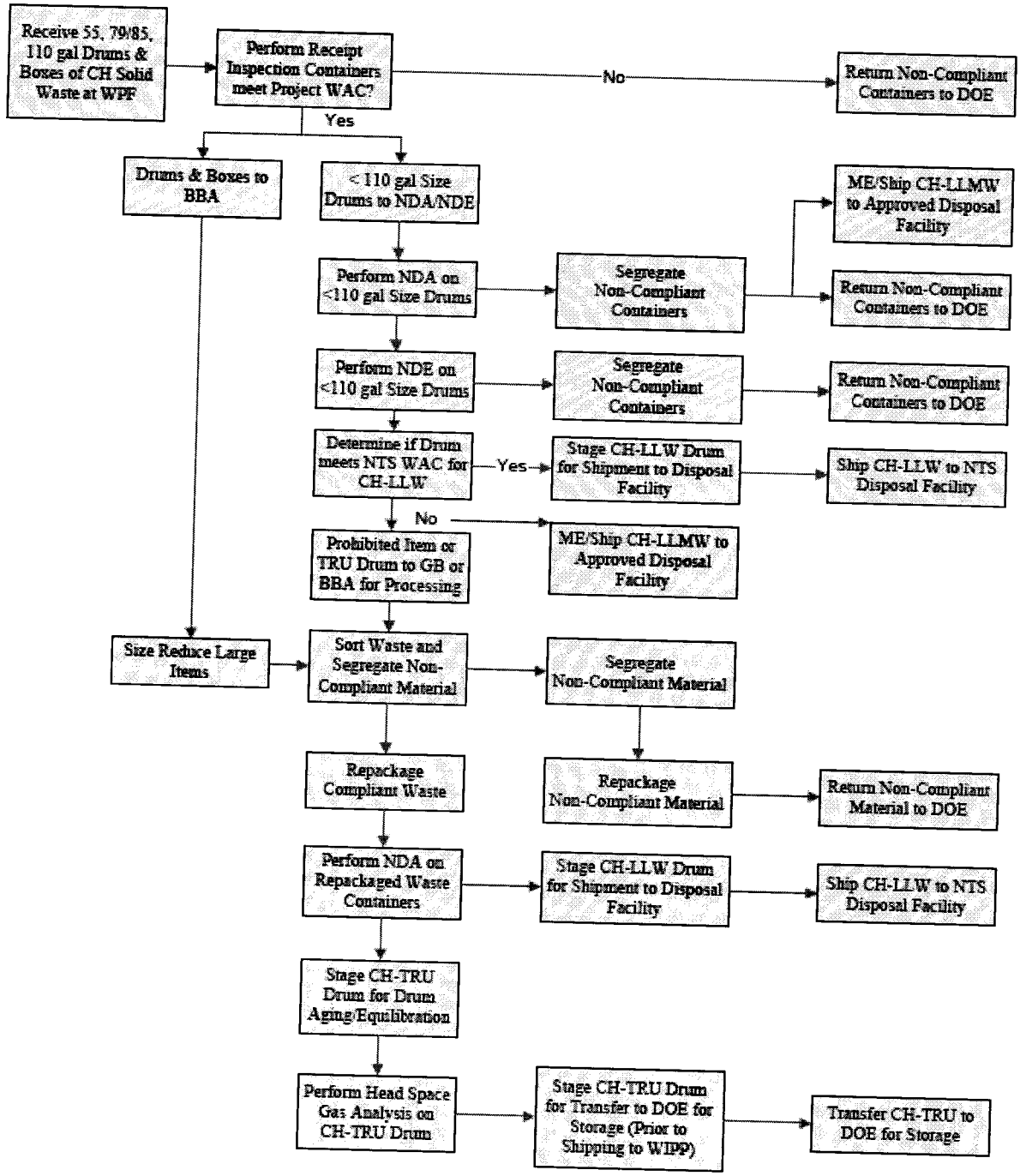


Figure 18. Transuranic Waste Processing Center CH Solid Waste Diagram



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CCP-AK-ORNL-001

Central Characterization Program
Acceptable Knowledge Summary Report
For

Nuclear Fuel Services
Contact-Handled Transuranic Waste
Stored at Oak Ridge National Laboratory

Waste Streams:
OR-NFS-CH-HET-A
OR-NFS-CH-SOIL
OR-NFS-CH-HOM-A
OR-NFS-CH-HOM-B

REVISION 8

December 12, 2013

Mike Ramirez
Printed Name

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	09/25/2007	Initial issue.
1	11/30/2007	1. Throughout: Added discussions related to early-1990s decommissioning waste, including Building 110 and associated underground storage tank. 2. Section 4.2: Added more detail to mission as it relates to Southwest Experimental Fast Oxide Reactor (SEFOR) and Savannah River Site (SRS) projects. 3. Section 4.2: Indicated that waste from U-233 facility in Building 234 is not included in this waste stream. 4. Section 4.4.1: Added new section with details of historical Mixed Oxide (MOX) production process operations. 5. Section 4.6: Included general discussion of transuranic (TRU) waste management. 6. Sections 4.6.1 & 5.2: Updated waste stream volumes and generation dates. 7. Section 5.4.2.2: Revised discussion on assay of waste from final decommissioning phase. 8. Tables 5-1 & 5-4: Updated waste material parameter and radiological percentages based on drum additions. 9. Sections 5.4.3 & 5.4.3.2: Added Environmental Protection Agency (EPA) hazardous waste number D006 (cadmium) and D011 (silver), and included more discussion on mercury. 10. Section 7.0: Added numerous new source documents.
2	06/25/2008	Added new soil waste stream OR-NFS-CH-SOIL (Sections 2.2 and 6.0). Made several changes in Section 4.0 and 9.0 associated with the soil.
3	08/11/2008	Added new TRUCON Code OR 111/211 for soil.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
4	05/26/2009	1. Small quantities of soil have been identified in several drums in debris waste stream OR-NFS-CH-HET. Soil waste stream OR-NFS-CH-SOIL is assigned EPA hazardous waste number F002 for tetrachloroethylene. For this reason, EPA hazardous waste number F002 is being added to the debris waste stream. The debris waste stream number is being changed to OR-NFS-CH-HET-A. 2. Added drums to waste streams OR-NFS-CH-HET and OR-NFS-CH-SOIL generated from repackaging of boxed waste into drums, including one box from excavation of the NFS burial ground. 3. Added discussion in Section 5.4.1.1 indicating drum NFS-0929 is <50 percent homogeneous solids. 4. Added discussion to Section 5.4.4 indicating drum NFS-0116 does not contain machine-compacted waste. 5. Made other minor editorial changes and correction.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
5	01/14/2010	1. Reduced HET-A waste stream volume by 5 drums that were mistakenly listed in both HET-A and SOIL. 2. Added "Subpart D" to Section 4.6.2 because HET-A is also F-listed. 3. Added a paragraph to Section 5.4.1.1 describing 5 drums that moved from SOIL to HET-A, and added rock to Section 5.4.1 as a result. 4. Added soil/gravel to Table 5-1 to account for drums containing soil, and added reference to the associated DR015. 5. Added more detail in Sections 5.4.3.1 and 6.4.3.1 describing the basis for the F002 assignment. 6. Added missing reference to end of the last paragraph in Section 5.4.3.2. 7. Added paragraph to Section 6.4.3.2 explaining why D006, D008, D009, and D011 do not apply to SOIL.
6	12/08/2010	1. Added new S3000 waste stream OR-NFS-CH-HOM-A. 2. Added reference to a future groundwater treatment sludge waste stream. 3. Revised discussion in Sections 5.3.1 and 6.3.1 on waste originating in Trench B of the radioactive burial ground. 4. Moved batteries from "iron-based metal" to "other metal," and deleted foam from "rubber" as it is already included in "plastic." 5. Moved NFS0929 from OR-NFS-CH-HET-A to OR-NFS-CH-HOM-A. 6. Added discussion on heat-sealed bags to Section 5.4.4. 7. Expanded packaging discussion in Sections 5.5, 5.5.2, and 6.5. 8. Added source documents to Section 10.0. 9. Made other minor editorial changes and corrections as necessary.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
7	05/10/2011	1. Added new groundwater treatment sludge waste stream OR-NFS-CH-HOM-B. 2. Added TRUPACT-II Content Code (TRUCON) OR 127 / OR 227 in Section 2.2 for soil, and revised Section 6.4.1.2 to indicate when this code is used. 3. Made major changes to Section 4.0 and 6.0 to describe additional Nuclear Fuel Services, Inc. (NFS) soil generation. 4. Changed the final decommissioning phase to the second decommissioning phase and redefined a new final decommissioning phase. 5. Made changes to address new *WIPP Hazardous Waste Facility Permit, Waste Analysis Plan* (WIPP-WAP) requirements. 6. Included discussion of concrete repackaging in Sections 5.3.2 and 5.5. 7. Included additional waste items in Section 5.4.1 based on repack forms, and split last bullet into inorganic matrix, organic matrix, and soil/gravel. 8. Added discussion of 1993 Wet Cell soil and concrete analysis in Sections 5.4.3 and 6.4.3. These data were previously missing. 9. Added discussion of high thorium in soils in Section 6.4.2.1. 10. Revised packaging configuration of OR-NFS-CH-HOM-A in Section 7.5. 11. Revised Section 9.0 to include new NFS container paperwork. 12. Added new and revised several existing source documents in Section 11.0. 13. Added new Figure 2c, 234 Excavation Facility Layout, and Figure 6, Groundwater Pretreatment System. 14. Made other editorial changes and corrections.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
8	12/12/2013	1. Made changes to be consistent with Attachment 12 of CCP-TP-005, *CCP Acceptable Knowledge Documentation*. 2. Incorporated Nuclear Waste Partnership (NWP) transition changes. 3. Added machine-compacted waste to waste stream OR-NFS-CH-HET-A, including further discussion of Building 110, the Decontamination and Volume Reduction Facility (DVRF), and Scientific Ecology Group (SEG). 4. Added source document P582 for polychlorinated biphenyls (PCB) decontamination at the Transuranic Waste Processing Center (TWPC) to Sections 5.3.2 and 11.0. 5. Made editorial changes, corrections, and clarifications.

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LIST OF ACRONYMS AND ABBREVIATIONS

AEC	U.S. Atomic Energy Comission
AK	acceptable knowledge
ATWIR	*Annual Transuranic Waste Inventory Report*
BBA	Box Breakdown Area
CAR	Corrective Action Report
CCP	Central Characterization Program
CFR	Code of Federal Regulations
CH	Contact-handled
Ci%	Curie percent
D_2O	Deuterium Oxide (heavy water)
DMS	Defense Material System
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DVRF	Decontamination and Volume Reduction Facility
EPA	U.S. Environmental Protection Agency
FGE	fissile gram equivalent
ft^3	cubic feet
GE	General Electric
GPS	groundwater pretreatment system
HDPE	high-density polyethylene
HEPA	High Efficiency Particulate Air
HLW	High-level waste
in.	inch
IPAN	Imaging Passive Active Neutron
kg	kilogram
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MOX	mixed oxide
mR/hr	millirem per hour
MSDS	Material Safety Data Sheet
nCi/g	nanocuries per gram
NDA	nondestructive assay
NFS	Nuclear Fuel Services, Inc.
NWPA	*Nuclear Waste Policy Act of 1982*
ORNL	Oak Ridge National Laboratory
ORNL-WAC	ORNL Waste Acceptance Criteria
PCBs	polychlorinated biphenyls
ppm	parts-per-million
PRQL	Program Required Quantitation Limit
PVC	polyvinyl chloride
QA	quality assurance
RBG	Radioactive Burial Ground
RCRA	Resource Conservation and Recovery Act
RTR	Real-Time Radiography

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

SEFOR	Southwest Experimental Fast Oxide Reactor
SEG	Scientific Ecology Group, Inc.
SGS	Segmented Gamma Scanner
SNF	Spent nuclear fuel
SRS	Savannah River Site
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TDEC	Tennessee Department of Environment and Conservation
TRU	transuranic
TRUCON	TRUPACT-II Content Code
TSCA	Toxic Substances Control Act
TWPC	Transuranic Waste Processing Center
UCL90	90 percent upper confidence limit
VAGAS	Versatile Automated Gamma Assay System
VE	visual examination
WEAF	Waste Examination and Assay Facility
WIPP	Waste Isolation Pilot Plant
WIPP-WAC	*Waste Isolation Pilot Plant Waste Acceptance Criteria*
WIPP-WAP	*Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan*
Wt%	Weight percent

1.0 EXECUTIVE SUMMARY

This acceptable knowledge (AK) Summary Report has been prepared for the Central Characterization Program (CCP) for contact-handled (CH) transuranic (TRU) waste generated at Nuclear Fuel Services, Inc. (NFS) in Erwin, Tennessee and stored at the Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee. A portion of the NFS waste inventory was sent to Scientific Ecology Group, Inc. (SEG) in Oak Ridge, Tennessee for compaction and then transferred to ORNL. As necessary, the NFS waste is repackaged at the Transuranic Waste Processing Center (TWPC) located in Building 7880 at ORNL. This report was prepared in accordance with CCP-TP-005, *CCP Acceptable Knowledge Documentation* (Reference 1) to implement the AK requirements of the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*, *Waste Analysis Plan,* (WIPP-WAP) (Reference 2) and DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WIPP-WAC) (Reference 5).

The WIPP-WAP AK requirements are addressed in CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (Reference 3). The WIPP-WAC AK requirements are addressed in CCP-PO-002, *CCP Transuranic Waste Certification Plan* (Reference 8). Additionally, this report provides the AK information required by CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control* (CCP CH-TRAMPAC) (Reference 16).

The CCP is tasked with certification of TRU waste for transportation to and disposal at the Waste Isolation Pilot Plant (WIPP). This report was developed in accordance with CCP-TP-005 (Reference 1) which describes how AK is collected, reviewed, and managed by the CCP. The CCP is responsible for collection, review, and management of AK documentation in accordance with CCP-TP-005 and reviews and approves this AK Summary Report. CCP maintains responsibility for this AK Summary Report and all CCP-TP-005 generated forms and records as quality assurance (QA) records. In addition, CCP maintains a copy of the "historical source documents" as non-QA records.

The waste described in this report was generated primarily by the decommissioning of Building 234 at NFS, but also includes waste from decommissioning of Building 110 (and associated underground storage tank) (References C099, P218, P248, P283, U054). In addition, a few drums were generated from excavation of the NFS Radioactive Burial Ground (RBG) (Reference M132).

This AK Summary Report, along with referenced supporting documents, provides a defensible and auditable record of AK for the designated waste streams from NFS decommissioning. The references and AK source documents used to prepare this report are listed in Sections 10.0 and 11.0. The source documents cited throughout this report are identified by alphanumeric designations corresponding to a unique Source Document Tracking Number (e.g., C001, I001, M001, P001, U001, DR001).

This AK Summary Report includes information relating to the mission and process operations in NFS Buildings 234 and 110 and SEG, and waste identification, characterization, and waste management practices. Information contained in this report was obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, and interviews with cognizant personnel.

This report and supporting source documentation provide the mandatory waste program and waste stream-specific information required by the WIPP-WAP (Reference 2).

2.0 WASTE STREAM IDENTIFICATION SUMMARY

Site Where TRU Waste Was Generated and Stored

Generation Location:
Nuclear Fuel Services, Inc.
1205 Banner Hill Road
Erwin, TN 37650
U.S. Environmental Protection Agency (EPA) ID TND003095635

Storage Location:
Oak Ridge National Laboratory (ORNL)
1 Bethel Valley Road
Oak Ridge, TN 37831
EPA ID TN1890090003

Facility Where TRU Waste Was Generated

TRU waste was generated primarily in Building 234 and the 234 Excavation Facility at NFS in Erwin, Tennessee. The 234 Excavation Facility is a secondary containment tent constructed in place of Building 234 after the building was demolished. Some waste was also generated in Building 110 including the removal of an underground storage tank associated with Building 110. A few drums were also generated from excavation of Trench B in the NFS RBG, the source of which was Buildings 234 or 110. A portion of the NFS waste inventory was sent to SEG in Oak Ridge, Tennessee for compaction (Refer to Section 4.1).

Facility Mission

The Building 234 facility at NFS performed fuel fabrication work under subcontracts to two U.S. Government contracts administered by the U.S. Atomic Energy Commission (AEC), and two smaller commercial contracts. The largest of the two government sponsored orders was to manufacture fuel rods for the Southwest Experimental Fast Oxide Reactor (SEFOR) in Arkansas. The other government sponsored order was from the U.S. Department of Energy (DOE) Savannah River Site (SRS). The majority of the plutonium processed by NFS resulted from the two U.S. Government contracts. The other plutonium processed at NFS supported commercial contracts for the Halden reactor and Consumers Power Company. Building 110 housed wet chemistry and spectrographic laboratories that provided analytical support to Building 234 (Refer to Section 4.2).

Waste Streams

2.1 Waste Stream OR-NFS-CH-HET-A

Summary Category Group: S5000

Waste Matrix Code Group: Heterogeneous Debris Waste

Waste Matrix Code: S5400, Heterogeneous Debris

TRUPACT-II Content Code (TRUCON): OR 125/225, SQ 154

Maximum Layers of Confinement: Maximum of Four (4)

Waste Stream Description: Waste stream OR-NFS-CH-HET-A is comprised primarily of numerous organic and inorganic debris waste items and generally consists of cellulosics, plastic, rubber, concrete, glass, and metal. Some drums in this waste stream contain machine-compacted waste. Some of the specific waste items include aluminum sheeting and tubing, angle iron, steel framing, metal fittings, hardware (e.g., bolts, nuts, screws), pipe, saw blades, sheet metal, copper tubing, inorganic absorbent, concrete, glassware, glass Raschig rings, rags, paper suits, tape, wipes, wood, plastic bags and sheeting, bottles, flex hose, hoods, strippable coating, tubing, rubber gaskets, rubber gloves, shoe covers, electric motors, electrical equipment (e.g., drills, saws, and vacuums), and High Efficiency Particulate Air (HEPA) filters. Small quantities of soil, floor sweepings, absorbed oil, and cemented aqueous solutions may also be present. A detailed list of items in this waste stream is provided in Section 5.4.1.

The two most prevalent radionuclides by mass in this waste stream are U-238 and Pu-239. The two most prevalent TRU radionuclides by mass in this waste stream are Pu-239 and Pu-240 (Refer to Section 5.4.2).

The EPA hazardous waste numbers assigned to this waste stream are F002, D006, D008, D009, and D011 (Refer to Section 5.4.3).

The only prohibited items identified in this waste stream were sealed containers greater than four liters and liquids. The few drums with sealed containers greater than four liters have already been repackaged where the lids were removed from the inner container so they are no longer sealed. Approximately 70 percent (41 of 58) of the initial drums of machine-compacted waste were found to contain detectable liquid. Polymer absorbent has been added to these drums. In addition, some of the waste processed through the TWPC may have a stainless-steel band wrapped around the twisted section of the liner bag, that was tightened with a banding tool, which is considered an unacceptable supplemental sealing device (Refer to Section 5.4.4).

Debris waste is packaged in 55-gallon drums fitted with approved filter vents that in some cases contain 90-mil rigid liner with or without a liner lid. Cardboard liners may also be present. A polyethylene drum liner bag was placed inside the drum or in the rigid liner. An absorbent pad was added between the bottom of the drum and the liner, and at the bottom of the liner. A polymer absorbent may have been added to the drum instead of an absorbent pad. Waste materials were placed directly into the rigid liner or the drum liner bag, or were first packaged in up to three plastic bags closed by the twist and tape method or by heat-sealing. Waste may have also been packaged in 2-liter plastic bottles and 5-gallon buckets. Large chunks of concrete were packaged in super sacks (not sealed) and loaded into drums. The polyethylene bag drum liner was twisted and taped closed. A stainless-steel band (unacceptable supplemental sealing device) or cable tie wrap may also have been wrapped around the twisted section and tightened using a banding tool with additional tape wrapped around the twisted section. A polyvinyl chloride (PVC) pipe insert with a half inch (in.) hole in the wall of the pipe may have been positioned between the drum lid and rigid liner lid at the center of the liner lid to help hold it in place (Refer to Section 5.5).

Waste stream OR-NFS-CH-HET-A meets the WIPP-WAP waste stream definition. The waste stream consists of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. This waste stream consists of TRU-mixed heterogeneous debris waste generated during facility decommissioning operations at NFS (Refer to Section 4.6.2).

2.2 Waste Stream OR-NFS-CH-SOIL

Summary Category Group: S4000

Waste Matrix Code Group: Soils

Waste Matrix Code: S4100, Soils

TRUCON: OR 111/OR 211, OR 127/OR 227

Maximum Layers of Confinement: Maximum of Two (2)

Waste Stream Description: Waste stream OR-NFS-CH-SOIL is comprised of soil mixed with absorbent (e.g., RADSORB, Encap®) with a RADPAD on top of the soil in some drums and packaged in a plastic drum liner bag inside a rigid liner. The absorbents used and the RADPAD are organic polymers (Refer to Section 6.4.1).

The two most prevalent radionuclides by mass in this waste stream are U-238 and Pu-239. The two most prevalent TRU radionuclides by mass in this waste stream are Pu-239 and Pu-240 (Refer to Section 6.4.2).

The EPA hazardous waste number assigned to this waste stream is F002 (Refer to Section 6.4.3).

No prohibited items have been identified in this waste stream, but the possibility exists for the formation of liquids in the drums (Refer to Section 6.4.4).

Soil waste is packaged in 55-gallon drums fitted with approved filter vents that in some cases contain a 90-mil rigid liner with or without a liner lid. Cardboard liners may also be present. One or two polyethylene drum liner bags were placed inside the drum, or one liner bag was placed inside the rigid liner. Some drums have the rigid liner inside the polyethylene drum liner bag. An absorbent pad was added between the bottom of the drum and the liner, and at the bottom of the liner. A polymer absorbent may have been added to the soil instead of an absorbent pad. The polyethylene bag drum liner was twisted and taped closed. A stainless-steel band (unacceptable supplemental sealing device) or cable tie wrap may also have been wrapped around the twisted section and tightened using a banding tool with additional tape wrapped around the twisted section. A PVC pipe insert with a half inch hole in the wall of the pipe may have been positioned between the drum lid and rigid liner lid at the center of the liner lid to help hold it in place (Refer to Section 6.5).

Waste stream OR-NFS-CH-SOIL meets the WIPP-WAP waste stream definition. The waste stream consists of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. This waste stream consists of TRU-mixed soil generated during facility decommissioning operations at NFS (Refer to Section 4.6.2).

2.3 Waste Stream OR-NFS-CH-HOM-A

Summary Category Group:	S3000
Waste Matrix Code Group:	Solidified Organics and Inorganics
Waste Matrix Code:	S3900, Other Homogeneous Solids
TRUCON:	OR 127/OR 227, SQ 154
Maximum Layers of Confinement:	Maximum of one (1)

Waste Stream Description: Waste stream OR-NFS-CH-HOM-A is comprised of respirable fines (high activity particulate from glovebox floor sweepings, filter media, etc.) immobilized with Portland cement and water in 2-liter high-density polyethylene (HDPE) bottles and aqueous liquids (e.g., Radiacwash decontamination solution) immobilized with RADSORB (organic polymer absorbent) in 2-liter HDPE bottles. There are also 2-liter HDPE bottles containing miscellaneous metal (e.g., sweepings, hardware) dispersed throughout a RADSORB absorbent matrix. Refer to Section 7.3.1 for a more detailed description of the process. Each bottle is packaged in two heat-sealed plastic bags. Depending on the level of radioactivity, the bottles were placed into a plastic or steel centering sleeve inside the 55-gallon drum or directly into the drum (Refer to Section 7.4.1).

The two most prevalent radionuclides by mass in this waste stream are U-238 and Pu-239. The two most prevalent TRU radionuclides by mass in this waste stream are Pu-239 and Pu-240 (Refer to Section 7.4.2).

EPA hazardous waste numbers assigned to this waste stream consist of D006 and D009 (Refer to Section 7.4.3).

The prohibited items identified in this waste stream include heat-sealed bags greater than four liters (fully expanded volume) and less than 390 square inches of surface area. There is also the potential for liquid in this waste stream (Refer to Section 7.4.4).

The 2-liter bottles of immobilized waste were capped and bagged out of the glovebox in two plastic bags (un-vented) which were heat-sealed. The bottles have been repackaged at the TWPC into a special packaging configuration consisting of two vertical cardboard tubes (diameters of 10.5-inches and 6-inches) in the center of a 55-gallon drum (with approved filter vent) and several vertical cardboard tubes around the outside. The drum is lined with a filtered 6-mil poly liner bag; rigid liners are not used. The heat-sealed plastic bags are first breached. Bottles are then placed only in the outer tubes (lower activity waste) or only in the center tube (higher activity waste). The cardboard tubes are considered packaging material, not waste. The polyethylene bag drum liner was twisted and taped closed. A cable tie wrap may have been wrapped around the twisted section and tightened using a banding tool with additional tape wrapped around the twisted section. Seven bottles were identified that require repackaging into 55-gallon drums containing standard 12-inch pipe overpack components due to the high surface dose rates of these bottles. The standard pipe overpack consists of a stainless steel pipe component (with a filter vent in the lid) centered in a 55-gallon drum using dunnage consisting of fiberboard and plywood spacers within a rigid polyethylene liner and lid with a vent hole (Refer to Section 7.5).

Waste stream OR-NFS-CH-HOM-A meets the WIPP-WAP waste stream definition. The waste stream consists of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. This waste stream consists of TRU-mixed absorbed/solidified waste generated during facility decommissioning operations at NFS (Refer to Section 4.6.2).

2.4 Waste Stream OR-NFS-CH-HOM-B

Summary Category Group:	S3000
Waste Matrix Code Group:	Solidified Inorganics
Waste Matrix Code:	S3120, Inorganic Sludges
TRUCON:	OR 127/OR 227, SQ 154
Maximum Layers of Confinement:	Maximum of One (1)

Waste Stream Description: Waste stream OR-NFS-CH-HOM-B is comprised of an aqueous sludge produced from the treatment of groundwater. The sludge is pumped from the bottom of a tank directly into a lined 55-gallon drum, and an organic polymer absorbent is added and mixed into the sludge (Refer to Section 8.4.1).

The two most prevalent radionuclides by mass in this waste stream have not been determined. This section will be updated when this information becomes available (Refer to Section 8.4.2).

EPA hazardous waste numbers are not assigned to this waste stream. This is a nonhazardous waste stream (Refer to Section 8.4.3).

Prohibited items have not been identified in this waste stream (Refer to Section 8.4.4).

The groundwater treatment sludge is packaged into a 55-gallon drum with a filtered polyethylene liner bag and a 90-mil rigid liner inside the liner bag. Rigid liner lids are not used, and the drum has an approved filter vent. The sludge is loaded directly into the rigid liner along with a polymer absorbent. The liner bag is twisted, a plastic cable tie is wrapped around the twisted section and tightened, and tape is wrapped around the twisted section (Refer to Section 8.5).

Waste stream OR-NFS-CH-HOM-B meets the WIPP-WAP waste stream definition. The waste stream consists of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. This waste stream consists of nonhazardous groundwater treatment sludge generated during facility decommissioning operations at NFS (Refer to Section 4.6.2).

3.0 ACCEPTABLE KNOWLEDGE DATA AND INFORMATION

TRU waste destined for disposal at the WIPP must be characterized prior to shipment. Development of knowledge of the waste materials and processes that generate and control the waste is required to provide a clear and convincing argument about the characteristics of the waste (Reference 2). The AK characterization documented herein complies with the AK requirements of the WIPP-WAP (Reference 2) and was developed in accordance with the applicable requirements of CCP-PO-001 (Reference 3) and CCP-TP-005 (Reference 1).

This waste was characterized using AK from a variety of sources, including operating procedures, work requests, waste management and packaging procedures, decommissioning plans and reports, waste packaging and shipping forms, site databases, previous waste characterization data (e.g., radiography), analytical data, and various correspondence.

The references and AK sources used to prepare this report are listed in Sections 10.0 and 11.0, respectively. The AK sources referenced within this report by alphanumeric designation (e.g., C001, I001, M001, P001, U001, DR001) correspond to the Source Document Tracking Number using the following convention:

- C – Correspondence
- I – Internal Procedures and Notes
- M – Miscellaneous data
- P – Published documents
- U – Unpublished documents
- DR – Discrepancy resolutions

The alphanumeric "I" designator (e.g., I001) was originally assigned to source documents (primarily internal procedures) collected by the TWPC operating contractor during the initial AK program conducted at ORNL (Reference U044). These documents have been assigned the same Source Document Tracking Numbers to maintain traceability to earlier reports; however, this designator has not been assigned during subsequent CCP AK collection and review operations.

A correlation between the CCP waste stream numbers in this AK Summary Report and the ORNL waste stream numbers in DOE/TRU-12-3425, *Annual Transuranic Waste Inventory Report – 2012* (ATWIR) (Reference 9) are presented in Table 3-1, Waste Stream Correlation.

Table 3-1. Waste Stream Correlation

ATWIR Waste Stream	CCP Waste Stream
OR-NFS-CH-HET	OR-NFS-CH-HET, OR-NFS-CH-HET-A [1]
OR-NFS-CH-SOIL	OR-NFS-CH-SOIL
OR-NFS-CH-HOM	OR-NFS-CH-HOM-A, OR-NFS-CH-HOM-B

1. OR-NFS-CH-HET is inactive and was replaced by OR-NFS-CH-HET-A (see below).

Previous revisions of this AK Summary Report include debris waste stream OR-NFS-CH-HET. A waste stream profile form was approved for this waste stream, and 112 drums were disposed of at the WIPP in October 2008. Waste stream OR-NFS-CH-SOIL was added at Revision 2. It was later determined that some of the debris drums contained small amounts of soil, and the hazardous waste characterization of the soil waste stream was inconsistent with the debris waste stream. A decision was made to discontinue the use of waste stream OR-NFS-CH-HET, and create new waste stream OR-NFS-CH-HET-A in Revision 4 that is characterized accordingly to account for the small amounts of soil (refer to Section 5.4.3.1 for specifics). AK and characterization data for the 112 shipped drums was reviewed to verify that they did not contain any soil. The remaining drums of debris waste that were not shipped were moved to new waste stream OR-NFS-CH-HET-A.

4.0 REQUIRED PROGRAM INFORMATION

This section provides the mandatory TRU waste program information required by the WIPP-WAP (Reference 2). This section provides descriptions of the facilities and operations associated with the generation of NFS TRU waste. Included are a brief description of the NFS and SEG sites and TRU waste generating facilities, a summary of the NFS mission, defense determination, and descriptions of historical and current operations associated with the generation of the waste streams.

4.1 Facility Location and Description

NFS is located in eastern Tennessee in the city of Erwin less than 10 miles from the western North Carolina border. The NFS waste originated primarily from decommissioning of Building 234. Building 234 contained a plutonium/uranium mixed oxide (MOX) fuel fabrication facility and a U-233 purification process facility. Decommissioning also included the cleanout of the Building 110 process laboratory and an underground waste tank. Building 234 is located in the northeast section of the NFS plant (References C099, P218, P248, P283, U038, U054). A map showing the location of NFS is included as Figure 1, Nuclear Fuel Services Inc., at the end of this report (Reference 10). A map and photograph showing the location of Buildings 234 and 110 are shown in Figure 2, Buildings 234 and 110 at Nuclear Fuel Services, Inc. and Figure 3, Photograph of Nuclear Fuel Services, Inc. (References M050, P248, P283).

Building 234 was comprised of three areas designated as Buildings 234A, 234B, and 234C. Building 234A was constructed in about 1962 and was used for uranium materials storage. In 1964, the MOX fuel fabrication line was installed for conversion, pellet fabrication, and scrap recovery processes. An annex was built on the south end of 234A in about 1965. The annex was used for an office, a utility room, showers, and change rooms. Buildings 234B and 234C were also added in about 1965. Building 234B, which was built on the west side of 234A, contained the U-233 purification process. Building 234C, which was added on the north end of 234A, was used to fabricate and inspect fuel rods. The MOX fuel fabrication facility operated until about 1973 (References C099, P248, P323).

Building 110 housed wet chemistry and spectrographic laboratories. This laboratory also operated until about 1973. Piping connected the laboratory drains to a small underground storage tank that was also included in the decommissioning of the facility (References C210, P283, P323, U043, U054).

In 1990, the Decontamination and Volume Reduction Facility (DVRF) was constructed in Building 234C. The DVRF was used during decommissioning operations and consisted of an external Perma-Con modular containment structure, airlock cell, decontamination cell with ultra-high pressure water jet, shear-baler for material compaction, five-station active-passive neutron assay system, data acquisition system electronics, HEPA filters, and a filtration and ion exchange system. The layout of the

DVRF is shown in Figure 4, Decontamination and Volume Reduction Facility (References P248, P300, P323, U052, U054).

Waste processed throughout the DVRF was sent to SEG from 1992 to 1994 for additional compaction using a 520-ton press. As shown in Figure 6, Oak Ridge National Laboratory and Scientific Ecology Group, the SEG Bear Creek Road facility is located only a couple of miles west of ORNL (References M003, M007, M052, M053, M213, M214, M215, P218, P273, P323).

Part of the NFS facility decommissioning included the remediation of the Solid Waste Management Units (SWMUs) in the northern portion of the NFS facility, including the RBG (SWMU 9). SWMU 9 included several burial trenches used for low-level waste disposal from 1966 until 1977. TRU waste was only generated from the remediation of Trench B in 2001 (References M003, M132, P1375).

Upon completion of decommissioning activities in the Building 234 interior, the building was demolished leaving behind only the concrete slab. In 2003, the 234 Excavation Facility was constructed in place of the former Building 234. This facility consists of a secondary containment tent and an inner primary containment structure with rooms for soil excavation, soil handling, groundwater treatment, and bag-out operations in addition to equipment and personnel airlocks. The facility is divided into four main compartments as illustrated in Figure 5, 234 Excavation Facility Layout (Reference P1373).

The NFS TRU waste described in this report is currently stored at ORNL. As shown in Figure 6, ORNL is located in eastern Tennessee approximately 8 miles southwest of the city of Oak Ridge (References M007, P014). ORNL is approximately 150 miles west of the NFS site. CH-TRU waste from NFS is currently stored in Buildings 7574, 7879, 7880, and 7883 (References M012, M013, P272). Figure 7, Transuranic Waste Processing Center and ORNL Solid Waste Storage Areas is a map denoting the locations of the TRU waste storage buildings (References P256, P272, P432).

The TWPC is located in Building 7880 within an approximate 5-acre area in the Melton Valley area of ORNL. Processing of CH-TRU waste is limited to characterization, sorting, segregation, size reduction and repackaging as required to produce waste suitable for disposal at WIPP (References P256, P432). The location of Building 7880 is shown in Figure 7 (References P256, P272, P432).

4.2 Facility Mission

The Building 234 facility performed MOX fuel fabrication work under subcontracts to two U.S. Government contracts administered by the AEC, and two smaller commercial contracts. The vast majority of the plutonium processed by NFS resulted from the two U.S. Government contracts. Other plutonium processed at NFS supported commercial contracts for the Halden Reactor and Consumers Power Company (References C099, C100).

The largest of the two government-sponsored orders was to manufacture fuel rods for the SEFOR, a test facility for liquid metal breeder reactor fuel located at the University of Arkansas. General Electric (GE) was contracted by the AEC to design, build, and operate the SEFOR, and GE contracted NFS to fabricate the fuel rods for the reactor. The plutonium utilized was supplied by the AEC. The other government sponsored order was from the DOE SRS. The fuel that NFS fabricated for DOE SRS was used in experiments that were part of a cooperative research and development program between the AEC and Atomic Energy of Canada Limited on deuterium oxide (D_2O)-moderated power reactors. These experiments were undertaken to determine the basic changes in lattice physics parameters that accompany plutonium buildup at high fuel burn-ups in natural uranium-fueled D_2O-moderated power reactors. The wet chemistry and spectrographic laboratories in Building 110 provided analytical support to Building 234. In early years, this lab also supported the Light Water Breeder Reactor Program (References C099, C100, C145, C210, P212, P273, P323, U038, U044).

A portion of Building 234 contained a U-233 purification facility. This area of the building was decommissioned in 1983, several years before decommissioning of the MOX facility began. Waste stream OR-NFS-CH-HET-A does not include debris from decommissioning of the U-233 facility, and waste stream OR-NFS-CH-SOIL does not include soil from directly beneath the U-233 facility. However, some of the soil in waste stream OR-NFS-CH-SOIL is contaminated with U-233. The source of the U-233 is likely contaminant migration since most of the soil is from an area beneath Building 234 that was adjacent to the U-233 facility (References C122, C210, I053, P248, P283).

4.3 Defense Waste, Spent Nuclear Fuel, and High-Level Waste

4.3.1 Defense Waste Assessment

The WIPP-WAC (Reference 5) requires generator sites to use AK to determine if the TRU waste streams to be disposed at WIPP meet the definition of TRU "defense" waste. Based on guidance from the DOE, a TRU waste is eligible for disposal at WIPP if it has been generated in whole or part by one of the atomic energy defense activities listed in section 10101(3) of the *Nuclear Waste Policy Act of 1982* (NWPA) (References 5, 6, and 7).

The two larger contracts described in Section 4.2 were placed pursuant to prime contracts with the AEC and were both national defense rated orders which were designated DO-E2 certified for national defense use under Defense Material System (DMS) Regulation 1. The established defense and commercial activities utilized the same process equipment so the source of contamination is indistinguishable. Therefore, the TRU wastes from decommissioning are linked primarily to defense nuclear materials production (References C099, C100, M021).

4.3.2 Spent Nuclear Fuel and High-Level Waste Assessment

Public Law 102-579, *The Waste Isolation Pilot Plant Land Withdrawal Act* (Reference 6) (as amended), bans the disposal of spent nuclear fuel (SNF) and high-level waste (HLW), as defined by the NWPA, at WIPP. According to the NWPA, SNF is "fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing." HLW is defined by the NWPA as "the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations, and other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation." These requirements are also defined in DOE M 435.1-1, *Radioactive Waste Management Manual*, which is the mandatory requirements manual for implementing DOE O 435.1, *Radioactive Waste Management Manual* (References 6, 7, 17, I022, I023, I043). The NFS facilities that generated this waste did not have a reactor, and the waste does not contain irradiated fuel elements withdrawn from a reactor. Therefore, the waste is not a spent nuclear fuel or HLW and is eligible for disposal at WIPP (References 6, 7).

4.4 Description of Waste Generating Operations

The Building 234 facility operated from 1965 to 1973. The process capabilities of the facility included dissolution of plutonium and uranium metals and oxides, co-precipitation of plutonium and uranium, wet or dry blending of MOX powders, pellet and rod fabrication, rod loading, and scrap recovery. Production operations in Building 234 ceased and were placed on standby in 1973. As described below, NFS TRU waste stored at ORNL is from decommissioning operations, not production (References C099, P248, P273).

4.4.1 Production Operations

Pellet Production

Solutions containing a mixture of plutonium nitrate and uranyl nitrate hexahydrate were transferred from the master mix tank to precipitation units. Plutonium and uranium were precipitated as ammonium diuranate and plutonium hydroxide, and ammonium hydroxide was used as a precipitant. During the Consumer Powers project, the feed solution contained plutonium nitrate only, and the plutonium was precipitated using oxalic acid, nitric acid, and hydrogen peroxide (References C145, P273).

Supernate was decanted from the ammonium diuranate or oxalate slurry and the remaining precipitate was filtered to remove liquids. Supernate/filtrate from the ammonium diuranate or oxalate slurry was polished and stored in two glass columns. Filtrate from the column box was evaporated producing ammonium nitrate concentrate and ammonium hydroxide condensate. During SEFOR production, ammonium hydroxide condensate was used to wash ammonium diuranate cake. Wet ammonium

diuranate or oxalate cake was dried in a furnace and then loaded in another furnace and heated in a nitrogen and hydrogen gas atmosphere. The resultant oxide solids (MOX or plutonium oxide) from the conversion furnace were passed through a twin shell blender. Sub-blended oxide was ball-milled, screened, and weighed. After weighing, oxide was packaged in two liter bottles and placed into storage (References C145, P273).

One cross-blend was performed per five days during SEFOR production; each cross-blend was comprised of five sub-blends. During the Consumer Powers project, plutonium oxide cross-blending was followed by the addition of uranium oxide solids. The mixture of plutonium oxide and uranium oxide was sub-blended and cross-blended. Blended oxide was granulated using an oscillating device and stainless-steel screen. Binder was added to cross-blends during granulation. Granulated oxide was transferred to a pellet press. Pellets were measured for density then loaded into the sintering furnace and heated in an atmosphere of hydrogen gas, nitrogen gas, carbon dioxide, and argon. The sintered pellets were then allowed to off-gas (References C145, P273).

Sintered pellets were machined to finished size using grinders. Recycled water from the pellet wash was used as coolant. Grinder sludge and damaged pellets were sent to scrap recovery. Machined pellets were cleaned with isopropyl alcohol or in an ultrasonic wash using distilled water and then air dried. Pellets were visually inspected and diametrically gauged. A percentage of pellets were sampled for destructive analyses and measured for density and dimensional attributes. Reject pellets and sample residues were sent to scrap recovery. Finished pellets were weighed and loaded in tubes that were capped and sent to rod assembly and fabrication stations (References C145, M008, P273).

Scrap Dissolution and Recovery

Oxide scrap was ball-milled to reduce particle size. Ball-milled oxide scrap was transferred to the dissolution station and heated with nitric acid in one of two dissolvers. Nitrate solutions were pumped from the dissolver to the evaporator (References C145, P273).

Non-combustible items containing recoverable material (e.g., bottles, plastics, screens, gloves, etc.) were unloaded from drums and passed to the scrap preparation station for manual cutting and shredding. Shredded materials were leached in a nitric acid bath to recover plutonium. Leachate was pumped to the evaporator and solids were bagged-out and packaged for disposal (References C145, P273).

Plutonium nitrate solutions were transferred from the evaporator to glass storage columns. Solutions were circulated, sampled, and pumped to the adjacent load-out station. Plastic cylinders were placed in a holding rack and filled with solutions from the columns. Loaded cylinders were packaged for shipment (References C145, P273).

4.4.2 Decommissioning Operations

The Building 234 MOX facility remained inactive from the time production operations ceased in 1973 until the initial phase of decommissioning started in the early 1990's. Between 1990 and 1993, process equipment, gloveboxes, piping, utilities, and ancillary materials were removed from Building 234, processed through the DVRF, and then sent to SEG from 1992 to 1994 for additional compaction. During this same time, the concrete floor was removed from the Building 234 Wet Chemistry Cell (also referred to as the Wet Cell) and soil was excavated from beneath the floor. The soil was blended with less contaminated soil to meet ORNL waste acceptance criteria (ORNL-WAC) (References C099, M003, M052, P248, P323).

The second phase of Building 234 decommissioning began in about 2000 and included removing the remaining equipment and utilities, decontaminating the walls, floors, and other exposed surfaces, excavating contaminated soil, dismantling the building, and disposing of the waste. Essentially all processing equipment and interior furnishings were previously dispositioned with the exception of the DVRF. Plutonium remaining in the facility was in the form of residual contamination primarily contained in the block walls, concrete floors, the DVRF, and soil beneath areas of the building (References C099, P248). The second phase decommissioning also included the remediation of the RBG on the northern part of the NFS facility. The only TRU waste generated from the remediation of the RBG was the excavation of Trench B in 2001 (References M003, M132, P1375).

The final phase of decommissioning began in 2011 and will continue through Fiscal Year 2018 (Reference C230, M206). Additional soil is being excavated from the footprint of the former Building 234 Wet Cell as well as the footprint of the concrete slab and soil on which the excavator is currently located. During soil excavation, groundwater is pumped from the pit into a tank where it is treated to precipitate solids that are then mixed with absorbent (References P1373, P1399, P1400).

A more detailed description of the decommissioning waste generating activities is provided in Sections 5.3.1, 6.3.1, 7.3.1, and 8.3.1.

4.5 Waste Identification and Categorization

The NFS TRU wastes were categorized into two general classifications, CH-TRU and MOX waste. CH-TRU waste includes general glovebox waste, concrete, Raschig rings, equipment, machine-compacted waste, soil, immobilized liquids and fines, groundwater treatment sludge, and other miscellaneous waste (References P218, P268, P323, P1373, U055). Waste segregation practices were as follows:

- Some of the material recovered during decommissioning is in the form of MOX fuel pellets and powder. This fuel material was packaged separate from other waste (Reference P218). The MOX fuel waste will be included in a separate AK report specifically for actinide oxide materials.

- Polyethylene bottles were used to collect higher activity waste. The contents of these bottles were heated if necessary to remove any moisture. The materials were screened to remove fines less than 200 microns, and the fines were solidified with cement and water in 2-liter HDPE bottles. There are also 2-liter HDPE bottles containing aqueous liquids immobilized with RADSORB (sodium polyacrylate polymer absorbent) and miscellaneous metal contained within the absorbent. The 2-liter HDPE bottles are packaged into 55-gallon drums separate from other types of waste (Reference P218). The immobilized liquids and fines waste is included in waste stream OR-NFS-CH-HOM-A.

- Contaminated soils were excavated, mixed with absorbent, and packaged into drums (References P218, P315, P1373, P1400). NFS also packaged soil in boxes which were repacked into drums at the TWPC (Reference M075). The soil waste is included in waste stream OR-NFS-CH-SOIL.

- During soil excavation, if groundwater is encountered, it is pumped from the pit into a tank where it is treated to precipitate solids which settle to the bottom of the tank. The settled solids are pumped from the bottom of the tank directly into 55-gallon drums, and a sodium polyacrylate polymer absorbent (e.g., Encap®) is mixed into the sludge (References P1373, P1399). The absorbed groundwater sludge is included in waste stream OR-NFS-CH-HOM-B.

- The bulk of the material removed during decommissioning was processed through the DVRF. Gloveboxes, piping, utilities, process equipment, and ancillary materials were decontaminated using ultra-high pressure water and then were loaded into a shear/baler where they were cut and compacted into blocks and placed into 40-gallon drums. The 40-gallon drums were sent to SEG in Oak Ridge, Tennessee where they were further compacted. Three compacted 40-gallon drum "pucks" were placed into a 55-gallon drum (Reference P218). The machine-compacted waste is included in waste stream OR-NFS-CH-HET-A.

- Not all of the debris waste was processed through the DVRF. Concrete, Raschig rings, glass, and other miscellaneous debris wastes (including dismantlement of the DVRF) were packaged into drums and boxes (References M003, M012, P323, U055). This waste is included in waste streams OR-NFS-CH-HET and OR-NFS-CH-HET-A.[1]

4.6 TRU Waste Management

In April 1986, NFS secured a contract with the DOE Idaho Operations Office for acceptance and storage of TRU waste. Subsequently, the governor of Idaho banned out-of-state waste shipments before NFS wastes could be received. To honor its contract with NFS, the DOE proposed that the TRU waste (>100 nanocuries per gram [nCi/g]) be stored at ORNL. In late 1989, DOE and the State of Tennessee agreed to

[1] As previously described in Section 3.0, the use of waste stream OR-NFS-CH-HET has been discontinued and has been replaced by waste stream OR-NFS-CH-HET-A.

utilize the facilities at ORNL for the storage of the NFS waste, and the DOE contract was modified in April 1992 (References C099, C145, P218, U050, U052).

The NFS wastes were categorized into two general classifications, CH-TRU waste and MOX waste (fuel pellets and oxide powder). The CH-TRU waste and MOX waste were certified to ORNL-WAC developed specifically for receipt of the NFS waste. These criteria specified the acceptable chemical, physical, and radiological properties as well as packaging and documentation. ORNL then independently verified conformance to the applicable criteria for each waste package through a combination of program/procedure review, on-site observation of active waste processing, and direct measurement in the ORNL Waste Examination and Assay Facility (WEAF) (References P218, P267, P268, P269).

4.6.1 Types and Quantity of TRU Waste Generation

The waste streams described by this report are characterized as TRU mixed waste consistent with Resource Conservation and Recovery Act (RCRA) requirements. The specific containers in each waste stream are provided in the Waste Containers List which is maintained as a quality record as required by procedure CCP-TP-005 (Reference 1). The number of containers currently included in each waste stream is provided in Table 4-1, Waste Stream Volumes.

Table 4-1. Waste Stream Volumes

Waste Stream	Number of 55-Gallon Drums	Volume (m^3)
OR-NFS-CH-HET*	112	23.3
OR-NFS-CH-HET-A	733	152.46
OR-NFS-CH-SOIL	545	113.4
OR-NFS-CH-HOM-A	38	7.9
OR-NFS-CH-HOM-B	0**	0

* These 112 drums were shipped to WIPP in waste stream OR-NFS-CH-HET. Use of this waste stream has been discontinued. The remaining debris waste in waste stream OR-NFS-CH-HET has been moved to waste stream OR-NFS-CH-HET-A.

**This waste stream has not yet been shipped from NFS to ORNL. As the drums are shipped to ORNL, the container paperwork will be evaluated and the drums will be added to the waste stream as appropriate.

4.6.2 Correlation of Waste Streams Generated from the Same Building and Process

The WIPP-WAP defines a waste stream as waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. Four CH-TRU waste streams have been delineated for the NFS waste according to this definition. The waste streams are designated OR-NFS-CH-HET-A, heterogeneous debris waste; OR-NFS-CH-SOIL, contaminated soil; OR-NFS-CH-HOM-A immobilized liquids and fines; and OR-NFS-CH-HOM-B, groundwater treatment sludge. The basis and rationale for delineating these waste streams is as follows:

- The activity at NFS that generated all four waste streams was facility decommissioning (Refer to Section 4.4).

- Debris waste, soil waste, groundwater treatment sludge, and immobilized liquids and fines were packaged separately from one another (Refer to Section 4.5). However, containers included in the waste streams were not managed as single hazardous or non-hazardous waste streams. Therefore, these waste streams do not consist of containers historically segregated by the generator into separate mixed and non-mixed waste streams based on the hazardous constituent identified for specific containers.

- The debris waste (including the machine-compacted waste) was characterized by NFS as nonhazardous waste (References M003, M012, M198). However, review of waste item descriptions for the drums identified batteries and electronic equipment containing circuit boards which are common hazardous waste items. Also, RCRA-regulated metals and organics were identified in analytical data relevant to waste stream OR-NFS-CH-HET-A. Therefore, the debris waste is characterized as RCRA-hazardous waste under Title 40 of the Code of Federal Regulations (CFR), *Identification and Listing of Hazardous Waste* Part 261, Subpart C and Subpart D (refer to Section 5.4.3 for details on the specific hazardous constituents) (Reference 13).

- The soil waste was characterized by NFS as nonhazardous waste (References M003, M012, M198). However, limited analytical data for the soils identified trace amounts of tetrachloroethylene which is believed to have been used as a solvent. Therefore, waste stream OR-NFS-CH-SOIL is characterized as RCRA-hazardous waste under 40 CFR Part 261, Subpart D (Refer to Section 6.4.3 for additional details) (Reference 13).

- Analytical data from process line samples of sweepings material indicate a few samples above the regulatory level for some RCRA-hazardous metals; however, NFS characterized the immobilized liquids and fines waste as nonhazardous waste with the exception of one drum containing cadmium and mercury (References M003, M012, M198). Based on this information, waste stream OR-NFS-CH-HOM-A is characterized as RCRA-hazardous waste under 40 CFR Part 261, Subpart C (Refer to Section 7.4.3 for additional details).

- The groundwater treatment sludge has been preliminarily characterized by NFS as nonhazardous waste. The characterization of waste stream OR-NFS-CH-HOM-B will remain nonhazardous waste pending the review of sampling and analysis of the groundwater and groundwater treatment sludge. To date this waste stream has not been generated, and therefore, sampling and analysis has not been performed.

4.7 Waste Certification Procedures

In the CCP under which the subject waste stream will be certified for shipment to WIPP, CCP-TP-005 (Reference 1), directs compilation of AK. CCP certifies TRU waste under the program described in CCP-PO-002 (Reference 8).

5.0 REQUIRED WASTE STREAM INFORMATION: OR-NFS-CH-HET-A

This section presents the mandatory TRU waste stream specific information required by the WIPP-WAPP for waste stream OR-NFS-CH-HET-A (Reference 2). The area of generation, waste stream volume, period of generation, prohibited items, waste packaging, and the physical, chemical, and radiological composition of the waste stream are described.

5.1 Area and Building of Generation

Waste stream OR-NFS-CH-HET-A originated primarily from the initial and second phases of decommissioning of the Building 234 MOX fuel fabrication facility and the Building 110 analytical laboratory. This waste stream was also generated from the removal of the Building 110 laboratory underground waste tank (References C099, C210, M003, P248, U055). In addition, a few drums were generated from excavation of Trench B in the NFS RBG during the second phase of decommissioning (Reference M132).

5.2 Waste Stream Volume and Period of Generation

Waste stream OR-NFS-CH-HET-A includes 733 55-gallon drums, some of which are the result of size reduction and waste repackaging. The wastes from the initial phase of decommissioning were packaged at NFS from July 1993 to May 1994 (References M003, M012, M198). The wastes from the second phase of decommissioning were packaged at NFS from April 2001 to September 2003. Size reduction and repackaging at the TWPC (at ORNL) began in December 2005 and will continue (References M003, M012, M013, M016, M019, M075, M198). The specific container numbers are provided in the Waste Containers List which is maintained as a quality record as required by procedure CCP-TP-005 (Reference 1).

There were 131 55-gallon drums of machine-compacted debris waste in storage at ORNL. Review of the container paperwork identified three 40-gallon drum pucks in each of the 55-gallon drums with the exception of two 55-gallon drums that each contain two pucks (References M003, M012, M198). This waste has been repackaged into new 55-gallon drums with one puck per drum. Each puck is placed in the upright position in the drum so RTR can better penetrate the waste. Repackaging of these drums generated 391 55-gallon drums. This total is included in the waste stream volume in the previous paragraph (References M075, M216, P1409).

In addition, there are two B-25 boxes (X10C0506146 and X10C0506147) that will be repackaged into 55-gallon drums at the TWPC (Reference M003), at which time they will also be evaluated for possible inclusion in this waste stream. These boxes contain 55-gallon drums and were not directload. X10C0506146 contains three drums and X10C0506147 contains five drums. Assuming a one-to-one repack, repackaging of these two boxes will generate eight 55-gallon drums.

5.3 Waste Generating Activities

Waste stream OR-NFS-CH-HET-A originated from decommissioning of the Building 234 MOX fuel fabrication facility and the Building 110 analytical laboratory, and the removal of Raschig rings from the Building 110 laboratory underground waste tank. Building 234 production operations ceased in 1973. TRU waste stored at ORNL is not from production operations but from the decommissioning operations described below (References C099, C210, M003, P248, P273, U055). A portion of the NFS waste required size reduction and repackaging at the TWPC (References P256, P432).

5.3.1 Decommissioning

Between 1990 and 1993, process equipment, gloveboxes, piping, utilities, and ancillary materials were removed from Building 234 and Building 110 (References C099, P248). The bulk of the material was processed through the DVRF which involved high-pressure water decontamination, shearing, and compaction of the material. The compacted waste was then sent to SEG where it was further compacted and then shipped to ORNL (Reference P218). In general, non-combustible material was processed through the DVRF; however, material not amenable to decontamination and volume reduction was packaged directly for shipment to ORNL without processing through the DVRF (Reference P317). Figure 8, Equipment Decontamination and Volume Reduction, shows the steps for waste processed through the DVRF (Reference P273).

5.3.1.1 Waste Compaction Operations

Gloveboxes, equipment, exhaust systems, and utility and process lines and systems from Buildings 110 and 234 were sectioned and/or manually decontaminated as necessary prior to processing in the DVRF. During sectioning, a light coat of fixative (e.g., Crystalac or Aqualac [nonhazardous acrylic polymer]) was applied to the separation point if necessary (References M011, P301, P303, P319, P1371). Process lines with the potential to contain liquid and equipment such as pumps containing oil were drained before processing (References C210, M052, P1371).

Loose materials were removed from gloveboxes and process equipment and collected in HDPE bottles. The materials included dry powder sweepings, sludge, paint chips, metal chips and shavings, pellets, rust, wet cheesecloth used to wipe contaminated surfaces, highly contaminated items such as gasket or paper filter media, or other contaminated debris easily gathered into a small container. These bottles were used to concentrate the contamination removed from gloveboxes and equipment so the bulk of the waste could be packaged at lower activity concentrations (no more than 15 Pu-239 fissile gram equivalents [FGE] as described below). Therefore, these bottles contained relatively large amounts of activity (References C206, M054, P218, P274, P317).

The waste material collected in the HDPE bottles was passed through a screen and a 212 micron sieve. The particulate materials that passed through the sieve were immobilized in cement and are not included in this debris waste stream

(see Section 7.0). The materials that did not pass through the sieve, and that were sufficiently low in activity, were accumulated in HDPE bottles and packaged in 40-gallon drums for subsequent compaction at SEG (see below for additional details). Each 40-gallon drum contained no more than 15 Pu-239 FGE (References P218, P274, P300, P317).

With the loose materials having been removed, gloveboxes, process equipment, piping, and ventilation duct were introduced into the DVRF where an initial assay determined whether further decontamination was needed. If decontamination was required, items were disassembled or sectioned in the decontamination cell. Focusing on areas identified by the initial assay, manual cleaning methods (e.g., wiping with Radiacwash [contains citric acid and tetrasodium ethylenediamine triacetate]) were employed to decontaminate the items to the extent possible. If additional cleaning was needed, a high-pressure water jet (40,000 pounds per square inch maximum operating pressure) was used to remove the etched in and fixed contamination (References C210, M007, P218, P300, P1371). Glovebox gloves, seals, windows, and hardware were placed into 5-gallon buckets or old 55-gallon drums for compacting (Reference M054).

The decontaminated items, 5-gallon buckets, and 55-gallon drums were loaded into the shear/baler where they were cut and compacted into 16-inch square bales of varying thickness depending on the amount material fed into the loading hopper. Soft waste items, such as plastic sheet, protective clothing and supplied air hose, as well as plexiglass and hard plastic items were also incorporated into the predominantly metal matrix of the baled material. The shear/baler provided 377 tons of shear capacity and 180 tons of compaction force. A glovebox was attached to the outlet chute to provide an enclosure to seal the bales in plastic as they emerged from the shear/baler. The compacted bales were packaged into 40-gallon drums and sent to SEG for additional compaction (References C210, M007, P218, P300, P317, P1371, U052, U054). In some instances, 40-gallon drums contained a combination of compacted bales and HDPE bottles (Reference M052).

Routine DVRF maintenance activities included checking and repairing hydraulic fluid (Exxon Nuto 68 [heavy paraffinic petroleum distillate]) leaks in the high pressure water jet and shear/baler, lubricating shear/baler door actuator worm gears with Zeniplex Grease (mineral oil), lubricating shear/baler gate slides and loading hopper floor using Slip Plate Aerosol (graphite lubricant), and cleaning up hydraulic fluid, grease, dirt, and debris using cheesecloth. Keystone Penetrating Oil 2 (petroleum hydrocarbon) was used to free a piece of drum wedged in the shear (References C206, M011, P312). Each 40-gallon drum received at SEG for compaction was accompanied by the information required by the ORNL-WAC. Information verified by SEG for each 40-gallon drum prior to compaction included the following: TRU waste concentration exceeded 100 nCi/g and beta-gamma surface dose radiation level was less than 200 millirem per hour (mR/hr). In addition, FGE for each 40-gallon drum was reviewed to ensure the combined FGE for the final 55-gallon drum did not exceed 128 grams FGE. Once the order of processing had been determined, a 40-gallon drum was placed on a conveyor that fed the 520-ton TRU Press. The diameter of the 40-gallon drum was designed to fit

inside the die of the press. The TRU Press compacted the 40-gallon drum into a puck approximately one third of the original height. After the drum was compacted, it was coated with Crystalac fixative (acrylic polymer) and placed inside a 55-gallon drum. Three compacted 40-gallon drums were typically placed into each 55-gallon drum. A data package was developed for each 55-gallon drum that included FGE, Pu-239 equivalent activity, thermal power, activity for each radionuclide, neutron absorbers, physical description, chemical form, and iron content. The 55-gallon drums were then transferred to ORNL for storage (References M003, M007, M011, M066, P218, P273, P1413, P1414, P1415, P1416).

5.3.1.2 Non-compaction Waste Operations

Some materials were packaged directly for shipment to ORNL and not processed through the DVRF. The activities that generated the non-compacted debris waste in this waste stream included:

- Removal of the contaminated concrete floor and footers from the Building 234 Wet Chemistry Cell. Prior to removal, an aqueous-based fixative may have been applied to the floor. Fixatives included Crystalac CL-90 (contains an acrylic polymer, mixed glycol ethers, and isopropyl alcohol) and Aqualac III (contains an acrylic polymer and mixed glycol ethers) (References C210, M011, M052, P323).

- Removal of Raschig rings from process tanks in Building 234 and the underground tank that serviced the Building 110 laboratory. The Building 234 rings were visually clean, but the Building 110 rings were visibly contaminated with a sludge material and were cleaned in the DVRF to the extent possible (References C210, M052, U038, U055).

- Removal and packaging of miscellaneous wastes, including metal press parts and waste contaminated with asbestos (References C210, M003, M052, P304, P317).

The second phase of decommissioning of Building 234 began in about 2000. Essentially all processing equipment and interior furnishings were previously dispositioned in the 1990s with the exception of the DVRF. In addition to the DVRF, other plutonium remaining in the facility was in the form of residual contamination contained primarily in block walls and concrete floors (References C099, P248). The decommissioning activities that generated this waste stream included:

- Removal and size-reduction of contaminated piping, vacuum lines, and ductwork (References C119, C120, C129, I068).

- Cleaning of the DVRF shear/baler with Pipe X-Metal X (a nonhazardous water-soluble proprietary formulation containing small amounts of minerals and organics) (References C125, M011).

- Cleanout of DVRF gloveboxes, including the neutralization of acid solutions and cementation of the neutralized solution, and sweeping up material for placement into poly bottles (References C130, I061).

- Removal and dismantlement of the DVRF gloveboxes. The glovebox surfaces were sprayed with CC Fix (contains ammonia and 2-ethylhexyl acrylate). Saws were lubricated with Nozzle Dip (petrolatum) and Aqua Cut (solution containing ethylene glycol, isopropyl alcohol, and organic phosphate ester) cutting fluids (References C121, C127, C130, I061, M011).

- Cleanout, removal, and dismantlement of the DVRF Decon Cell Perma-Con Structure, including wiping down interior surfaces and spraying the surfaces with CC Fix (References C126, I056, I058, I059, M011).

- One box containing TRU soil and debris was generated from excavation of the NFS RBG during the second phase of decommissioning. NFS used the burial ground to dispose of their low-level waste from about 1966 to 1970. The burial ground was excavated between 2000 and 2004, and the low-level waste was shipped to Envirocare. The NFS container paperwork for this box indicates the waste was generated from RBG Trench B which indicates the Radioactive Burial Ground, and Trench B designates one of the burial pits. The excavated plutonium-contaminated debris originated in Buildings 110 or 234, and the soil itself originated from the trench. NFS determined that this box contained TRU waste. The chemical and radiological contamination of the Trench B area is similar to the Building 234 area (References C227, M003, M132, P1375).

NFS does not anticipate any TRU debris waste to result from the excavation process performed as part of the final phase of decommissioning which began in 2011, although the potential does exist (Reference C321). The Waste Container Packaging Form will indicate if the drum contains debris waste (Reference P1401). This section will be revised if any TRU waste is generated from this final decommissioning phase.

5.3.2 Transuranic Waste Processing Center

As necessary, drums containing CH-TRU waste are moved individually to the TWPC glovebox airlock. Once inside the glovebox airlock, the drum is moved to the drum tipper where the drum lid is removed and the drum contents are emptied into sorting trays. The waste articles are manually sorted and segregated via glove ports to remove prohibited items and repackaged at one of the four load-out stations along the glovebox. Prohibited items identified during repackaging of drums and boxes are removed from the waste stream or are remediated (References P251, P254, P255, P256). Secondary wastes created during waste processing, such as rubber glovebox gloves, tools, and damp rags from cleaning internal glovebox walls, are placed into the same TRU waste drums as the repackaged waste in this waste stream (References P252, P253). If polychlorinated biphenyls (PCBs) are encountered during waste processing, Big Orange-E (nonhazardous solvent containing d-Limonene) is used if necessary for

glovebox decontamination. PCB decontamination waste may be included in this waste stream (References M011, P582).

Boxes containing CH-TRU waste are moved into the box breakdown area (BBA) via airlocks. Within the BBA, the box lid is removed. The waste is inspected, removed, size reduced, and sorted manually within the BBA, and either packaged into new drums directly from the BBA or processed through the glovebox as described above. Drums containing large pieces of concrete were also processed in the BBA. The concrete required an additional enclosure to be used within the BBA for contamination control. CC Wet (an aqueous-based wetting agent containing glycerin, monosaccharide, a non-ionic surfactant, and a non-halogenated dye) and CC Fix (an aqueous-based fixative containing ammonia and 2-ethylhexyl acrylate) were applied to the concrete, the parent drum and liner were cut away to allow access to the concrete, and the concrete was transferred into super sacks that were loaded into new drums. A considerable amount of secondary waste was also generated during this activity. Drums containing machine-compacted waste are also repackaged in the BBA. Incoming 55-gallon drums are opened, and the compacted drum pucks (typically three pucks per drum) are removed. One puck is then placed upright in a new 55-gallon drum so that RTR can better penetrate the waste. If necessary, secondary waste (e.g., puck lifting device/sling, protective clothing) is placed around the puck to keep it in the upright position. A process flow diagram for the TWPC is shown in Figure 9, Transuranic Waste Processing Center CH Solid Waste Flow Diagram (References C622, M011, P251, P256, P432, P1409).

5.4 Type of Wastes Generated

This section describes the waste materials based on process inputs and outputs, waste matrix code assignment, waste material parameter weight estimates, radionuclide contaminants, and hazardous waste determinations for waste stream OR-NFS-CH-HET-A.

5.4.1 Materials Related to Physical Form

Waste stream OR-NFS-CH-HET-A is comprised primarily of numerous organic and inorganic debris waste items. Some of the drums contain un-compacted debris waste, and others contain compacted drum "pucks". Descriptions of the physical form of the waste are provided on the NFS TRU Waste Data Package form, NFS Radwaste Package Certification Record and NFS Drum Content Log (Reference M003). Waste item descriptions were also obtained from Real-Time Radiography (RTR) conducted at the WEAF and RTR and Visual Examination (VE) performed at the TWPC. The TWPC RTR and VE is considered AK because it was performed prior to implementation of the CCP TRU waste certification program at ORNL (References M018, M019, M065, M068, M075, M216). Specific waste items present in this waste stream are as follows (References C206, C210, M003, M018, M019, M052, M076, M129, M130, M131, M133, P218, P273, P300, U054, U055):

- Aluminum metal items such as channel, ductwork, foil, glove portal inserts, ladders (cut up), pipe, plates, respirator filter cartridges, sheeting, spark arrestors, strips, and tubing

- Iron-based metal items including angle iron, banding, beams, bracing, cable, chain, clamps, conduit, containers, ductwork, filters, filter housing, fittings, flanges, framing, gauges, glovebox panels, hand tools, hardware (e.g., clips, bolts, hose clamps, nails, nuts, screws, springs, washers), lids, pipe, plate, rebar, rings, rods, saw blades, scrap/sheet metal (e.g., fume hoods, tanks), sleeves, strapping, wire, and wire mesh.

- Other metals such as batteries (e.g., AA), copper tubing, copper fittings, and copper wiring.

- Other inorganic materials including absorbent, asbestos, ceramic (e.g., balls from ball mill), charcoal filters, clay pipe, cinder and concrete block, concrete chunks, concrete chips and dust, filter media, fire brick (from furnace), glass storage columns, glassware, Raschig rings (borosilicate glass rings 1.5-inches tall, 1.5-inches outside diameter, and 1-inch inside diameter) insulation, mirrors, and sheetrock.

- Cellulosic items such as absorbent pads, cardboard, cartons, cheesecloth, cloth, cork, cotton gauze, cotton glove liners, cotton wound filters, dollies, fabric, fiberboard, leather gloves, mop heads, padding, paint brushes and rollers, paper, rags, smears, suits, swipes, tape, towels, vacuum bags, wipes, and wood.

- Plastic items including bags, bottles, CC Strippable Decontamination Media (vinyl acrylic latex strippable coating), clips, containers, cord, ductwork, fiberglass, filters, fittings, flex hose, foam, Herculite® (industrial fabric), hoods, Kevlar® gloves, latex gloves, Lexan® glove ports, lids, liners, mesh, nylon belts and rope, plexiglass, pipe, sheeting, sprayers, strapping, suits, tape, ties, tile, and tubing. HDPE bottles were also used to collect miscellaneous waste items from glovebox cleanout. These bottles were packaged in 40-gallon drums for subsequent compaction at SEG. The bottles contained materials such as sweeping, paint chips, metal shavings, cheesecloth, gaskets, paper filer media, or other contaminated debris easily gathered into a small container.

- Rubber items such as bungee cord, electrical cord, gaskets, gloves, hose, mats, o-rings, shoe covers, and wheels.

- Equipment including electrical devices containing circuit boards, electronic control panels, meter probes, halogen light fixtures, jacks, motors, metal press parts, power drills, pumps, reciprocating saws, and vacuums with HEPA filter and bag. Types of equipment processed through the DVRF included a ball mill, blower, cut-off machine, dumb waiter, furnace, grinder, oxide slugging press, pellet grinder, pellet press, pellet rod lathe, pump, twin-shell blender, and welder.

- Metal-framed HEPA filters and large wood-framed HEPA filters (cut up).
- Organic matrix (e.g., oil absorbed using Nochar [sodium polyacrylate polymer]).
- Inorganic matrix (e.g., liquids absorbed using Solid-A-Sorb [diatomaceous earth], cemented aqueous solutions, floor sweepings). Sludge (dirt, rust, oxide, paint chips, metal hardware) from beneath the floor grating in the DVRF decontamination cell was cleaned out, allowed to dry out, and then packaged into HDPE bottles. The bottles were packaged in 40-gallon drums for compaction at SEG.
- Soil/gravel, including loose soil and rock and soil/rock samples.

5.4.1.1 Waste Matrix Code

As shown in the previous section, waste stream OR-NFS-CH-HET-A is comprised primarily of numerous organic and inorganic debris waste items and generally consists of cellulosics (e.g., paper, cloth, wood), plastic, rubber, concrete, glass, and metal. The waste matrix code was assigned to this waste stream based on the evaluation of AK information relating to the physical form of the waste recorded on waste disposal forms, RTR conducted at the WEAF, and RTR and VE performed at the TWPC. Based on these data, some drums contain only concrete, glass, metal, or plastic waste, but many contain a combination of organic and inorganic material types. Some drums in this waste stream also contain small amounts of homogeneous solids waste such as floor sweepings and absorbed or cemented liquids. However, individual drums contain less than 50 percent, by volume, of these materials (References M018, M019, M068).

There are five drums (NFS0821, NFS0839, NFS0840, NFS0927, and X10C0506069) that were identified on container paperwork as soil, but RTR has determined that they contain predominantly debris waste. RTR describes these drums as containing broken concrete, cinder block, clay pipe, reinforcement wire (i.e., rebar), rocks, scrap metal, absorbent, wire, a metal nut, nails, plastic bags, and plastic jars with soil and rock samples. The five drums have been added to waste stream OR-NFS-CH-HET-A (References DR010, DR022, DR023).

Accordingly, Waste Matrix Code S5400, Heterogeneous Debris, is applied to this waste stream. The definition of this Waste Matrix Code is provided in the DOE/LLW-217, *DOE Waste Treatability Group Guidance* (Reference 4). This category includes waste that is at least 50 percent, by volume, debris materials that do not meet the criteria for assignment as either an Inorganic Debris (S5100) or Organic Debris (S5300). This evaluation is documented in a memorandum (included with Attachment 6 completed per CCP-TP-005) (Reference 1).

5.4.1.2 Waste Material Parameters

The waste material parameter weight estimates for waste stream OR-NFS-CH-HET-A were derived from RTR conducted at the WEAF, RTR and VE performed at the TWPC, and other information including waste disposal forms as described in Section 5.4.1. The debris waste generated from the initial phase of decommissioning includes 131 drums which underwent RTR at the WEAF. The waste generated from the second phase of decommissioning includes 82 drums (57 of which have been repackaged) plus another 62 drums produced from repackaging of boxed waste. TWPC RTR data were evaluated for all 82 drums. In addition, VE data were evaluated for the 57 repackaged drums. VE data were also evaluated for the 62 drums from box repackaging. An analysis of the RTR and VE data was performed, the results of which are presented in Table 5-1, Waste Stream OR-NFS-CH-HET-A Waste Material Parameters (Reference DR015). This evaluation is documented in a memorandum (included with Attachment 6 completed per CCP-TP-005) (Reference 1).

Table 5-1. Waste Stream OR-NFS-CH-HET-A Waste Material Parameters

Waste Material Parameter	Weight Percent (Wt%)	Wt% Range
Aluminum-based Metals/Alloys	1.2%	0.0% – 96.6%
Iron-based Metasl/Alloys	13.6%	0.0% – 99.0%
Other Metals	1.1%	0.0% – 97.9%
Other Inorganic Materials	72.9%	0.0% –99.9%
Cellulosics	2.8%	0.0% – 99.1%
Plastics (waste materials)	7.7%	0.0% – 100%
Rubber	0.6%	0.0% – 84.6%
Organic Matrix	< 0.1%	0.0% – 4.3%
Inorganic Matrix	<0.1%	0.0% – 62.0%
Soils/Gravel	<0.1%	0.0% – 14.6%

* These Wt% estimates are based on data from both the discontinued waste stream OR-NFS-CH-HET as well as the new waste stream OR-NFS-CH-HET-A.

5.4.2 Radiological Characterization

The Building 234 facility performed MOX fuel fabrication work under subcontracts to two U.S. Government contracts administered by the AEC, and two smaller commercial contracts. The largest of the two government-sponsored orders was to manufacture fuel rods for the SEFOR. The other government work was sponsored by DOE-SRS. The commercial contracts were for the Halden reactor and Consumers Power Company (References C099, C100, P273). Table 5-2, Mixed Oxide Fuels Processed at NFS, shows the amount of MOX fuel processed at NFS. The isotopic composition of the MOX fuel materials is provided in Table 5-3, Mass Isotopic Distribution of Mixed Oxide Fuels Processed at NFS (References C099, C100, C122, DR002, P212, P218, P268, P269, U016, U017).

Table 5-2. Mixed Oxide Fuels Processed at NFS

Material	%Pu	%U	Pu (kg)	U (kg)	Total (kg)
SEFOR	20%	80%	746	2,984	3,730.00
Consumers	2.27%	97.9%	47	2,027	2,070.48
SRS	0.31%	99.7%	16	5,064	5,079.37
Halden	2.5%	97.5%	3	117	120.00
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Table 5-3. Mass Isotopic Distribution of Mixed Oxide Fuels Processed at NFS

Isotope	SEFOR		Consumers		SRS		Halden	
Pu-238	0.01%	0.04%	0.01%	0.43%	--	--	0.01%	0.29%
Pu-239	18.13%	90.63%	1.73%	76.24%	0.29%	90.94%	2.00%	79.89%
Pu-240	1.67%	8.33%	0.37%	16.34%	0.02%	7.99%	0.36%	14.51%
Pu-241	0.10%	0.48%	0.07%	2.91%	0.003%	0.99%	0.06%	2.24%
Pu-242	0.01%	0.05%	0.03%	1.17%	0.0002%	0.08%	0.02%	0.83%
Am-241	0.09%	0.47%	0.06%	2.86%	--	--	0.06%	2.20%
Total	**20.0%**	**100%**	**2.27%**	**100%**	**0.31%**	**100%**	**2.5%**	**100%**
U-234	0.12%	0.15%	0.58%	0.59%	0.001%	0.001%	3.90%	4.00%
U-235	0.28%	0.35%	2.36%	2.41%	0.30%	0.30%	4.88%	5.01%
U-238	79.60%	99.50%	94.96%	97.00%	99.40%	99.69%	88.73%	91.01%
Total	**80.0%**	**100%**	**97.9%**	**100%**	**99.7%**	**100%**	**97.5%**	**100%**

NOTE: For each of these materials, column one represents the overall mass fractions of the MOX fuel, and column two provides the mass fractions of the plutonium and uranium separately.

5.4.2.1 Assay of Waste from Initial Phase of Decommissioning

TRU waste generated during the initial NFS decommissioning in the early-1990s was assayed using a nondestructive assay (NDA) system that consisted of five stations. Station 1 consisted of two passive neutron counters used for determining equipment hold-up prior to decontamination, Station 2 consisted of an active neutron chamber used to assess decontamination effectiveness, and Station 3 consisted of three passive neutron counters used for real-time monitoring of DVRF cell hold-up. These three stations were associated only with the machine-compacted waste. Station 4 consisted of a small size pulse active neutron differential die-away unit that was readily configured for both compacted bales and 55-gallon drums. Station 5 was a passive neutron coincidence counter for small packages (e.g., 5-gallon buckets and 2-liter bottles) containing relatively high TRU concentrations. This unit also included a hyper-pure germanium gamma-ray detector for establishing plutonium isotopics (References C210, M061, P218, P273, P300, P321, U054). Raschig rings (borosilicate glass) were put in 5-gallon buckets and assayed using passive neutron coincidence counting in Station 5 to measure Pu-240, but the remaining isotopes were calculated using isotopic mass fractions estimated by gamma spectroscopy of waste with higher TRU

concentrations such as glovebox sweepings (References C206, M052, M058, U055).

U-235 was assigned a mass value based on normalized intensity factor ratios from gamma spectroscopy. U-234 and U-238 mass values were assigned using scaling factors derived from uranium fuel isotopics (References M003, P218, P321). For uncompacted waste, U-235 values reported in NFS assay are less than 0.5 grams, and U-238 values are less than 50 grams. For machine-compacted waste, U-235 values reported in NFS assay average less than one gram but are as high as about 16 grams. U-238 values average over 100 grams and are as high as about 500 grams (References C202, M003, M198).

U-233 was not reported in NFS waste assay data for the uncompacted waste drums currently included in this waste stream. Part of Building 234 contained a U-233 purification facility; however, the equipment from this portion of the building was removed several years before decommissioning of the MOX facility began. The waste from the decommissioning of the U-233 facility is not included in this waste stream (References C210, P248, P283). The Building 110 laboratory handled U-233, and since a small percentage of the Raschig rings in this waste stream were from the Building 110 underground storage tank, U-233 may be present in trace quantities (References C210, U055). In addition, small quantities of U-233 were identified in samples of concrete from Building 234 (Reference C122). NFS waste assay data did report U-233 in several of the drums containing machine-compacted waste (0.275 grams was the maximum reported). The source of the U-233 would have been the Building 110 laboratory (References C210, M003, M198).

After receiving waste from NFS, the drums were re-assayed at the ORNL WEAF on a neutron assay system (References U017, U038). The Pu-240 mass measured by the ORNL neutron assay system was used with the same isotopic distribution used by NFS as a basis for ORNL comparisons. For this reason, even though there are differences in the isotope masses reported by the two assay systems, the calculated mass fractions will be the same (Reference M065). The assay data in the *eMWaste* database is from NFS assay (Reference M012).

5.4.2.2 Assay of Waste from Second Phase of Decommissioning

TRU waste generated during the second phase of decommissioning was assayed by NFS using the Versatile Automated Gamma Assay System (VAGAS). The VAGAS utilized four to six high efficiency germanium detectors to measure the contents of a 55-gallon drum (References I067, M003). After being shipped to ORNL, nearly all of this waste was re-assayed at the TWPC in 2006 using Imaging Passive Active Neutron (IPAN) and Segmented Gamma Scanner (SGS) systems. This assay is considered AK because it was performed prior to implementation of the CCP TRU waste certification program at ORNL (Reference M017).

There are several discrepancies between the NFS VAGAS data and the TWPC assay data, as well as discrepancies between TWPC assay data of the original drum and TWPC assay of the same waste after it was repackaged. The most notable is a drum

(X10C0506075) that NFS assay measured over one kilogram (kg) of U-238 and the initial TWPC assay measured just under a kg of U-238, but the TWPC assay of the same waste after it was repackaged into X10C0501409 did not report any uranium. Further review of the assay data for X10C0501409 indicates that the SGS assay was rejected due to two segments of the assay being too dense to accurately quantify the radionuclides in those segments, and the IPAN assay could not accurately quantify uranium due to significant gamma dead time. This may be due to re-configuration of the matrix during repackaging. Since neither the IPAN or SGS provided an acceptable measurement for X10C0501409, default isotopics were applied and uranium was not reported (Reference DR002).

The NFS VAGAS also measured U-235 (in the range of tenths of grams) and/or U-238 (in the range of hundreds of grams) in several other drums, but the TWPC assay did not detect any uranium in these drums. U-235 and U-238 have extremely long half-lives and as a result have low specific activity. The gamma ray emission rate is therefore very low, resulting in high detection limits and uncertainties for these isotopes when expressed in mass units. At the gram levels for U-238 and sub-gram levels for U-235, the self-attenuation of gamma rays can be significant. The U-238 has such a low gamma emission rate that the detection limits and uncertainties of hundreds of grams is not unexpected. In the same way the detection limits and uncertainties for U-235 is in tenths of grams is reasonable. Based on the detection limits for the isotopes, these discrepancies are not unexpected within the uncertainty of the measurements (Reference DR002).

Th-228 was also measured in several drums by the NFS VAGAS, but TWPC assay did not detect Th-228. NFS measured several grams of Th-232 in a drum, but TWPC assay did not detect Th-232 in any drum. It is possible that the reporting of thorium by the VAGAS may be due to spectral interference from background radiation, and it is assumed that Th-228 and Th-232 are not present in the waste stream (Reference DR002).

5.4.2.3 Radiological Characterization of Waste Stream OR-NFS-CH-HET-A

To determine isotopic ratios for waste stream OR-NFS-CH-HET-A as a whole, the total gram value for each individual radionuclide was divided by the total mass of all radioactive constituents in the waste stream and converted to a percentage. This result is listed as "Total Radionuclide Weight percent (Wt%)." To determine the radionuclide Wt% range for individual containers, the radiological mass in each container in the waste stream was summed. The mass of each individual radionuclide in a container was divided by the total radiological mass for that container and converted to a percentage. The minimum and maximum results are listed as "Radionuclide Wt% Range for Individual Containers." The same process was applied to determine "Total Radionuclide Curie percent (Ci%)" and "Radionuclide Ci% Range for Individual Containers."

As shown in Table 5-4, Waste Stream OR-NFS-CH-HET-A Radiological Characterization, U-238 is the most predominant radionuclide by mass, and Pu-239 is the second most predominant radionuclide by mass based on AK. However, the two most prevalent radionuclides by mass may turn out to be Pu-239 and Pu-240 because of the issues with nondestructive assay detecting U-238 (as described above). These percentages are based on the NFS assay data (for the early-1990s waste) and the most recent TWPC assay data (for the post-2000 waste). In addition, the radionuclide weight percent of individual radionuclides varies on a container-by-container basis. Because of this variability, some containers will not include the waste stream predominant radionuclides but may include other radionuclides expected in this waste. Radioassay data indicate that the TRU alpha activity concentration in each of the drums in this waste stream is more than 100 nCi/g (References M003, M017). The Wt% and Ci% estimates in Table 5-4 are based on data from both the discontinued waste stream OR-NFS-CH-HET as well as the new waste stream OR-NFS-CH-HET-A. The radiological evaluation for this waste stream is documented in the NDA Memorandum as required by CCP-TP-005 (Reference 1).

Table 5-4. Waste Stream OR-NFS-CH-HET-A Radiological Characterization

Isotope	Total Radionuclide Wt%[1]	Radionuclide Wt% Range for Individual Containers[2]	Total Radionuclide Ci%[3]	Radionuclide Ci% Range for Individual Containers[4]	Suspected Present (Yes/No)
WIPP Required Radionuclides					
Am-241	0.09%	Trace 2.53%[8]	3.15%	Trace 20.62%	Yes[6]
Pu-238	Trace[5]	0.00% - 0.11%[8]	1.20%	Trace 5.88%	Yes
Pu-239	12.40%	1.80% - 94.04%	8.00%	2.34% - 53.89%	Yes
Pu-240	1.79%	0.26% - 16.34%[8]	4.23%	2.20% - 27.32%	Yes
Pu-242	0.01%	0.00% - 1.17%[8]	Trace	Trace - Trace	Yes
U-233	Trace	0.00% - 0.25%	Trace	0.00% - 0.02%	Yes
U-234	3.88%	0.00% - 4.06%	0.25%	0.00% - 1.47%	Yes
U-238	81.07%	0.00% - 99.69%[8]	Trace	0.00% - Trace	Yes
Cs-137	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes
Sr-90	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes[7]
Additional Radionuclides					
Am-243	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes
Np-237	Trace	0.00% - 0.05%	Trace	0.00% - Trace	Yes
Pu-241	0.08%	0.00% - 2.91%[8]	83.18%	Trace - 90.27%	Yes
U-235	0.66%	0.00% - 7.28%	Trace	0.00% - Trace	Yes

1. This listing indicates the total Wt% of each radionuclide over the entire waste stream.
2. This listing is the Wt% range of each radionuclide on a container-by-container basis. Some containers with "0" listed as the lower range, will not contain the specified radionuclide.
3. This listing indicates the total activity Ci% of each radionuclide over the entire waste stream.
4. This listing is the Ci% range of each radionuclide on a container-by-container basis.
5. "Trace" indicates <0.01 Wt% for that radionuclide.
6. Am-241 may be present in slightly larger percentages due to the further decay of Pu-241.
7. Sr-90 cannot be quantified by gamma spectroscopy. Its value is calculated based on measured Cs-137 values. A Sr-90/Cs-137 scaling factor of 1.0 is used to calculate Sr-90.
8. These Wt% ranges were expanded based on plutonium and uranium isotopic distribution data (see Table 5-3).

5.4.3 Chemical Content Identification – Hazardous Constituents

EPA hazardous waste numbers were assigned to waste stream OR-NFS-CH-HET-A in accordance with RCRA based on a review of available AK documentation to identify chemical usage and potentially hazardous materials that may have been introduced into the waste stream. Material Safety Data Sheet (MSDS) information has been compiled for commercial products used during decommissioning (Reference M011). This waste stream has been historically managed in accordance with ORNL waste management practices in compliance with the requirements imposed by the Tennessee Department of Environment and Conservation (TDEC). Documentation regarding how the site has historically managed the waste, including the historical regulatory status of the waste, is described above in Section 4.6.2. The EPA hazardous waste number assignments have been applied on a waste stream basis; individual containers may not contain all of the hazardous materials listed for the waste stream as a whole. Table 5-5, OR-NFS-CH-HET-A EPA Hazardous Waste Numbers, lists the EPA hazardous waste numbers assigned to waste stream OR-NFS-CH-HET-A.

Table 5-5. OR-NFS-CH-HET-A EPA Hazardous Waste Numbers

EPA Hazardous Waste Number	Constituent
D006	Cadmium
D008	Lead
D009	Mercury
D011	Silver
F002	Tetrachloroethylene

5.4.3.1 F-Listed Constituents

Waste stream OR-NFS-CH-HET-A is an F-listed hazardous waste because the debris wastes were mixed with hazardous wastes from non-specific sources as listed in 40 CFR Part 261, Subpart D (40 CFR 261.31) (Reference 13).

As part of MOX fuel production, blended oxide was granulated using an oscillating device and stainless-steel screen. Binder was added to cross-blends during granulation. One of the binders used was Oxylene M-6 which contained 81 percent methylene chloride and 19 percent trichlorotrifluoroethane, both of which are F002-listed solvents. Use of this binder does not constitute a listed hazardous waste because these constituents were used as reactants or ingredients in the formulation of a commercial product. The State of Tennessee concurred with this determination (References C142, P273). Therefore, waste stream OR-NFS-CH-HET-A is not an F002-listed waste due to methylene chloride and trichlorotrifluoroethane.

In 1993, 18 core samples were collected from the concrete footer on the east and west sides of the Wet Cell. These samples were composited into two samples. At the time of sampling, the Wet Cell floor had been removed and packaged. Several concrete

core samples were collected from the packaged concrete and composited into one sample. The three composite samples were analyzed for volatile organics by Toxicity Characteristic Leaching Procedure (TCLP). The only compound detected was trichloroethylene in very trace amounts (0.001 milligrams per liter [mg/L]) in the composite sample from the east wall footer (Reference P1402). A use for trichloroethylene has not been identified, and it is an anaerobic degradation product of tetrachloroethylene (Reference C227). Therefore, waste stream OR-NFS-CH-HET-A is not an F002-listed waste due to trichloroethylene. See below for additional discussion on tetrachloroethylene.

Several F-listed solvents were detected in TWPC headspace gas samples. The only constituents detected above the Program Required Quantitation Limit (PRQL) were methanol and toluene. Several samples contained methanol above the PRQL, but only one of 78 drums sampled contained toluene above the PRQL at 20 parts-per-million (ppm) (Reference M020). Methanol, an F003-listed solvent, was not identified as being used by NFS. F003-listed solvents are listed solely for ignitability, and this waste stream does not exhibit the characteristic of ignitability because the solvent is not in liquid form. Toluene, an F005-listed solvent, was a minor ingredient in Slip Plate Aerosol (graphite) that was used to lubricate the DVRF gate slides and loading hopper floor (References C206, M011, P312). Use of this lubricant does not constitute a listed hazardous waste because the toluene was an ingredient in the formulation of a commercial product. Therefore, waste stream OR-NFS-CH-HET-A is not an F003- or F005-listed waste.

Waste stream OR-NFS-CH-HET-A includes drums containing small amounts of soil. Building 234 is a single building divided into three sections built at different times; 234A, B, and C. The majority of the soil was excavated in approximately 1993 from below the Wet Chemistry Cell located within the Building 234A footprint. Analytical data for soil samples collected in 1993 from beneath the Wet Chemistry Cell prior to the initial 1993 excavation, which would best represent the soil from the first phase of decommissioning in this waste stream, had not been located until recently. No organic constituents were in the three soil samples. Soil from beneath the Wet Chemistry Cell was sampled in 2001 after the highly contaminated soil had already been removed. No organic constituents were detected in the 11 soil samples collected from beneath the Building 234 Wet Chemistry Cell, and no organics constituents were detected above the regulatory threshold in any of the seven soil samples from the area around the Building 110 underground waste tank (References I053, U043). The F-listed solvent tetrachloroethylene was detected in trace amounts (0.042 mg/L) in one of two composite soil samples that were collected in 1998 from beneath Building 234A (but not directly under the Wet Chemistry Cell) and adjacent to the building foundation (Reference C122). Tetrachloroethylene was not used in the Building 234 Wet Chemistry Cell or any other part of the MOX fuel production process, nor was it used in the decommissioning process. However, it may have been used historically for cleaning in Building 234C where NFS did the final welding of the fuel pins. None of the samples collected were from beneath Building 234C, but it is possible that tetrachloroethylene was present in the soil under Building 234A due to solvent migration. In addition, at one

time this solvent was used in a maintenance facility located elsewhere on the NFS site and has also been detected in groundwater samples up-gradient from Building 234. The source of the tetrachloroethylene in the groundwater may be from its use in off-site facilities and could also be the source of contamination for the sampled soil (Reference C309). To resolve the discrepancy between the nonhazardous characterization and the possibility that tetrachloroethylene may be present in the soil from past solvent use, EPA hazardous waste number F002 is applied to waste stream OR-NFS-CH-HET-A to account for the small amounts of soil. Even though the Wet Cell data from 1993 have been located, EPA hazardous waste number F002 will not be removed from the waste stream (Reference DR013).

5.4.3.2 Toxicity Characteristic Metals

Waste stream OR-NFS-CH-HET-A exhibits the characteristic of toxicity for metal compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24) (Reference 13). The following sources for metals have been identified:

- Review of physical form descriptions provided by NFS as well as RTR and VE data identified equipment containing circuit boards and batteries (References M003, M018, M019). The manufacturing of printed circuit boards involves dipping the boards in molten tin/lead solder (Reference C146). Electrical components are sometimes attached to the circuit board using solder containing lead and silver (Reference 12). Household dry-cell batteries contain mercury (Reference C147).

- Three samples of the Building 110 tank contents were collected and analyzed for metals by TCLP. Mercury was detected above regulatory limit in one of the samples (Reference U043).

- One composite paint sample was collected from the exterior of the shear/baler and analyzed for TCLP metals. Cadmium was detected at a concentration of 4.0 mg/L which is above the regulatory limit (Reference I052).

In addition, analytical data from six process line samples of sweepings material detected arsenic, barium, cadmium, chromium, lead, and silver.

- Arsenic was detected in five of six samples at concentrations of 0.13, 0.51, 0.62, 4.4, and 5.7 mg/L. Only one of these results is slightly above the regulatory level of 5.0 mg/L, and the 90 percent upper confidence limit (UCL90) of these six samples is below the regulatory level (References C205, M064, M235, P273, U043).

- Barium was detected in all six samples at 0.57, 1.4, 38, 124, 222, and 301 mg/L. Three of these are above the regulatory level of 100 mg/L, and the UCL90 of these six samples is above the regulatory level. However, the method blank contained 193 mg/L which is also above the regulatory level. The barium may have been introduced from one of the extraction columns used in the analysis which is a problem encountered periodically (References C205, M064, M235, P273, U043).

- Cadmium was reported in all six samples at 0.04, 0.15, 1.2, 1.3, 1.5, and 24 mg/L. Four of these are above the regulatory level of 1.0 mg/L. The 24 mg/L cadmium value was outside the expected distribution from the other sample points, and consequently, this area was re-sampled. A sample composite was made of three parts new sample to one part previous sample. The result of the composite sample was 6.27 mg/L. The UCL90 of these six samples is above the regulatory level (References C205, M064, M235, P273, U043).

- Chromium, lead, and silver were detected in all six samples but below the regulatory level of 5.0 mg/L. Mercury and selenium were not detected in any of the samples (References C205, M064, P273, U043).

Toxicity characteristic metals constituents were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic metals constituents (Reference M011).

Two composite concrete samples from the footer on the east and west sides of the Wet Cell and a composite concrete sample from the Wet Cell floor were analyzed for metals by TCLP. No metals were detected in these samples (Reference P1402). Four concrete, three cinder block, three paint, and one floor tile composite samples were collected from Building 234 and analyzed for metals by the TCLP. No metals were detected above regulatory limits in any of the samples (Reference C122). Approximately 16 liters of fines were removed from the shear/baler prior to dismantlement. Three samples of fines were analyzed for metals by TCLP, and no metals were detected above regulatory limits (Reference I052).

The above information identifies the presence of arsenic, barium, cadmium, chromium, lead, mercury, and silver. The data indicate that while present, arsenic, barium, and chromium will be less than the regulatory level. However, there is a potential for cadmium, lead, mercury, and silver to be present above the regulatory level. Therefore, EPA hazardous waste numbers D006, D008, D009, and D011 are assigned to this waste stream (Reference DR001).

5.4.3.3 Toxicity Characteristic Organics

Waste stream OR-NFS-CH-HET-A does not meet the definition of toxicity for organic compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24) (Reference 13). Toxicity characteristic organic compounds were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic organic compounds (Reference M011).

Two composite concrete samples from the footer on the east and west sides of the Wet Cell and a composite concrete sample from the Wet Cell floor were analyzed for volatile and semivolatile organics by TCLP. Trichloroethylene was detected at 0.001 mg/L which is well below the regulatory limit (Reference P1402). Four concrete, three cinder block, three paint, and one floor tile composite samples were collected from

Building 234 and analyzed for volatile organics, semivolatile organics, herbicides, and pesticides by TCLP. None of the organic constituents were detected above regulatory limits in any of the samples (Reference C122). About 16-liters of fines were removed from the shear/baler prior to dismantlement.

Three samples of fines were analyzed for volatile and semivolatile organics by TCLP, and no organics were detected above regulatory limits (Reference I052).

Three samples of the Building 110 tank contents were collected and analyzed for organics by TCLP. None of the organic constituents analyzed were detected above regulatory limits in any of the samples (References M064, U043).

5.4.3.4 U-, P- and K-Listed Wastes

Waste stream OR-NFS-CH-HET-A does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33) (Reference 13). Based on the AK documentation reviewed, U- and P-listed compounds were not used during MOX production or facility decommissioning (References M011, P273). Therefore, U- and P-listed EPA hazardous waste numbers, including U134 (hydrofluoric acid), are not assigned to this waste stream.

Based on the AK documentation reviewed, beryllium powder was not used by NFS (Reference C210). Therefore, this waste stream is not a P015-listed waste, and beryllium will not be present in amounts greater than one percent by weight of the waste in each drum.

The material in waste stream OR-NFS-CH-HET-A is not a hazardous waste from any of the sources specified in 40 CFR 261.32 (Reference 13). Waste stream OR-NFS-CH-HET-A is therefore not assigned a K-listed hazardous waste number.

5.4.3.5 Ignitables, Corrosives, and Reactives

Ignitability

TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Efforts were made to minimize liquids in the waste, and any liquids encountered were immobilized (e.g., RADSORB, Waste Lock® 770 or Nochar sodium polyacrylate polymer absorbent) (References C125, C126, I059, M003, M011, P268, P269, P273, P317, P1116, P1416). Pyrophorics have not been identified in NFS TRU waste. Compressed gas cylinders, if identified, were rendered safe (References M003, M067, P268, P269, P273, P317, P1416).

The debris materials in waste stream OR-NFS-CH-HET-A do not meet the definition of ignitability as defined in 40 CFR 261.21 (Reference 13). The waste is not an oxidizer, and it is not capable of causing fire through friction, absorption of moisture, or

spontaneous chemical change. However, small quantities of liquids have been identified in a few drums. Prior to WIPP disposal, prohibited quantities of liquids will be removed or immobilized (see Section 5.4.4). Waste stream OR-NFS-CH-HET-A is therefore not ignitable (D001).

Corrosivity

TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Efforts were made to minimize liquids in the waste, and any liquids encountered were immobilized (e.g., RADSORB, Waste Lock® 770 or Nochar sodium polyacrylate polymer absorbent). Acidic liquids were neutralized prior to immobilization (References C125, C126, C130, I059, M003, M011, M067, P268, P269, P273, P317, P1116, P1416).

The debris materials in waste stream OR-NFS-CH-HET-A do not meet the definition of corrosivity as defined in 40 CFR 261.22 (Reference 13). However, small quantities of liquids have been identified in a few drums. Prior to WIPP disposal, prohibited quantities of liquids will be removed or immobilized (see Section 5.4.4). Waste stream OR-NFS-CH-HET-A is therefore not corrosive (D002).

Reactivity

TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Explosives, reactive metals, reactive cyanides, or reactive sulfides were not identified in the AK documentation reviewed (References M003, M067, P268, P269, P273, P317, P1416). NFS Radwaste Package Certification Records indicate that the waste is not readily capable of detonation, explosive decomposition, reaction at normal pressures and temperatures, or an explosive reaction with water (Reference M003).

The debris materials in waste stream OR-NFS-CH-HET-A do not meet the definition of reactivity as defined in 40 CFR 261.23 (Reference 13). The waste is stable, will not undergo violent chemical change, and will not detonate. The waste will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The waste does not contain reactive cyanide or sulfide compounds. There is no indication that the waste contains explosive materials, and it is not capable of detonation or explosive reaction. Waste stream OR-NFS-CH-HET-A is therefore not reactive (D003).

5.4.3.6 Polychlorinated Biphenyls

A portion of this waste stream contains PCBs greater than 50 ppm, and therefore, is regulated as a Toxic Substances Control Act (TSCA) waste under 40 CFR 761, *Polychlorinated Biphenyls [PCBs] Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions* (Reference 14).

Four concrete, three cinder block, and one floor tile composite samples were collected from Building 234 and analyzed for total PCBs (Reference C122). One composite paint sample was collected from the exterior of the shear/baler and analyzed for total PCBs (Reference I052). Two samples of the Building 110 tank contents were collected and analyzed for PCBs. Also, gasket material from typical glovebox applications was analyzed for PCBs (References C205, M062, M063, M064, P273, U043). PCB compounds were not detected above 50 ppm in any of the above samples.

Routine DVRF maintenance activities included checking and repairing hydraulic fluid (Exxon Nuto 68 [heavy paraffinic petroleum distillate]) leaks in the high pressure water jet and shear/baler and lubricating shear/baler door actuator worm gears with Zeniplex Grease (mineral oil). Keystone Penetrating Oil 2 (petroleum hydrocarbon) was used to free a piece of drum wedged in the shear. These products do not contain PCBs (References C206, M011, P312).

Approximately 16-liters of fines were removed from the shear/baler prior to dismantlement. Three samples of fines were analyzed for total PCBs. Two of the fines samples contained the PCB compound Aroclor-1242 at 190 and 280 ppm (References C099, I052, U040). The PCB waste is packaged in drums inside box X10C0506146. This box is the only PCB waste identified but is not currently included in the waste stream and has not been processed at the TWPC.

5.4.4 Prohibited Items

For the waste generated in the early-1990s, RTR was conducted by ORNL in 1993 and 1994. Liquids and compressed gases were not observed in any of the uncompacted waste drums currently in this waste stream (Reference M065). However, liquids were discovered by RTR in drums of machine-compacted waste. Approximately 70 percent (41 of 58) of the initial drums received from SEG were found to contain detectable liquid even though no evidence of liquid was observed at SEG before, during, or after the compaction process or during loading of the 55-gallon drums. The most probable cause for the liquid was determined to be evaporation and condensation of residual moisture. These drums were returned to SEG where RADSORB (sodium polyacrylate polymer absorbent) was added to the drums inside the rigid liner and between the liner and the drum. A steel pipe was inserted down into the liner to deliver the RADSORB and may still be present in the drum. Subsequently, SEG began putting RADPAD absorbent pads (cellulosic laminate containing a sodium polyacrylate polymer) in the bottom of the drum and rigid liner (References C143, C144, C200, M053, M059, M060, M065, M067, P273, P316, P323, P1416, U038, U051, U057).

RTR conducted at the TWPC has identified prohibited items in only a few of the post-2000 decommissioning drums in this waste stream. The only prohibited items identified were sealed containers greater than four liters. These few drums have already been repackaged where the lids were removed from the inner container so they are no longer sealed. RTR also identified a few drums with liquid; however, the amount of liquid did not exceed WIPP-WAC limits (References M018, M019).

Some of the NFS waste processed at the TWPC may have a stainless-steel band wrapped around the twisted section of the liner bag that was tightened with a banding tool (Reference P253). This closure method is considered a supplemental sealing device that is unacceptable (References 11, P276).

The container paperwork for drum NFS-0116 describe this waste as Raschig rings. A decommissioning logbook says that this drum contains Raschig rings as well as a puck on top of the Raschig rings which could imply that the puck is machine-compacted waste. Review of historical RTR data indicates the drum contains mostly Raschig rings and the puck on top of the waste is a crushed 5-gallon bucket. Based on the RTR data, this drum does not contain machine-compacted waste and will be included in waste stream OR-NFS-CH-HET-A (References DR006, M003, M052, P218).

As described below in Section 5.5, general debris wastes from the initial phase of decommissioning may be packaged in heat-sealed bags. This consists of six drums (NFS0832, NFS0833, NFS0834, NFS0920, NFS0921, and NFS0922). The size of these bags is unknown so to ensure there are no prohibited heat-sealed bags, these drums will be repackaged to breach any heat-sealed bags that are present. Certified RTR and/or VE are performed by CCP to ensure the waste does not contain prohibited items in accordance with the WIPP-WAC and WIPP-WAP.

5.5 Waste Packaging

TRU waste generated during the initial phase of NFS decommissioning in the early 1990s is packaged in U.S. Department of Transportation (DOT) specification 17H or 17C drums. Each drum contains a 90-mil HDPE rigid liner with a liner lid, and the lid contains a ⅜-inch vent hole. A polyethylene drum liner bag was placed inside the rigid liner. A RADPAD absorbent pad (cellulosic laminate containing a sodium polyacrylate polymer) was added between the bottom of the drum and the liner, and at the bottom of the liner. Absorbent (e.g., RADSORB sodium polyacrylate polymer absorbent) may have been added to the drum instead of a RADPAD. Concrete and Raschig rings were placed directly into the drum liner bag. General debris wastes (e.g., asbestos, plastic, metal) were removed from the glovebox in two plastic bags and closed by the twist and tape method or by heat-sealing. When the drum was full of waste, the polyethylene bag drum liner was twisted and taped closed. A polyvinyl chloride (PVC) pipe insert with a half inch hole in the wall of the pipe may have been positioned between the drum lid and rigid liner lid at the center of the liner lid to help hold it in place (References C200, C210, M003, M011, M052, M068, P268, P269, P317, P320, U055).

Compacted bales exited the shear/baler into a glovebox where they were wrapped in 25-mil polyester-reinforced vinyl and sealed by folding the end of the bag over the end of the bale and taping. The bale was bagged out of the glovebox in 12-mil PVC through the bag-out shute. The bale was then placed into another 25-mil polyester-reinforced vinyl bag and heat-sealed. HDPE bottles containing miscellaneous waste were moved through the baler into the glovebox for packaging but were not compacted. Each bottle has the same three plastic layers as the compacted bales (References M054, P273,

P300). The compacted bales and HDPE bottles were packaged into 40-gallon Type A carbon steel drums and sent to SEG for additional compaction (References M003, P273). The compaction at SEG would have breached the plastic bags (Reference C210). Two to three 40-gallon compacted pucks were placed into a DOT specification 17H or 17C 55-gallon drum. Each 55-gallon drum contains a 90-mil HDPE rigid liner with a liner lid, and the lid contains a 3/8-inch vent hole. A RADPAD absorbent pad (cellulosic laminate containing a sodium polyacrylate polymer) was added between the bottom of the drum and the liner, and at the bottom of the liner (References M003, M059, P273, P1416). RADPADs were not used in the initial drums shipped to ORNL. Liquid was discovered in many of these drums, and they were sent back to SEG where RADSORB (sodium polyacrylate polymer absorbent) was added to the bottom of the drum and to the bottom of the rigid liner. A 29-inch long section of half inch diameter metal conduit was used to deliver the RADSORB powder. The conduit was then driven below the edge of the liner to provide clearance for placement of the liner lid (Reference M059).

TRU waste generated during the second phase of NFS decommissioning is packaged in DOT specification UN1A2/Y400/S 55-gallon drums (Reference M003). The majority of the drums are lined with a polyethylene bag drum liner, although a few of the drums also contain 90-mil HDPE liners with no liner lids (Reference M018). Prior to adding waste to the drum, NFS added absorbent (e.g., Waste Lock® 770 polymer absorbent) to the bottom of the drum liner (References C125, C126, I059, M011). Waste was packaged in plastic bags that were sealed with tape (plastic bags were not heat-sealed). Waste may have also been packaged in 2-liter plastic bottles and 5-gallon buckets (References I058, I061, M003). When the drum was full, the polyethylene bag drum liner was twisted and taped closed (Reference M018).

DOT specification 7A Type A 55-gallon drums are used for waste packaging (and repackaging) at the TWPC (References P256, P432). Drums were lined with a cardboard liner and a filtered 6-mil poly liner bag; rigid liners were not used (Reference M019). In the BBA, concrete pieces are removed from the parent drum and transferred into super sacks (not sealed) and loaded into drums (Reference C622). Compacted drum pucks are removed from the parent drum in the BBA, and one puck is placed into a new 55-gallon drum in an upright position (Reference P1409). When a drum was ready to be closed, the liner bag was twisted, and a stainless-steel band or cable tie wrap was wrapped around the twisted section and tightened using a banding tool. Additional tape was then wrapped around the twisted section (References P251, P252, P253, P254). Hydrogen diffusion rate testing of cable tie wraps indicates that they are an acceptable closure method. However, a stainless-steel band tightened with a banding tool is an unacceptable supplemental sealing device (References 11, P276).

5.5.1 Filter Vents

NFS TRU waste drums are fitted with approved filter vents (References C201, M003, P253).

5.5.2 Layers of Confinement

Drums of concrete and Raschig rings generated during the initial phase of NFS decommissioning in the early 1990s have one layer of confinement (drum liner bag) (References C210, M068, U055). General debris wastes generated during the initial phase of NFS decommissioning have up to three layers of confinement (two plastic bags and a drum liner bag) (Reference P320). TRU waste generated during the second phase of NFS decommissioning has between one and four layers of confinement (Reference M018). The TWPC typically limits containers to four layers of confinement, including a filtered drum liner (References M019, P254).

6.0 REQUIRED WASTE STREAM INFORMATION: OR-NFS-CH-SOIL

This section presents the mandatory AK for waste stream OR-NFS-CH-SOIL required by the WIPP-WAP (Reference 2). Attachment 1 for waste stream OR-NFS-CH-SOIL (created in accordance with procedure CCP-TP-005) provides a list of TRU waste stream information required to be developed as part of the AK record (Reference 1).

6.1 Area and Building of Generation

Waste stream OR-NFS-CH-SOIL is soil excavated from beneath the Building 234 Wet Chemistry Cell during the initial phase of decommissioning. A few drums of soil are from an area around the Building 110 laboratory underground waste tank (References C099, C210, M003, M052, P248, P273). A few drums were also generated from excavation of Trench B in the NFS RBG during the second phase of decommissioning (Reference M132). During the final phase of decommissioning, additional soil is being excavated from beneath the former Wet Cell. This activity is being conducted in the 234 Excavation Facility which is a secondary containment tent constructed in place of Building 234 after the building was demolished (References P1373, P1400).

6.2 Waste Stream Volume and Period of Generation

Waste stream OR-NFS-CH-SOIL includes 545 55-gallon drums generated from February 1993 and September 2005. The vast majority of the soil was originally packaged at NFS from February 1993 to October 1993. A few of these drums have 1994 closure dates because ORNL sent them to SEG to correct packaging problems (e.g., missing liner lids) and absorb residual liquids (References M003, M052). Some of the soil from the work done in 1993 remained in Building 234 and was not shipped to ORNL. This soil was packaged at NFS in 2001 and shipped to ORNL in 2005 (References C099, C210, M003).

There were also five HDPE High Integrity Containers (packaged in five B25 boxes) containing soil from the same excavation activity that were packaged at NFS in 2005. This soil has been repackaged into 55-gallon drums at the TWPC, and has been evaluated and included in this waste stream (References M003, M075, M128). Another B25 box (X10C0506154) containing soil and debris from RBG Trench B has been repackaged at the TWPC. This repackaging activity produced 25 drums of debris and five drums containing mostly soil (Reference M075). These five drums have been evaluated and included in this waste stream (References M003, M132).

The specific container numbers are provided in the Waste Containers List which is maintained as a quality record as required by procedure CCP-TP-005 (Reference 1).

NFS estimates approximately 4,300 55-gallon drums of soil to be generated during the final phase of decommissioning. NFS began shipping these drums to ORNL in December 2011 and will continue through Fiscal Year 2018 (References C230, M206, M217). Before adding these drums to the waste stream, the NFS Waste Container

Packaging Forms will be evaluated and the drum numbers and closure dates added to the Waste Containers List (References P1401).

6.3 Waste Generating Activities

Waste stream OR-NFS-CH-SOIL was generated as part of the decommissioning of Building 234 and the removal of the Building 110 laboratory underground waste tank. Production operations in Building 234 ceased in 1973. TRU waste stored at ORNL was generated from soil excavation and processing operations as described below (References C099, C210, P248, P273).

6.3.1 Soil Excavation and Processing

6.3.1.1 Initial Decommissioning Phase

The majority of the soil was generated in 1993 from excavating under the Building 234 Wet Chemistry Cell which was historically used for nitric acid dissolution and mixing of plutonium and depleted or low-enriched uranium (References I053, P323). The floor of the Wet Chemistry Cell was breached along a wall and sump providing a path for contamination to the sub-floor soils (Reference P218). Following removal of the Wet Chemistry Cell floor, excavation of soils revealed contamination concentrations exceeding 2 grams of material per pound of soil. The soil was excavated down to approximately 6 feet in areas adjacent to the west wall (Reference P323).

The excavated soils were placed on a conveyor and transferred from the Wet Chemistry Cell to a mixer in Area C of Building 234. The mixer blades were mounted on a central shaft and angled at 45 degrees for good mixing. Each blade had two components; the mixing/scraping portion at the end of the arm, and the cutting short blade at the halfway point on the arm. The blades were attached to the shaft in a rotating spiral so that when the end-gate was opened, the mix was forced out of the mixer. The mixer also included chopper blades which were high speed mixers. The chopper blades fit between the mixer blades as they scraped the walls of the mixer. At the end of the mixer, a slide gate was attached for dumping the contents after mixing was complete, and a chute was attached to the gate to allow the material to exit the mixer into a drum (References M052, P315). A RADPAD absorbent pad (cellulosic laminate containing a sodium polyacrylate polymer) was then placed on top of the soil (References M011, U058).

The purpose of soil mixing was to break up and homogenize the clay, add RADSORB (sodium polyacrylate polymer) absorbent powder to the soil to prevent the formation of liquid, and to blend soils with plutonium contamination that would otherwise exceed 128 grams Pu-239 FGE in compliance with ORNL-WAC (References C099, P218, P315, P323). The moisture content of the soils was also decreased due to the heat generated during the mixing process (Reference U055). To distinguish the soils requiring blending from soils that were TRU but with contamination that did not require blending, they were designated as "high plutonium density soils" and "TRU

contaminated soils." "High plutonium density soils" were loaded into 5-gallon containers, assayed, and staged for mixing. After dumping the specified 5-gallon containers of "high plutonium density soil" onto the conveyor in the Wet Chemistry Cell, a paper bag containing 10 pounds of RADSORB absorbent powder was placed onto the conveyor. The material was loaded onto the conveyor as it was moving. Additional soil to fill up a 55-gallon container was taken from "TRU contaminated soils." When all the material for the batch was loaded into the mixer, the conveyors were stopped and the mixing process started (References M011, P315, U055).

Building 110 Wet Chemistry and Spectographic Laboratories provided analytical support to Building 234. In early years, the labs in Building 110 also supported the Light Water Breeder Reactor program. Previous analysis identified relatively high levels of activity in the soil three feet below the surface at bore hole 22. Bore hole 22 was located two feet to the north of the concrete pad covering the Building 110 underground waste tank which was breached due to tank deterioration. Soil beneath the tank became contaminated with tank contents as discussed in Section 6.4. In 1991, soil in this area was excavated, dewatered, and packaged into 55-gallon drums in accordance with ORNL-WAC (References C210, P218, P306, P323).

6.3.1.2 Second Decommissioning Phase

One box containing soil and debris was generated from excavation of the NFS RBG during the second phase of decommissioning. NFS used the burial ground to dispose of their low-level waste from about 1966 to 1970. The entire burial ground, which was excavated between 2000 and 2004, was expected to generate only low-level waste to be shipped to Envirocare. The NFS container paperwork for this one box indicates the waste was generated in December 2001 from RBG Trench B which indicates the Radioactive Burial Ground, and Trench B designates one of the burial pits. The excavated plutonium-contaminated debris originated in Buildings 110 or 234, and the soil itself originated from the trench. NFS determined that this one box contained TRU waste. The chemical and radiological contamination of the Trench B area are similar to the Building 234 area (References C227, M003, M132, P1375).

6.3.1.3 Final Decommissioning Phase

The soil excavation process in the 234 Excavation Facility began in 2011 and is expected to be completed in 2012 (Reference M206). The process includes the excavation of soil, sample analysis screening, addition and mixing of absorbent, transport of soil within the primary containment, and final packaging of the processed soil (Reference P1400).

The total area requiring excavation has been divided into two separate excavation phases. The first phase of excavation consists of the footprint of the Wet Cell area. The second phase of excavation consists of the footprint of the concrete slab and soil on which the excavator is currently located. Prior to excavation, water or a mixture of Elmer's glue and water is applied to the soil when necessary to prevent airborne

contamination. Each soil batch, approximate dimensions of 11 feet wide, 14 feet long, and one foot deep, or 154 cubic feet (ft^3), is excavated and staged adjacent to the dig site. Between 700 and 800 pounds of a sodium polyacrylate polymer absorbent (e.g., Encap®, Waste Lock® 770, or Quik-Solid®) are added to each soil batch, and the excavator bucket is used to thoroughly mix the absorbent into the soil. A jackhammer or other appropriate equipment may be used to reduce rock size if the rocks are between six and ten inches. Rocks less than six inches are packaged without being size-reduced, and rocks greater than ten inches are not packaged (References C321, M011, P1370, P1400, P1401).

A sample is collected from each soil batch that has been conditioned with absorbent for liquid analysis using the paint filter test. The soil sample is placed into a fine mesh conical paint filter, and if liquid passes through and drops from the filter within five minutes, the soil is deemed to contain free liquids. If the paint filter test fails, approximately 50 pounds of additional absorbent are mixed in, and the paint filter test is repeated. Once the conditioned soil batch passes the paint filter test, another sample is collected from the batch and sent for NDA screening analysis. Twelve unlined 55-gallon drums are staged adjacent to the excavator, and four to eight inches of absorbent are added to the bottom of each empty drum. The excavator bucket is then used to fill each drum with the conditioned soil. If the NDA screening results indicate the sample is low-level waste, the soil is packaged in boxes. If the NDA screening results indicate the sample is 90 percent or greater of TRU limits, the drums of soil are transported inside the primary containment to a drum dumping station where the contents are emptied into lined 55-gallon drums. See Section 6.5 for additional details on the 55-gallon drum liners and closure methods (References P1372, P1400).

Soil excavation continues until the soil activity concentration reaches Class A limits (less than 10 nCi/g), bedrock refusal is encountered, or the excavator arm has reached full extension. When one of these criteria is reached for a given quadrant, sampling is conducted and verified (Reference P1400).

6.3.2 Transuranic Waste Processing Center

NFS soil drums may require repackaging at the TWPC if container integrity issues or prohibited items (e.g., liquid) are discovered. The boxes containing soil have been packaged into drums in the BBA (Reference M075). See Section 5.3.2. for additional details regarding TWPC glovebox and BBA operations.

6.4 Types of Wastes Generated

This section describes the waste materials based on process inputs and outputs, waste matrix code assignment, waste material parameter weight estimates, radionuclide contaminants, and hazardous waste determinations for waste stream OR-NFS-CH-SOIL.

6.4.1 Materials Related to Physical Form

Waste stream OR-NFS-CH-SOIL is comprised of soil, rock, and gravel mixed with absorbent. In addition to soil, rock, and gravel, this waste stream also contains some concrete pieces and concrete block, and iron-based metal (e.g., reinforcement wire, nuts, bolts, pipe, fittings, and scrap metal (References M075, M128). Building 234 was underlain by sandy clay ranging in thickness from a few feet up to approximately 30 feet and clay mixed with gravel and rock (Reference P248). The soil from the initial decommissioning phase was mixed with RADSORB absorbent powder. Each drum contains 10 pounds of RADSORB (References M011, P315). A RADPAD absorbent pad was placed on top of the soil (References M011, U058). During the mixing process, the texture of the soils was changed to a semi-course to fine sand consistency (Reference U055). The soil from the second decommissioning phase originated from the one box from RBG Trench B. At the TWPC, this soil was removed from the box and packaged into new drums with layers of Solid-A-Sorb (diatomaceous earth) absorbent (Reference M210). The soil from the final decommissioning phase was mixed with an organic polymer absorbent (e.g., Encap®) with each drum containing approximately 73 pounds of absorbent (References C321, M011, P1400, P1401).

6.4.1.1 Waste Matrix Code

As described in the previous section, waste stream OR-NFS-CH-SOIL is predominantly soil, rock, and gravel mixed with an organic polymer absorbent. Accordingly, Waste Matrix Code S4100, Soil, is applied to this waste stream. The definition of this Waste Matrix Code is provided in the *DOE Waste Treatability Group Guidance* (Reference 4). This category includes waste estimated to be greater than 95 percent by volume soil, including sand, silt, rock, and gravel, with rock and gravel volumes totaling less than 50 percent of the matrix. This evaluation is documented in a memorandum (included with Attachment 6 completed per CCP-TP-005) (Reference 1).

Drum X10C0506047 was identified by NFS as soil and initially included in waste stream OR-NFS-CH-SOIL (Reference M003). This drum underwent RTR on September 2, 2008 which identified plastic bags containing plastic jars with soil and rock samples. The drum was rejected by RTR because it contained greater than 50 percent by volume debris waste. A discrepancy resolution and AK re-evaluation were written to move this drum to waste stream OR-NFS-CH-HET-A (Reference DR010). This drum underwent RTR again on August 27, 2009 which confirmed the waste was primarily debris. During Audit A-10-08 conducted the week of February 9, 2010, Corrective Action Report (CAR) 10-017 was written which resulted in CCP re-reviewing RTR data for many drums. During this review, it was determined that X10C0506047 contained primarily soil, and a discrepancy resolution and AK re-evaluation were written to move this drum back to waste stream OR-NFS-CH-SOIL (Reference DR022).

Drum NFS0815 was identified by NFS as soil and initially included in waste stream OR-NFS-CH-SOIL (Reference M003). RTR was initially conducted on this drum on July 10, 2008 which identified greater than 50 percent soil along with chucks of concrete

and reinforcement wire. The RTR on this drum was re-reviewed as part of CAR 10-017 and was determined to contain primarily concrete. A discrepancy resolution and AK re-evaluation were written to move this drum to waste stream OR-NFS-CH-HET-A (Reference DR023). This drum underwent RTR again on June 9, 2010 and was rejected because it contained primarily soil. A discrepancy resolution and AK re-evaluation were written to move this drum back to waste stream OR-NFS-CH-SOIL (Reference DR026).

6.4.1.2 Waste Material Parameters

The waste material parameter weight estimates for waste stream OR-NFS-CH-SOIL were derived from information related to the soil excavation and mixing process as well as data from waste disposal forms.

- Each drum generated during the initial phase of decommissioning contains 10 pounds of RADSORB absorbent powder mixed with the soil and a RADPAD on top of the soil. The absorbent powder is an organic polymers which is considered "organic matrix," and the RADPAD is a cellulosic laminate containing an organic polymer which is considered "cellulosics." However, RTR may not be able to distinguish between the soil and the RADSORB and RADPADs. The soil/absorbent mixture is contained in a plastic drum liner bag that is considered part of the waste. These drums are shipped using TRUCON Code OR 111/OR 211 because they contain less than five Wt% organic polyer absorbent.

- The soil generated during the second decommissioning phase was removed from the original box and packaged into new drums with layers of Solid-A-Sorb (diatomaceous earth) absorbent. A half bag of absorbent (12.5 pounds) was added to the bottom of the empty drum. Soil was shoveled into a 5-gallon bucket and then dumped into the drum. Another half bag of absorbent was added and these steps were repeated until the drum was about 90 percent full. This equates to approximately 75 pounds of absorbent in each drum (Reference M210). The Soli-A-Sorb will absorb water from the soil and is considered "inorganic matrix;" however, RTR may not be able to distinguish between the soil and the absorbent. These drums are shipped using TRUCON Code OR 111/OR 211 because they contain inorganic absorbent.

- The soil generated during the final phase of decommissioning is excavated in batches of 154 ft^3 and mixed with 700 to 800 pounds of an organic polymer absorbent (750 pounds equals 20 ft^3). Assuming 50 gallons of waste is placed into the rigid liner, the mixture of soil and absorbent comprises 40 gallons with 11.5 percent by volume being absorbent (equivalent to about 23 pounds) plus an additional 10 gallons (about 50 pounds) of absorbent on top of the soil. The total weight of absorbent per drum is therefore approximately 73 pounds (References C321, P1400, P1402). Because the absorbents are organic polymers, they are considered "organic matrix;" however, RTR may not be able to distinguish between the soil and the absorbent. These drums are shipped using TRUCON Code

OR 127/OR 227 because they contain greater than five Wt% organic polymer absorbent.

This information combined with the weight of the waste from the waste disposal forms was used to estimate waste material parameter weight percentages as shown in Table 6-1, Waste Stream OR-NFS-CH-SOIL Waste Material Parameters. Based on certified RTR by CCP, the percentages in Table 6-1 have been revised. These percentages do not take into account the projected volume of soil to be generated during the final phase of decommissioning, but based on the average net weight of the soil from the initial decommissioning phase, the absorbent is expected to be between 10 and 15 Wt% per drum. This evaluation is documented in a memorandum (included with Attachment 6 completed per CCP-TP-005) (Reference 1).

Table 6-1. Waste Stream OR-NFS-CH-SOIL Waste Material Parameters

Waste Material Parameter	Wt%	Wt% Range
Aluminum-based Metals/Alloys	0%	0%
Iron-based Metasl/Alloys	<0.1%	0% – 1.3%
Other Metals	0%	0%
Other Inorganic Materials	<0.1%	0% – 23.2%
Cellulosics	<0.1%	0% – 0.3%
Plastics (waste materials)	0.2%	0% – 9.2%[2]
Rubber	0%	0%
Organic Matrix	2.0%	1.5% – 15.0%[3]
Inorganic Matrix	0%	0%
Soils/Gravel	97.7%	76.3% – 100%[1]

Notes:

1. Since RTR cannot distinguish the soil from the absorbent, and soil is the predominant waste material parameter, RTR will assign "Soils/Gravel" to the soil/absorbent mixture.
2. The 9.2% plastic is due to a single drum (X10C0506047) that has a reported net weight of only 74 pounds which is much lighter than most of the drums in this waste stream.
3. The Wt% range was expanded based on the amount of absorbent expected in soil from the final phase of decommissioning.

6.4.2 Radiological Characterization

The Building 234 facility performed MOX fuel fabrication work under subcontracts to two U.S. Government contracts administered by the AEC, and two smaller commercial contracts. The largest of the two government-sponsored orders was to manufacture fuel rods for the SEFOR. The other government work was sponsored by DOE-SRS. The commercial contracts were for the Halden reactor and Consumers Power Company (References C099, C100, P273). Table 6-2, Mixed Oxide Fuels Processed at NFS, shows the amount of MOX fuel processed at NFS. The isotopic composition of the MOX fuel materials is provided in Table 6-3, Mass Isotopic Distribution of Mixed Oxide Fuels Processed at NFS (References C099, C100, C122, DR002, P212, P218, P268, P269, U016, U017).

Table 6-2. Mixed Oxide Fuels Processed at NFS

Material	%Pu	%U	Pu (kg)	U (kg)	Total (kg)
SEFOR	20%	80%	746	2,984	3,730.00
Consumers	2.27%	97.9%	47	2,027	2,070.48
SRS	0.31%	99.7%	16	5,064	5,079.37
Halden	2.5%	97.5%	3	117	120.00
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Table 6-3. Mass Isotopic Distribution of Mixed Oxide Fuels Processed at NFS

Isotope	SEFOR		Consumers		SRS		Halden	
Pu-238	0.01%	0.04%	0.01%	0.43%	--	--	0.01%	0.29%
Pu-239	18.13%	90.63%	1.73%	76.24%	0.29%	90.94%	2.00%	79.89%
Pu-240	1.67%	8.33%	0.37%	16.34%	0.02%	7.99%	0.36%	14.51%
Pu-241	0.10%	0.48%	0.07%	2.91%	0.003%	0.99%	0.06%	2.24%
Pu-242	0.01%	0.05%	0.03%	1.17%	0.0002%	0.08%	0.02%	0.83%
Am-241	0.09%	0.47%	0.06%	2.86%	--	--	0.06%	2.20%
Total	**20.0%**	**100%**	**2.27%**	**100%**	**0.31%**	**100%**	**2.5%**	**100%**
U-234	0.12%	0.15%	0.58%	0.59%	0.001%	0.001%	3.90%	4.00%
U-235	0.28%	0.35%	2.36%	2.41%	0.30%	0.30%	4.88%	5.01%
U-238	79.60%	99.50%	94.96%	97.00%	99.40%	99.69%	88.73%	91.01%
Total	**80.0%**	**100%**	**97.9%**	**100%**	**99.7%**	**100%**	**97.5%**	**100%**

NOTE: For each of these materials, column one represents the overall mass fractions of the MOX fuel, and column two provides the mass fractions of the plutonium and uranium separately.

6.4.2.1 NFS Assay of Soil

TRU waste generated during the initial NFS decommissioning in the early 1990s was assayed using a nondestructive assay system that consisted of five stations. Station 1 was used for determining equipment hold-up prior to decontamination, Station 2 was used to assess decontamination effectiveness, and Station 3 was used for real-time monitoring of DVRF cell hold-up. These three stations were associated only with compacted debris waste. Station 4 consisted of a small size pulse active neutron differential die-away unit that was readily configured for both compacted bales and 55-gallon drums. Station 5 was a passive neutron coincidence counter for small packages containing relatively high TRU concentrations. This unit also included a hyper-pure germanium gamma-ray detector for establishing plutonium isotopics (References C210, P300, P321, U054).

The highest contaminated soil was located near the northwest corner of the Building 234 Wet Chemistry Cell. This soil was initially packaged into 5-gallon containers and assayed in Station 5 to determine the plutonium content. The soil in the 5-gallon buckets was then batched with less contaminated soil and RADSORB

absorbent powder in the mixing process. After mixing, the soil was packaged in 55-gallon drums, and Station 4 was modified and calibrated to perform active/passive assay of a clay/soil matrix in 55-gallon drums. The Station 4 system was used by NFS to conduct assays on soils excavated from beneath Building 110 and Building 234 (References P218, P315, U055, U058).

Sampling and analysis of the soil under the Wet Chemistry Cell in Building 234 resulted in soils contaminated well above levels initially anticipated. Some soils were recovered in excess of one gram FGE per pound of soil. These levels of contamination required processing to blend the soil down to achieve less than 128 grams FGE in the final drum (Reference U058). NFS waste assay data indicates the largest total plutonium mass reported in a single soil drum is 57 grams and an average total plutonium mass of about 11 grams (Reference M012).

Relative to both Building 110 and Building 234 soil, U-235 was assigned a mass value based on normalized intensity factor ratios from gamma spectroscopy. U-234 and U-238 mass values were assigned using scaling factors derived from uranium fuel isotopics (References M003, P218, P321). The largest mass of U-234, U-235, and U-238 in a single soil drum reported by NFS assay is approximately 10 grams, 5 grams, and 190 grams, respectively (Reference M012).

U-233 was reported in NFS waste assay data for 36 soil drums (0.1 grams U-233 is the largest mass reported in a single soil drum) (References M003, M012). U-233 was also identified in samples of soil from several borehole locations throughout the interior and exterior of Building 234 (References C122, I053). One source for this radionuclide is the U-233 purification facility located in Building 234 (References C122, C210, I053, P248, P283). Another source for U-233 is from the removal of the Building 110 underground waste tank since the Building 110 laboratory also handled U-233 (References C210, U055).

After receiving waste from NFS, all the soil drums were re-assayed at the ORNL WEAF on a neutron assay system (References U017, U038). The Pu-240 mass measured by the ORNL neutron assay system was used with the same isotopic distribution used by NFS as a basis for ORNL comparisons. For this reason, even though there are differences in the isotope masses reported by the two assay systems, the calculated mass fractions will be the same (Reference M065). The assay data in the *eMWaste* database is from NFS assay (Reference M012).

TRU soil waste that remained in Building 234 and was packaged in 2001 was assayed by NFS using the VAGAS which utilized four to six high efficiency germanium detectors to measure the contents of a 55-gallon drum or box (References I067, M003). Nuclides reported by the VAGAS system in the soil waste include Th-228 and Th-232 (References M003, M012). As discussed in Section 5.4.2, the VAGAS system reported thorium in general debris waste from NFS (e.g., paper wipes, plastic bags, metal piping, and glassware) and indicates it may be due to spectral interference from background radiation. Unlike the debris waste, this waste stream is soil which is more likely to

contain natural thorium. This is consistent with alpha spectroscopy results for soil from the Building 234 Wet Chemistry Cell area (Reference I053). In addition, the U.S. Geological Survey identified high levels of thorium ranging from 200 ppm to over 2,000 ppm in soils just a few miles from the NFS site (Reference P1405).

Each drum of soil generated during the final phase of decommissioning is assayed by NFS using the VAGAS or a new gamma spectroscopy mobile counting system. The NDA system directly measures Am-241 and scales the plutonium isotopes using decay-corrected historical plutonium isotopics (References C321, I067, P1374, P1403).

6.4.2.2 Radiological Characterization of Waste Stream OR-NFS-CH-SOIL

To determine isotopic ratios for waste stream OR-NFS-CH-SOIL as a whole, the total gram value for each individual radionuclide was divided by the total mass of all radioactive constituents in the waste stream and converted to a percentage. This result is listed as "Total Radionuclide Wt%." To determine the radionuclide Wt% range for individual containers, the radiological mass in each container in the waste stream was summed. The mass of each individual radionuclide in a container was divided by the total radiological mass for that container and converted to a percentage. The minimum and maximum results are listed as "Radionuclide Wt% Range for Individual Containers." The same process was applied to determine "Total Radionuclide Ci%" and "Radionuclide Ci% Range for Individual Containers."

As shown in Table 6-4, Waste Stream OR-NFS-CH-SOIL Radiological Characterization, U-238 is the most predominant radionuclide by mass, and Pu-239 is the second most predominant radionuclide by mass based on AK. However, the two most prevalent radionuclides by mass may turn out to be Pu-239 and Pu-240 because of the issues with nondestructive assay detecting U-238 (see discussion in Section 5.4.2). These percentages are based on the NFS assay data from the soil generated during the first phase of decommissioning. In addition, the radionuclide weight percent of individual radionuclides varies on a container-by-container basis. Because of this variability, some containers will not include the waste stream predominant radionuclides but may include other radionuclides expected in this waste stream. Radioassay data indicate that the TRU alpha activity concentration in each of the drums evaluated in this waste stream is more than 100 nCi/g (References M003, M012). The radiological evaluation for this waste stream is documented in the NDA Memorandum as required by CCP-TP-005 (Reference 1).

Table 6-4 does not include any projected radionuclide quantities for the additional soil from the final phase of decommissioning but is expected to contain the same plutonium and uranium mass fractions as the other soil in this waste stream. The NFS Waste Container Packaging Forms will be reviewed, and the drums will be added to the waste stream as appropriate. This will include a review of radiological data for each drum which will be documented in a Waste Stream Container Evaluation Memorandum in accordance with CCP-TP-005. Table 6-4 will be revised if necessary as sufficient data become available (References P1401).

Table 6-4. Waste Stream OR-NFS-CH-SOIL Radiological Characterization

Isotope	Total Radionuclide Wt%[1]	Radionuclide Wt% Range for Individual Containers[2]	Total Radionuclide Ci%[3]	Radionuclide Ci% Range for Individual Containers[4]	Suspected Present (Yes/No)
WIPP Required Radionuclides					
Am-241	0.12%	0.00% - 2.86%[7]	4.79%	3.02% - 18.38%	Yes[6]
Pu-238	Trace[5]	0.00% - 0.43%[7]	1.23%	0.00% - 10.90%	Yes
Pu-239	19.17%	0.59% - 90.94%[7]	13.63%	5.10% - 52.93%	Yes
Pu-240	2.31%	0.06% - 16.34%[7]	6.02%	0.60% - 38.20%	Yes
Pu-242	0.01%	0.00% - 1.17%[7]	Trace	0.00% - Trace	Yes
U-233	Trace	0.00% - 0.18%	Trace	0.00% - 0.25%	Yes
U-234	3.84%	0.00% - 5.00%	0.27%	0.00% - 1.06%	Yes
U-238	73.42%	0.00% - 99.69%[7]	Trace	0.00% - 0.03%	Yes
Cs-137	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes
Sr-90	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes[8]
Additional Radionuclides					
Pu-241	0.06%	0.00% - 2.91%[7]	74.05%	23.56% - 86.96%	Yes
Tc-99	Trace	0.00% - 0.15%	Trace	0.00% - 0.07%	Yes
Th-228	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes
Th-232	0.16%	0.00% - 22.23%	Trace	0.00% - Trace	Yes
U-232	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes
U-235	0.90%	0.28% - 5.01%[7]	Trace	0.00% - Trace	Yes

1. This listing indicates the total Wt% of each radionuclide over the entire waste stream.
2. This listing is the Wt% range of each radionuclide on a container-by-container basis. Some containers with "0" listed as the lower range, will not contain the specified radionuclide.
3. This listing indicates the total activity Ci% of each radionuclide over the entire waste stream.
4. This listing is the Ci% range of each radionuclide on a container-by-container basis.
5. "Trace" indicates <0.01 Wt% for that radionuclide.
6. Am-241 may be present in slightly larger percentages due to the further decay of Pu-241.
7. These Wt% ranges were expanded based on plutonium and uranium isotopic distribution data (see Table 6-3).
8. Sr-90 cannot be quantified by gamma spectroscopy. Its value is calculated based on measured Cs-137 values. A Sr-90/Cs-137 scaling factor of 1.0 is used to calculate Sr-90.

6.4.3 Chemical Content Identification – Hazardous Constituents

Based on a review of available AK documentation identifying chemical usage and potentially hazardous materials that may have been introduced into the waste stream through waste generating operations as described in Section 4.4, MSDS information compiled for commercial products used during decommissioning, and sampling and analysis of the soil by NFS, waste stream OR-NFS-CH-SOIL is assigned EPA hazardous waste number F002 for tetrachloroethylene in accordance with RCRA (Reference M011). This waste stream has been historically managed in accordance

with ORNL waste management practices in compliance with the requirements imposed by the TDEC. Documentation regarding how the site has historically managed the waste, including the historical regulatory status of the waste, is described above in Section 4.6.2. The EPA hazardous waste number assignments have been applied on a waste stream basis; individual containers may not contain all of the hazardous materials listed for the waste stream as a whole.

Several sampling events have been conducted to characterize the soils beneath Building 234 and around the Building 110 underground waste tank. These sampling events are described below. The results of the analyses are summarized in the following sections.

- In 1993, the Wet Cell was divided into three areas and four soil samples were collected from each area. These 12 samples were composited for a total of three soil samples and analyzed for volatile organics, semivolatile organics, and metals by TCLP (Reference P1402).

- In 1998, several surface and subsurface soil samples were collected from areas beneath Building 234 (not the Wet Chemistry Cell). Surface samples represent the 0 to 6 inches depth interval. Subsurface samples represent depth intervals of 3 feet starting from 6 inches below the ground surface. Depth intervals were individually mixed and then aliquots were placed in appropriate containers for analysis. The soil samples were composited into two samples that were analyzed for volatile organics, semivolatile organics, herbicides, pesticides, and metals by TCLP as well as total PCBs, reactive cyanide, and reactive sulfide (Reference C122).

- In 2001, additional surface and subsurface sampling was conducted to further characterize the soil beneath the Building 234 Wet Chemistry Cell. Thirteen samples were analyzed for metals by TCLP and for reactive cyanide and sulfide. Eleven samples were analyzed for volatile organics, semivolatile organics, herbicides, and pesticides by TCLP as well as total PCBs (Reference I053).

- Two core samples were collected from the soil surrounding the Building 110 underground waste tank (one up-gradient and one down-gradient). The up-gradient core was divided into four segments for analysis, and the down-gradient core was divided into three segments for analysis. The samples were analyzed for volatile organics, semivolatile organics, herbicides, pesticides and metals by TCLP (Reference U043).

6.4.3.1 F-Listed Constituents

Waste stream OR-NFS-CH-SOIL is an F-listed hazardous waste because the soil was mixed with hazardous wastes from non-specific sources as listed in 40 CFR Part 261, Subpart D (40 CFR 261.31) (Reference 13).

NFS characterized the soil as nonhazardous waste, and ORNL has continued to manage the soil as nonhazardous waste. Products used during decommissioning did not contain listed solvents (Reference M011). As discussed in Section 5.4.3.1, the only listed solvents identified in the MOX fuel production process were methylene chloride and trichlorotrifluoroethane contained in a binder material; however, these solvents do not meet the definition of an F-listed waste (Reference P273). In addition, this binder material would not be a contaminant of the soil. Building 234 is a single building divided into three sections built at different times; 234A, B, and C. The majority of the soil in this waste stream was excavated in approximately 1993 from below the Wet Chemistry Cell located within the Building 234A footprint. Analytical data for samples collected in 1993 from beneath the Wet Chemistry Cell prior to the initial 1993 excavation, which best represent the soil from the initial phase of decommission in this waste stream, had not been located until recently. No organic constituents were detected in these three soil samples. Soil from beneath the Wet Chemistry Cell was sampled in 2001 after the highly contaminated soil had already been removed. No organic constituents were detected in the 11 soil samples collected from beneath the Building 234 Wet Chemistry Cell, and no organics constituents were detected above the regulatory threshold in any of the seven soil samples from the area around the Building 110 underground waste tank (References I053, U043). The F-listed solvent tetrachloroethylene was detected in trace amounts (0.042 mg/L) in one of two composite soil samples that were collected in 1998 from beneath Building 234A (but not directly under the Wet Chemistry Cell) and adjacent to the building foundation (Reference C122). Tetrachloroethylene was not used in the Building 234 Wet Chemistry Cell or any other part of the MOX fuel production process, nor was it used in the decommissioning process. However, it may have been used historically for cleaning in Building 234C where NFS did the final welding of the fuel pins. None of the samples collected were from beneath Building 234C, but it is possible that tetrachloroethylene was present in the soil under Building 234A due to solvent migration. In addition, at one time this solvent was used in a maintenance facility located elsewhere on the NFS site and has also been detected in groundwater samples up-gradient from Building 234. The source of the tetrachloroethylene in the groundwater may be from its use in off-site facilities and could also be the source of contamination for the sampled soil (Reference C309). To resolve the discrepancy between the nonhazardous characterization and the possibility that tetrachloroethylene may be present in the soil from past solvent use, EPA hazardous waste number F002 is applied to waste stream OR-NFS-CH-SOIL. Even though the Wet Cell data from 1993 have been located, EPA hazardous waste number F002 will not be removed from the waste stream (Reference DR013).

6.4.3.2 Toxicity Characteristic Metals

Waste stream OR-NFS-CH-SOIL does not exhibit the characteristic of toxicity for metal compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24) (Reference 13). Toxicity characteristic metals constituents were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic metals constituents (Reference M011).

No metals were detected above the regulatory threshold in any of the seven soil samples from the area around the Building 110 underground waste tank (Reference U043). Barium was detected in small amounts (7.4 – 8.4 mg/L) in the three composite soil samples from beneath the Building 234 Wet Cell (Reference P1402). Barium was detected in trace amounts (0.492 mg/L) in one of the two composite soil samples from beneath Building 234. Barium was also detected in trace amounts (0.63 - 1.0 mg/L) in 10 of the 13 soil samples from beneath Building 234. These concentrations of barium are well below the regulatory threshold. No other regulated metals were detected in these samples (References C122, I053).

EPA hazardous waste numbers D006, D008, D009, and D011 are assigned to debris waste stream OR-NFS-CH-HET-A. The basis for these assignments to the debris waste stream, were evaluated to determine if they would be applicable to the soil waste stream. The sources for most of these metals in the debris waste stream are inherently hazardous waste items (e.g., batteries, circuit boards) which would not be contaminants of soil. Mercury was looked at as a possible soil contaminant. It has been determined that mercury if present would be below the regulatory level (Reference DR013).

6.4.3.3 Toxicity Characteristic Organics

Waste stream OR-NFS-CH-SOIL does not meet the definition of toxicity for organic compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24) (Reference 13).

Toxicity characteristic organic compounds were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic organic compounds (Reference M011).

No organic constituents were detected in the three composite soil samples analyzed in 1993 or the 11 soil samples analyzed in 2001 from the beneath Building 234 Wet Chemistry Cell (References I053, P1402). No organics constituents were detected above the regulatory threshold in any of the seven soil samples from the area around the Building 110 underground waste tank (Reference U043). Tetrachloroethylene was detected in trace amounts (0.042 mg/L) in one of the two composite soil samples from beneath Building 234; however, this concentration is well below the regulatory threshold. In addition, the F-listed EPA hazardous waste number for tetrachloroethylene is assigned to this waste stream. Chloroform was also detected in one of the samples in trace amounts but was also found in the sample blank. No other organic constituents were detected in the two composite soil samples (Reference C122).

6.4.3.4 U-, P-, and K-Listed Wastes

Waste stream OR-NFS-CH-SOIL does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33) (Reference 13). Based on the AK documentation reviewed, U- and P-listed compounds were not used during MOX production or facility decommissioning (References M011, P273). Therefore, U-and P-listed EPA hazardous waste numbers, including U134 (hydrofluoric acid), are not assigned to this waste stream.

Based on the AK documentation reviewed, beryllium powder was not used by NFS (Reference C210). Therefore, this waste stream is not a P015-listed waste, and beryllium will not be present in amounts greater than one percent by weight of the waste in each drum.

The material in waste stream OR-NFS-CH-SOIL is not a hazardous waste from any of the sources specified in 40 CFR 261.32 (Reference 13). Waste stream OR-NFS-CH-SOIL is therefore not assigned a K-listed hazardous waste number.

6.4.3.5 Ignitables, Corrosives, and Reactives

Ignitability

TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Efforts were made to prevent the formation of liquids in waste drums by mixing the soil with absorbent (e.g., RADSORB or Encap® polymer absorbent) (References M003, M011, P268, P273, P315, P317, P1400, P1401). Pyrophorics and compressed gases have not been identified in NFS TRU soil waste (References M003, M065, P268, P273, P317, P1400, P1401).

Soil does not meet the definition of ignitability as defined in 40 CFR 261.21 (Reference 13). The waste is not an oxidizer, and it is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. Liquids have not been identified in soil drums; however, the possibility exists that liquids have formed in some drums while in storage. Prior to WIPP disposal, prohibited quantities of liquids will be removed or immobilized (see Section 6.4.4). Waste stream OR-NFS-CH-SOIL is therefore not ignitable (D001).

Corrosivity

TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Efforts were made to prevent the formation of liquids in waste drums by mixing the soil with absorbent (e.g., RADSORB or Encap® polymer absorbent) (References M003, M011, P268, P273, P315, P317, P1400, P1401).

Soil does not meet the definition of corrosivity as defined in 40 CFR 261.22 (Reference 13). Liquids have not been identified in soil drums; however, the possibility exists that liquids have formed in some drums while in storage. Prior to WIPP disposal, prohibited quantities of liquids will be removed or immobilized (see Section 6.4.4). Waste stream OR-NFS-CH-SOIL is therefore not corrosive (D002).

Reactivity

TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Explosives, reactive metals, reactive cyanides, or reactive sulfides were not identified in the AK documentation reviewed for either Building 234 or Building 110 (References M003, P268, P273, P317, P1400, P1401). NFS Radwaste Package Certification Records indicate that the waste is not readily capable of detonation, explosive decomposition, reaction at normal pressures and temperatures, or an explosive reaction with water (Reference M003).

Soil does not meet the definition of reactivity as defined in 40 CFR 261.23 (Reference 13). The waste is stable, will not undergo violent chemical change, and will not detonate. The waste will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. There is no indication that the waste contains explosive materials, and it is not capable of detonation or explosive reaction. Two composite soil samples were collected from beneath Building 234 and analyzed for reactive cyanide and sulfide with only small amounts being measured (Reference C122). Thirteen surface soil samples were collected from beneath the Wet Chemistry Cell and were also analyzed for reactive cyanide and sulfide with no detections (Reference I053). NFS determined that the small amount of reactive cyanide and sulfide measured did not make this soil waste reactive. Waste stream OR-NFS-CH-SOIL is therefore not reactive (D003).

6.4.3.6 Polychlorinated Biphenyls

This waste stream does not contain PCBs greater than 50 ppm, and therefore, is not regulated as a TSCA waste under 40 CFR 761 (Reference 14).

Two composite soil samples were collected from beneath Building 234 and analyzed for total PCBs. Arochlor-1254 was detected in very trace amounts (0.014 milligrams per kilogram [mg/kg]) in one of the samples (Reference C122). Eleven surface soil samples were collected from beneath the Wet Chemistry Cell and were also analyzed for total PCBs. Arochlor-1254 was detected in very trace amounts in four of the samples (0.12 – 0.45 mg/kg) (Reference I053). Although the soil excavated from beneath Building 110 was not specifically analyzed for PCBs, two samples of the Building 110 tank contents were collected and analyzed for PCBs. PCBs were not detected above 50 ppm in any of the samples (Reference U043).

6.4.4 Prohibited Items

Prohibited items have not been identified in this waste stream. NFS conducted moisture content measurements of a select number of soil drums. The results of these tests indicated a moisture content between 13.5 percent and 21 percent (Reference U055). The soil mixing process included the addition of 10 pounds of RADSORB absorbent to each drum to prevent the formation of liquids (Reference P315). This quantity of RADSORB can absorb approximately 250 pounds of water from the soil which represents all water in 750 pounds of soils with 33 percent moisture content (Reference U058).

When the drums were received at ORNL, they underwent RTR which did not identify liquids in the majority of the drums but did discover liquid between the drum and rigid liner in one drum (NFS-0927). Drum NFS-0927 was sent to SEG where RADSORB was added to absorb the liquid (References C200, M003, M011, M065).

Due to the physical nature of this waste and the fact that many of these drums have been in storage at ORNL for nearly 15 years, it is possible that liquid may have formed in some drums. Certified RTR and/or VE are performed by CCP to ensure the waste does not contain prohibited items in accordance with the WIPP-WAC and WIPP-WAP.

6.5 Waste Packaging

TRU soil waste from the initial phase of decommissioning is packaged in DOT specification 17H, 17C, or UN1A2/Y400/S 55-gallon drums. Each drum contains a RADPAD absorbent pad on the bottom of the drum and a 90-mil HDPE rigid liner. A polyethylene drum liner bag was placed inside the rigid liner. When the polyethylene drum liner bag was full of soil, an absorbent pad was placed on top of the soil and then the bag was twisted and taped closed. The liner lid containing a ⅜-inch vent hole was snapped into place. Some drums may not have a 90-mil liner. A PVC pipe insert with a half inch hole in the wall of the pipe may have been positioned between the drum lid and liner lid at the center of the liner lid to help hold it in place (References C200, C210, M003, M011, M052, M065, P268, P315, P317, U058). The soil from the excavation of the Building 110 underground waste tank may be in two drum liner bags (Reference P306).

DOT specification 7A Type A 55-gallon drums are used for waste packaging (and repackaging) at the TWPC (References P256, P432). Drums are lined with a cardboard liner and a filtered 6-mil poly liner bag; rigid liners are not used. When a drum is ready to be closed, the liner bag is twisted, and a cable tie wrap is wrapped around the twisted section and tightened. Additional tape is then wrapped around the twisted section (References P251, P252, P253, P254). Hydrogen diffusion rate testing of cable tie wraps indicates that they are an acceptable closure method (References 11, P276).

TRU soil waste from the final phase of decommissioning is packaged in DOT specification 7A Type A 55-gallon drums. Each drum contains a filtered polyethylene liner bag and a 90-mil rigid liner inside the liner bag. The soil and absorbent mixture is loaded directly into the rigid liner, and additional absorbent is on top of the waste. Rigid liner lids are not used. The liner bag is twisted, a plastic cable tie is wrapped around the twisted section and tightened, and tape is wrapped around the twisted section (References C321, P1400, P1401). Hydrogen diffusion rate testing of cable tie wraps indicates that they are an acceptable closure method (References 11, P276).

6.5.1 Filter Vents

NFS TRU waste drums are fitted with approved filter vents (References C201, M003, P253, P315, P1401).

6.5.2 Layers of Confinement

The majority of the soil drums are expected to have one layer of confinement (drum liner bag). A few may include two layers of confinement (two drum liner bags) (References M003, M075, P1400, P1401).

7.0 REQUIRED WASTE STREAM INFORMATION: OR-NFS-CH-HOM-A

This section presents the mandatory AK for waste stream OR-NFS-CH-HOM-A required by the WIPP-WAP (Reference 2). Attachment 1 for waste stream OR-NFS-CH-HOM-A (created in accordance with procedure CCP-TP-005) provides a list of TRU waste stream information required to be developed as part of the AK record (Reference 1).

7.1 Area and Building of Generation

Waste stream OR-NFS-CH-HOM-A was generated in Buildings 110 and 234 at NFS. Only about five percent of the 2-liter HDPE bottles containing the immobilized liquids and fines waste originated in Building 110, although the specific drum numbers containing bottles from this building are not identifiable (References C099, M003, M052, M054, P273).

7.2 Waste Stream Volume and Period of Generation

Cleanout and decontamination of gloveboxes and equipment in Buildings 110 and 234 occurred in 1991 and 1992 (References C203, C210, M052, P317, P323). Liquids such as decontamination solutions, respirable fines, and other high activity residual materials were immobilized in approximately 250 2-liter HDPE bottles packaged into 38 55-gallon drums. The 2-liter bottles containing the immobilized waste were packaged into drums at NFS from July 1993 to March 1994 (References M003, M198).

There are three drums that contain 28 bottles in each drum configured in two layers of 14 bottles. Each layer contains four inner bottles surrounded by 10 outer bottles (References C203, M003, M126). RTR will not be able to penetrate the outer bottles to observe the inner bottles. These three drums will be repackaged into six drums into a cardboard tube configuration (as described in Section 7.5) to allow RTR to observe each of the bottles. Therefore, the volume of waste stream OR-NFS-CH-HOM-A will increase from 38 drums to 41 drums. In addition, during the repackaging of this waste stream, seven bottles were identified that will require repackaging into two to four 55-gallon drums containing standard pipe overpack components due to the high surface dose rates of these bottles. This will increase the volume of waste stream OR-NFS-CH-HOM-A to a maximum of 45 drums (References M003, M075, P1407).

The specific container numbers in waste stream OR-NFS-CH-HOM-A are provided in the Waste Containers List which is maintained as a quality record as required by procedure CCP-TP-005 (Reference 1).

7.3 Waste Generating Activities

Waste stream OR-NFS-CH-HOM-A was generated from the immobilization of liquids, fines, and other high activity residual materials collected and segregated during the decommissioning of Buildings 110 and 234. In the early-1990s when this waste was transferred from NFS to ORNL for storage, the ORNL WAC and WIPP-WAC required immobilization of respirable fines (References M007, P268, P269). NFS historical production operations (pellet production and scrap dissolution and recovery) are described in detail in Section 4.4.1. The immobilization process described below was performed in Building 234 (Reference P274). Repackaging of this waste stream is conducted at the TWPC as described below.

7.3.1 Segregation and Immobilization of Liquids, Fines, and Residual Materials at NFS

Gloveboxes, equipment, exhaust systems, and utility and process lines and systems from Buildings 110 and 234 were decontaminated as necessary prior to processing in the DVRF (References P303, P319, P1371). Loose materials were removed from gloveboxes and process equipment and accumulated in polyethylene bottles. The materials included dry powder sweepings, sludge, paint chips, metal chips and shavings, pellets, rust, wet cheesecloth used to wipe down contaminated surfaces, highly contaminated items such as gasket or paper filter media, or other contaminated debris easily gathered into a small container. These bottles were used to concentrate the contamination removed from gloveboxes and equipment so the bulk of the waste could be packaged at lower activity concentrations (no more than 15 Pu-239 FGE as described below). Therefore, these bottles contained relatively large amounts of activity (References C206, P218, P274, P317).

If the bottles did not contain MOX pellets or recoverable powder, the particulate waste was processed to remove respirable fines which were defined as those wastes which contain particulates with greater than one Wt% of the material less than 10 microns in diameter, or greater than 15 Wt% of the material less than 200 microns in diameter. The bottles of material were bagged into the segregation and immobilization station glovebox located in Building 234 Area C. If moisture was present, the contents of the bottles were emptied onto a screen to filter out large pieces. The particulate material that passed through the screen was dried on a hot plate until respirable fines were liberated. This material was emptied onto a 212 micron sieve screen over a collection pan. The sieve was covered and vibrated for about three minutes. The respirable fines that passed through the 212 micron sieve were emptied into 2-liter HDPE bottles. No more than 500 milliliters of fines were collected in a single bottle (References P218, P274, P300).

The bottles of respirable fines were bagged out of the glovebox and assayed. If the assay value was greater than 80 Pu-239 FGE, the contents of the bottles were separated into two bottles. Water and Portland cement were added to the 2-liter bottles of respirable fines and stirred to achieve a homogeneous mixture. The sieving described above was done for most of the bottles but was discontinued near the end of

the project and the residual materials collected in bottles were cemented. The bottles were tamped on the glovebox floor to help settle the cement and eliminate void space. The contents were allowed to cure (uncapped) for at least 24 hours. The immobilized waste was visually inspected for signs of residual liquid and set-up. According to procedure, about a half inch of absorbent was placed on top of the cement to absorb any liquid that could evolve and condense due to thermal cycling. However, previous RTR identified several inches of absorbent on top in some cases. The bottles were capped and bagged out of the glovebox in two un-vented plastic bags which were heat-sealed. The immobilized fines are included in waste stream OR-NFS-CH-HOM-A (References C200, C210, M003, M202, P218, P274).

With the loose materials having been removed, gloveboxes, process equipment, piping, and ventilation duct were introduced into the DVRF where an initial assay determined whether further decontamination was needed. If decontamination was required, items were disassembled or sectioned in the decontamination cell. Focusing on areas identified by the initial assay, manual cleaning methods (e.g., wiping with Radiacwash [contains citric acid and tetrasodium ethylenediamine triacetate]) were employed to decontaminate the items to the extent possible. If additional cleaning was needed, a high-pressure water jet was used to remove the etched in and fixed contamination. The decontaminated items were loaded into the shear/baler where they were cut and compacted. The compacted bales were packaged into 40-gallon drums and sent to SEG for further compaction. The compacted waste is not included in this homogeneous waste stream (References C210, P218, P300, P1371).

Water from the high-pressure water jet would not have been disposed of as TRU waste because it was recirculated through a series of filters and ion-exchange columns. However, Radiacwash decontamination solution generated during manual cleaning of gloveboxes and process equipment was solidified with Portland cement or other solidification media, such as RADSORB (sodium polyacrylate polymer absorbent), which was a common solidification media used by NFS. Liquid waste was packaged in sufficient absorbent material to absorb twice the volume of the liquid. The immobilized decontamination solution is included in waste stream OR-NFS-CH-HOM-A (References C210, M011, P273, P317).

In order to ensure a consistent and uniform geometry that was conducive to assay, 2-liter HDPE bottles of immobilized liquids or fines that exceeded 50 Pu-239 FGE were packaged into a centering sleeve in the middle of a 55-gallon drum. These drums contain only two or three bottles of waste. Bottles containing lower levels of activity were accumulated and packaged directly into a 55-gallon drum without the centering sleeve with less than 50 Pu-239 FGE (References C209, P218). These drums contain between 8 and 28 bottles of immobilized fines (References C203, M003, M051).

The residual materials that did not pass through the initial screening or the sieve described above, and that were sufficiently low in activity, were accumulated in 2-liter HDPE bottles and packaged in 40-gallon drums for subsequent compaction at SEG (the compacted waste is not included in this homogeneous waste stream). Each

40-gallon drum contained no more than 15 Pu-239 FGE. The remainder of the residual materials with more significant radionuclide loading were packaged in separate 55-gallon drums. NFS anticipated only minimal drums of this concentrated material would be generated (References P218, P300). An examination of the NFS inventory at ORNL from the initial phase of decommissioning did not identify any 55-gallon drums containing only bottles of residual material (Reference M198). RTR conducted in the early-1990s at the WEAF shows a couple of bottles of residual materials were packaged into 55-gallon drums along with bottles of immobilized fines or absorbent. However, the WEAF RTR identifies many of the 2-liter HDPE bottles in this waste stream contain what appears to be miscellaneous metal (e.g., sweepings, hardware, tools) mixed throughout a transparent resin matrix. The consistency and density of the resin matrix observed in the WEAF RTR is consistent with an organic polymer absorbent, such as RADSORB, which was a common absorbent used by NFS (References M126, M202). Although not specifically identified in NFS procedures, it is believed that RADSORB absorbent was mixed with the high activity residual materials (References P274, P317).

7.3.2 Transuranic Waste Processing Center in Oak Ridge

Waste stream OR-NFS-CH-HOM-A requires repackaging at the TWPC to breach prohibited heat-sealed bags and to reconfigure the drums by packaging the bottles into cardboard tubes so that they are more conducive to NDA and RTR. In addition, there are seven bottles that will be repackaged into 55-gallon drums containing standard pipe overpack components due to the high surface dose rates of these bottles. Section 7.5 provides additional detail on this packaging configuration. In addition, if prohibited quantities of liquid are discovered during repackaging, additional absorbent (e.g., Nochar sodium polyacrylate polymer absorbent) will be added to the bottles (References M075, P251, P252, P253, P254, P1116, P1407). See Section 5.3.2 for additional details regarding TWPC glovebox and BBA operations.

7.4 Types of Wastes Generated

This section describes the waste materials based on process inputs and outputs, waste matrix code assignment, waste material parameter weight estimates, radionuclide contaminants, and hazardous waste determinations for waste stream OR-NFS-CH-HOM-A.

7.4.1 Materials Related to Physical Form

Waste stream OR-NFS-CH-HOM-A is comprised of immobilized liquids, fines, and other high activity residual materials. Respirable fines were immobilized with Portland cement and water in 2-liter HDPE bottles, and dry absorbent was added to the top of the cured waste. Aqueous liquids were immobilized with RADSORB (organic polymer absorbent) in 2-liter HDPE bottles. Miscellaneous metals (e.g., sweepings, hardware) are contained throughout the RADSORB absorbent matrix. In addition, there are a couple of HDPE bottles containing very small quantities of scrap metal such as nuts and bolts with no absorbent (References C210, M003, M126, M202, P218, P274, P317).

Each 2-liter HDPE bottle was bagged out of the glovebox in one 12-mil PVC bag and one 25-mil nylon reinforced polyethylene bag (References C203, P218, P274, P320). Depending on the level of radioactivity, the bottles were placed into a plastic or steel centering sleeve inside the 55-gallon drum or directly into the drum (References M126, M202, P218). If the drum was not completely filled, NFS may have completed a layer of bottles with wrapped empty 2-liter bottles (Reference C203). A RADPAD absorbent pad (cellulosic laminate containing a sodium polyacrylate polymer) was placed in the bottom of the drum and the rigid liner. A polyethylene drum liner bag also may have been placed inside the rigid liner (References C200, M003, M011, P268, P317).

As described in Section 7.5, the bottles and plastic bags will be repackaged into a cardboard tube configuration or into standard pipe overpacks.

7.4.1.1 Waste Matrix Code

As described in the previous section, waste stream OR-NFS-CH-HOM-A includes a combination of respirable fines immobilized with Portland cement and water and liquid immobilized with RADSORB with miscellaneous metal contained within the RADSORB. Since this waste stream is a combination of inorganic and organic homogeneous solids, Waste Matrix Code S3900, Other Homogeneous Solids, is applied to this waste stream. The definition of this Waste Matrix Code is provided in the *DOE Waste Treatability Group Guidance* (Reference 4). This category includes waste that is consistent with the definition for the homogeneous solids (S3000) summary category, but does not meet the criteria specified for either of the inorganic homogeneous solids (S3100) or organic homogeneous solids (S3200) summary categories. This evaluation is documented in a memorandum (included with Attachment 6 completed per CCP-TP-005) (Reference 1).

The container paperwork for drum NFS0929 indicates the drum contains three 2-liter bottles. Based on an initial review of the WEAF RTR data, the drum appeared to contain homogeneous solids as well as debris waste, but the debris waste was greater than 50 percent, by volume. For this reason, this drum was included in waste stream OR-NFS-CH-HET-A (References DR006, M003, M068). However, a more thorough review of the WEAF RTR identified four bottles containing grouted fines, four bottles containing absorbent, and minor amounts of debris, which is consistent with other drums in this homogeneous solids waste stream (Reference M202). Therefore, NFS0929 is being moved to waste stream OR-NFS-CH-HOM-A (Reference DR030).

7.4.1.2 Waste Material Parameters

The waste material parameter weight estimates for waste stream OR-NFS-CH-HOM-A were derived from NFS container disposal paperwork, procedures, product information, and a review of previous WEAF RTR data. These estimates are presented in Table 7-1, Waste Stream OR-NFS-CH-HOM-A Waste Material Parameters.

NFS Form 28-001, TRU Waste Data Package, lists the gross weight and tare weight for each drum. The reported tare weights vary, and based on a review of the WEAF RTR data, it appears the tare weights include some of the inner packaging materials (e.g., rigid liner, centering sleeve). It is assumed that the 2-liter HDPE bottles and heat-sealed bags are not included in the tare weight (References M003, M126). According to product information, a Nalgene® 2-liter HDPE wide-mouth bottle weighs 200 grams. The weight of a typical bag-out bag provided in RTR procedure CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure,* is 100 grams. Each HDPE bottle is contained in two plastic bag-out bags (References 15, C203, P274, P320). The plastic bags and 2-liter HDPE bottles are included in the table as "plastics (waste materials)." For the purpose of estimating waste material parameter weights, other packaging materials are not included in the calculation.

The weight of the immobilized waste was calculated by summing the weights of the HDPE bottles and plastic bags and subtracting this total from the net weight of each drum. The WEAF RTR was reviewed to determine the contents of each bottle and to estimate the volume utilization and the volume percentage of the different materials in each bottle (References M126, M202). These percentages were converted to actual volumes and then to weights based on an assumed density for the different waste materials (i.e., grouted fines, RADSORB organic polymer absorbent, and miscellaneous metals).

According to the NFS procedure for segregation and immobilization of particulate fines, the amount of fines in a 2-liter HDPE bottle varied, and the amount of cement and water mixed with the fines varied depending on the amount of fines (Reference P274). The density of the fines material is unknown so the density of the immobilized fines cannot be calculated. Instead, a density of 2.403 is assumed which is the density of concrete with gravel and of wet mortar.

Review of the WEAF RTR data by CCP identified numerous 2-liter HDPE bottles containing miscellaneous metals throughout a transparent resin matrix. The metals included scrap, sweepings, hardware (e.g., nuts, bolts, washers), and hand tools (e.g., screwdriver, wrench) (Reference M202). To calculate the iron-based metal/alloy weights for AK, a density of 7.85 was used. Based on a comparison of the net weights to the calculated waste material parameter weights, it appears that the volume of metals was overestimated by CCP in the review of the WEAF RTR. The metal volume percentages were adjusted so the net weights and calculated waste material parameter weights were more comparable. It is possible other residual debris materials (as described in Section 7.3.1) may be contained in the resin matrix but cannot be identified by RTR due to their lower densities.

The consistency and density of the resin matrix observed in the WEAF RTR is consistent with an organic polymer absorbent, such as RADSORB, which is a solid, granular, cross-linked homopolymer, and was a common absorbent used by NFS. RADSORB has an average density of 0.62 and can absorb up to 250 times its weight in water and up to 30 times its weight in aqueous solutions such as Radiacwash

decontamination solution (Reference M011). However, based on the net weights of the waste, it doesn't appear as if the bottles contain anywhere near that amount of liquid.

This evaluation is documented in a memorandum (included with Attachment 6 completed per CCP-TP-005) (Reference 1).

Table 7-1. Waste Stream OR-NFS-CH-HOM-A Waste Material Parameters

Waste Material Parameter	Wt%	Wt% Range
Aluminum-based Metals/Alloys	0%	0%
Iron-based Metals/Alloys	6.1%	0% – 57.3%
Other Metals	0%	0%
Other Inorganic Materials	0%	0%
Cellulosics	0%	0%
Plastics (waste materials)	12.2%	10.4% – 32.8%
Rubber	0%	0%
Organic Matrix	9.8%	2.5% – 50.1%
Inorganic Matrix	71.9%	0% – 85.6%
Soils/Gravel	0%	0%

7.4.2 Radiological Characterization

The Building 234 facility performed MOX fuel fabrication work under subcontracts to two U.S. Government contracts administered by the AEC, and two smaller commercial contracts. The largest of the two government-sponsored orders was to manufacture fuel rods for the SEFOR. The other government work was sponsored by DOE-SRS. The commercial contracts were for the Halden reactor and Consumers Power Company (References C099, C100, P273). Table 7-2, Mixed Oxide Fuels Processed at NFS, shows the amount of MOX fuel processed at NFS. The isotopic composition of the MOX fuel materials is provided in Table 7-3, Mass Isotopic Distribution of Mixed Oxide Fuels Processed at NFS (References C099, C100, DR002, P212, P218, P268, P269, U016, U017).

Table 7-2. Mixed Oxide Fuels Processed at NFS

Material	%Pu	%U	Pu (kg)	U (kg)	Total (kg)
SEFOR	20%	80%	746	2,984	3,730.00
Consumers	2.27%	97.9%	47	2,027	2,070.48
SRS	0.31%	99.7%	16	5,064	5,079.37
Halden	2.5%	97.5%	3	117	120.00
---	---	---	**812**	**10,192**	**11,000**

Table 7-3. Mass Isotopic Distribution of Mixed Oxide Fuels Processed at NFS

Isotope	SEFOR		Consumers		SRS		Halden	
Pu-238	0.01%	0.04%	0.01%	0.43%	--	--	0.01%	0.29%
Pu-239	18.13%	90.63%	1.73%	76.24%	0.29%	90.94%	2.00%	79.89%
Pu-240	1.67%	8.33%	0.37%	16.34%	0.02%	7.99%	0.36%	14.51%
Pu-241	0.10%	0.48%	0.07%	2.91%	0.003%	0.99%	0.06%	2.24%
Pu-242	0.01%	0.05%	0.03%	1.17%	0.0002%	0.08%	0.02%	0.83%
Am-241	0.09%	0.47%	0.06%	2.86%	--	--	0.06%	2.20%
Total	**20.0%**	**100%**	**2.27%**	**100%**	**0.31%**	**100%**	**2.5%**	**100%**
U-234	0.12%	0.15%	0.58%	0.59%	0.001%	0.001%	3.90%	4.00%
U-235	0.28%	0.35%	2.36%	2.41%	0.30%	0.30%	4.88%	5.01%
U-238	79.60%	99.50%	94.96%	97.00%	99.40%	99.69%	88.73%	91.01%
Total	**80.0%**	**100%**	**97.9%**	**100%**	**99.7%**	**100%**	**97.5%**	**100%**

NOTE: For each of these materials, column one represents the overall mass fractions of the MOX fuel, and column two provides the mass fractions of the plutonium and uranium separately.

7.4.2.1 NFS Assay of Grouted Fines

TRU waste generated during the initial NFS decommissioning in the early 1990s was assayed using a nondestructive assay system that consisted of five stations. Station 1 was used for determining equipment hold-up prior to decontamination, Station 2 was used to assess decontamination effectiveness, and Station 3 was used for real-time monitoring of DVRF cell hold-up. These three stations were associated only with compacted waste. Station 4 consisted of a small size pulse active neutron differential die-away unit that was readily configured for both compacted bales and 55-gallon drums. Station 5 was a passive neutron coincidence counter for small packages, including 2-liter HDPE bottles, containing relatively high TRU concentrations and included a hyper-pure germanium gamma-ray detector for establishing plutonium isotopics (References M058, P218, P300, P321, U054).

NFS waste assay data indicates the largest Pu-239 mass reported in a single drum in this waste stream is 78 grams with an average Pu-239 mass of about 53 grams. Also, NFS waste assay data indicates the largest Am-241 activity reported in a single drum in this waste stream is about 5 curies with an average Am-241 activity of about 1.4 curies. These data are about 17 years old so the Am-241 activity will now be about 50 percent greater due to Pu-241 decay (References M003, M012, M198).

Relative to both Building 110 and Building 234 wastes, U-235 was assigned a mass value based on normalized intensity factor ratios from gamma spectroscopy. U-234 and U-238 mass values were assigned using scaling factors derived from uranium fuel isotopics (References M003, P218, P321). The largest mass of U-234, U-235, and U-238 in a single drum in this waste stream reported by NFS assay is approximately 76 grams, 7 grams, and 1.78 kg, respectively (References M012, M198).

U-233 was not reported in NFS waste assay data for any of the grouted fines drums (References M003, M012, M198). However, there is a potential for U-233 in this waste because five percent of the HDPE bottles originated from gloveboxes removed from the Building 110 laboratory which did handle U-233 (References C210, M054).

After receiving waste from NFS, all the drums in this waste stream were re-assayed at the ORNL WEAF on a neutron assay system (References U017, U038). The Pu-240 mass measured by the ORNL neutron assay system was used with the same isotopic distribution used by NFS as a basis for ORNL comparisons. For this reason, even though there are differences in the isotope masses reported by the two assay systems, the calculated mass fractions will be the same (Reference M065). The assay data in the *eMWaste* database is from NFS assay (References M012, M198).

7.4.2.2 Radiological Characterization of Waste Stream OR-NFS-CH-HOM-A

To determine isotopic ratios for waste stream OR-NFS-CH-HOM-A as a whole, the total gram value for each individual radionuclide was divided by the total mass of all radioactive constituents in the waste stream and converted to a percentage. This result is listed as "Total Radionuclide Wt%." To determine the radionuclide Wt% range for individual containers, the radiological mass in each container in the waste stream was summed. The mass of each individual radionuclide in a container was divided by the total radiological mass for that container and converted to a percentage. The minimum and maximum results are listed as "Radionuclide Wt% Range for Individual Containers." The same process was applied to determine "Total Radionuclide Ci%" and "Radionuclide Ci% Range for Individual Containers."

As shown in Table 7-4, Waste Stream OR-NFS-CH-HOM-A Radiological Characterization, U-238 is the most predominant radionuclide by mass, and Pu-239 is the second most predominant radionuclide by mass based on AK. The two most prevalent TRU radionuclides by mass are Pu-239 and Pu-240. These percentages are based on un-decayed NFS assay data. In addition, the radionuclide weight percent of individual radionuclides varies on a container-by-container basis. Because of this variability, some containers will not include the waste stream predominant radionuclides but may include other radionuclides expected in this waste stream. Radioassay data indicate that the TRU alpha activity concentration in each of the drums in this waste stream is more than 100 nCi/g (References M003, M012, M198). The radiological evaluation for this waste stream is documented in the NDA Memorandum as required by CCP-TP-005 (Reference 1).

Table 7-4. Waste Stream OR-NFS-CH-HOM-A Radiological Characterization

Isotope	Total Radionuclide Wt%[1]	Radionuclide Wt% Range for Individual Containers[2]	Total Radionuclide Ci%[3]	Radionuclide Ci% Range for Individual Containers[4]	Suspected Present (Yes/No)
WIPP Required Radionuclides					
Am-241	0.10%	0.01% - 2.86%[7]	2.58%	0.58% - 3.78%	Yes[6]
Pu-238	0.01%	Trace - 0.43%[7]	1.59%	0.55% - 22.66%	Yes
Pu-239	12.81%	3.53% - 90.94%[7]	6.20%	1.59% - 16.73%	Yes
Pu-240	1.94%	0.67% - 23.37%	3.44%	1.42% - 7.16%	Yes
Pu-242	0.02%	0.00% - 1.17%[7]	Trace[5]	Trace - Trace	Yes
U-233	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes[9]
U-234	3.88%	0.00% - 4.00%[7]	0.19%	0.00% - 0.49%	Yes
U-238	80.74%	0.00% - 99.69%[7]	Trace	0.00% - Trace	Yes
Cs-137	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes
Sr-90	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes[8]
Additional Radionuclides					
Pu-241	0.11%	0.04% - 2.91%[7]	86.00%	65.35% - 94.70%	Yes[6]
U-235	0.40%	0.00% - 5.01%[7]	Trace	0.00% - Trace	Yes

1. This listing indicates the total Wt% of each radionuclide over the entire waste stream.
2. This listing is the Wt% range of each radionuclide on a container-by-container basis. Some containers with "0" listed as the lower range, will not contain the specified radionuclide.
3. This listing indicates the total activity Ci% of each radionuclide over the entire waste stream.
4. This listing is the Ci% range of each radionuclide on a container-by-container basis.
5. "Trace" indicates <0.01% for that radionuclide.
6. Am-241 may be present in slightly larger percentages, and Pu-241 in smaller percentages due to the decay of Pu-241.
7. These Wt% ranges were expanded based on plutonium and uranium isotopic distribution data (see Table 7-3).
8. Sr-90 cannot be quantified by gamma spectroscopy. Its value is calculated based on measured Cs-137 values. A Sr-90/Cs-137 scaling factor of 1.0 is used to calculate Sr-90.
9. U-233 was not reported in NFS waste assay data for any of the grouted fines drums; however, there is a potential for U-233 in this waste because some of the fines originated in the Building 110 laboratory which did handle U-233.

7.4.3 Chemical Content Identification – Hazardous Constituents

EPA hazardous waste numbers were assigned to waste stream OR-NFS-CH-HOM-A in accordance with RCRA based on a review of available AK documentation identifying chemical usage and potentially hazardous materials that may have been introduced into the waste stream through waste generating operations as described in Section 7.3, MSDS information compiled for commercial products used during decommissioning, and sampling and analysis of glovebox sweeping material by NFS. This waste stream has been historically managed in accordance with ORNL waste management practices in compliance with the requirements imposed by the TDEC. Documentation regarding how the site has historically managed the waste, including the historical regulatory status of the waste, is described above in Section 4.6.2. The EPA hazardous waste

number assignments have been applied on a waste stream basis; individual containers may not contain all of the hazardous materials listed for the waste stream as a whole. Table 7-5, OR-NFS-CH-HOM-A EPA Hazardous Waste Numbers, lists the assigned EPA hazardous waste numbers.

Table 7-5. OR-NFS-CH-HOM-A EPA Hazardous Waste Numbers

EPA Hazardous Waste Number	Constituent
D006	Cadmium
D009	Mercury

7.4.3.1 F-Listed Constituents

Waste stream OR-NFS-CH-HOM-A is not an F-listed hazardous waste because the grouted fines were not mixed with hazardous wastes from non-specific sources as listed in 40 CFR Part 261, Subpart D (40 CFR 261.31) (Reference 13).

Products used during decommissioning did not contain listed solvents (Reference M011). As discussed in Section 5.4.3.1, the only listed solvents identified in the MOX fuel production process were methylene chloride and trichlorotrifluoroethane contained in a binder material; however, these solvents do not meet the definition of an F-listed waste (References C142, P273).

Other NFS waste streams in the AK report have been assigned F002 for tetrachloroethylene contamination in the soil beneath Building 234. This solvent was not used during decommissioning or in the MOX fuel production process, and therefore will not be a contaminant in the immobilized liquids and fines waste. Therefore, F002 is not assigned to waste stream OR-NFS-CH-HOM-A.

7.4.3.2 Toxicity Characteristic Metals

Waste stream OR-NFS-CH-HOM-A exhibits the characteristic of toxicity for metal compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24) (Reference 13).

Toxicity characteristic metals constituents were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic metals constituents (Reference M011). Analytical data from six process line samples of sweepings material identified a few samples above the regulatory level for arsenic, barium, and cadmium. Other sources for cadmium and mercury were also identified:

- Arsenic was detected in five of six samples at concentrations of 0.13, 0.51, 0.62, 4.4, and 5.7 mg/L. Only one of these results is above the regulatory level of 5.0 mg/L, and the UCL90 of these six samples is below the regulatory level (References C205, M064, M235, P273, U043).

- Barium was detected in all six samples at 0.57, 1.4, 38, 124, 222, and 301 mg/L. Three of these are above the regulatory level of 100 mg/L, and the UCL90 of these six samples is above the regulatory level. However, the method blank contained 193 mg/L which is also above the regulatory level. The barium may have been introduced from one of the extraction columns used in the analysis which is a problem encountered periodically (References C205, M064, M235, P273, U043).

- Cadmium was reported in all six samples at 0.04, 0.15, 1.2, 1.3, 1.5, and 24 mg/L. Four of these are above the regulatory level of 1.0 mg/L. The 24 mg/L cadmium value was outside the expected distribution from the other sample points, and consequently, this area was re-sampled. A sample composite was made of three parts new sample to one part previous sample. The result of the composite sample was 6.27 mg/L. The UCL90 of these six samples is above the regulatory level (References C205, M064, M235, P273, U043).

- Chromium, lead, and silver were detected in all six samples but below the regulatory level of 5.0 mg/L. Mercury and selenium were not detected in any of the samples (References C205, M064, P273, U043).

- A cadmium-coated wrench is located in one of the 2-liter HDPE bottles containing absorbent (References C210, U043).

- Waste was also generated from the cleanup of mercury from a regulator gauge located inside a glovebox. The liquid mercury was wiped up from the glovebox floor using cheesecloth. The mercury contaminated cleanup material, and other mercury contaminated waste from the floor of the glovebox (e.g., plexiglass and small metal items) were placed into 2-liter bottles and treated with a zinc amalgam (References C204, C210, M052).

Therefore, EPA hazardous waste numbers D006 (cadmium) and D009 (mercury) are assigned to waste stream OR-NFS-CH-HOM-A. However, EPA hazardous waste numbers D004, D005, D007, D008, D010, and D011 are not assigned to this waste stream (Reference DR031).

EPA hazardous waste numbers D008 (lead) and D011 (silver) are assigned to debris waste stream OR-NFS-CH-HET-A. The basis for these assignments to the debris waste stream were evaluated to determine if they would be applicable to the immobilized wastes. The source of lead and silver is from tin/lead solder and silver solder in circuit boards contained in electrical equipment. As described previously, this waste stream consists of grouted fines and absorbed liquids which would not contain

tin/lead solder or silver solder. There are also miscellaneous metals in the waste such as sweepings, scrap, hardware (nuts, bolts, etc.), and hand tools. Electrical equipment was not identified by RTR in this waste (Reference M202).

7.4.3.3 Toxicity Characteristic Organics

Waste stream OR-NFS-CH-HOM-A does not meet the definition of toxicity for organic compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24) (Reference 13). Toxicity characteristic organic compounds were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic organic compounds (Reference M011). No organic constituents were detected in the process line samples of sweeping materials (Reference U043).

7.4.3.4 U-, P-, and K-Listed Wastes

Waste stream OR-NFS-CH-HOM-A does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33) (Reference 13). Based on the AK documentation reviewed, U- and P-listed compounds were not used during MOX production or facility decommissioning (References M011, P273). Therefore, U-and P-listed EPA hazardous waste numbers, including U134 (hydrofluoric acid), are not assigned to this waste stream.

Based on the AK documentation reviewed, beryllium powder was not used by NFS (Reference C210). Therefore, this waste stream is not a P015-listed waste, and beryllium will not be present in amounts greater than one percent by weight of the waste in any drum.

The material in waste stream OR-NFS-CH-HOM-A is not a hazardous waste from any of the sources specified in 40 CFR 261.32 (Reference 13). Waste stream OR-NFS-CH-HOM-A is therefore not assigned a K-listed hazardous waste number.

7.4.3.5 Ignitables, Corrosives, and Reactives

Ignitability

The immobilized waste in this waste stream does not meet the definition of ignitability as defined in 40 CFR 261.21 (Reference 13). The waste is not an oxidizer, and it is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. Respirable fines were immobilized with cement and water, and liquids were immobilized with RADSORB, so the possibility exists that liquids have formed in some drums while in storage. Prior to WIPP disposal, prohibited quantities of liquids will be removed or immobilized (see Section 7.4.4).

TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Efforts were made to prevent the formation of liquids in bottles of immobilized fines by the addition of absorbent to the top of the cement (References C200, M003, P267, P268, P273, P274, P317). This waste will not be pyrophoric, and pyrophorics and compressed gases have not been identified in this waste stream (References M003, M065, P268, P273, P317). Waste stream OR-NFS-CH-HOM-A is therefore not ignitable (D001).

Corrosivity

The immobilized waste in this waste stream does not meet the definition of corrosivity as defined in 40 CFR 261.22 (Reference 13). Respirable fines were immobilized with cement and water, and liquids were immobilized with RADSORB, so the possibility exists that liquids have formed in some drums while in storage. Prior to WIPP disposal, prohibited quantities of liquids will be removed or immobilized (see Section 7.4.4). Waste stream OR-NFS-CH-HOM-A is therefore not corrosive (D002).

TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Efforts were made to prevent the formation of liquids in bottles of immobilized fines by the addition of absorbent to the top of the cement (References C200, M003, P267, P268, P273, P317).

Reactivity

The immobilized waste in this waste stream does not meet the definition of reactivity as defined in 40 CFR 261.23 (Reference 13). The waste is stable, will not undergo violent chemical change, and will not detonate. The waste will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. There is no indication that the waste contains explosive materials, and it is not capable of detonation or explosive reaction. The waste does not contain reactive cyanide or sulfide compounds.

TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Explosives, reactive metals, reactive cyanides, or reactive sulfides were not identified in the AK documentation reviewed for either Building 234 or Building 110 (References M003, P267, P268, P273, P317). NFS Radwaste Package Certification Records indicate that the waste is not readily capable of detonation, explosive decomposition, reaction at normal pressures and temperatures, or an explosive reaction with water (Reference M003). Waste stream OR-NFS-CH-HOM-A is therefore not reactive (D003).

7.4.3.6 Polychlorinated Biphenyls

This waste stream does not contain PCBs greater than 50 ppm, and therefore, is not regulated as a TSCA waste under 40 CFR 761 (Reference 14). Analysis of process line samples of sweepings material indicate PCBs are well below 50 ppm (Reference C205, M064, P273, U043). RADSORB organic polymer absorbent was used to immobilize aqueous solutions only. Hydraulic fluids and oils were collected separately and sent to SEG for incineration (References C210, P317).

7.4.4 Prohibited Items

The HDPE 2-liter bottles were removed from the glovebox in two unvented heat-sealed bags (References C203, P218, P274, P320). Based on a review of the WEAF RTR tapes, the heat-sealed bags may be greater than four liters (fully expanded volume), and the surface area may be less than 390 square inches (Reference M126). For this reason, every drum in this waste stream will be repackaged to breach all of the heat-sealed bags.

When the NFS waste was received at ORNL in the early-1990s, the drums underwent RTR which did not identify liquids in the majority of the drums but did discover liquid in one bottle inside drum NFS0480. Absorbent was added to the bottle. The drum number was then changed to NFS0865 (References C200, M003, M053, M065).

Certified RTR is performed by CCP to ensure the waste does not contain prohibited items in accordance with the WIPP-WAC and WIPP-WAP.

7.5 Waste Packaging

The 2-liter HDPE bottles of immobilized waste were capped and bagged out of the glovebox in two plastic bags (un-vented) which were heat-sealed. One of the bags is 12-mil PVC and one is 25-mil nylon reinforced polyethylene (References C203, P218, P274, P320).

The HDPE bottles were packaged in DOT specification 17H or 17C 55-gallon drums. The drums may contain a 90-mil HDPE rigid liner. A RADPAD absorbent pad may have been placed in the bottom of the drum and the rigid liner. A polyethylene drum liner bag also may have been placed inside the rigid liner. When the polyethylene drum liner bag was full, the bag was twisted and taped closed. The liner lid containing a ⅜-inch vent hole was snapped into place. Some drums have a PVC pipe insert with a half inch hole in the wall of the pipe positioned between the drum lid and liner lid at the center of the liner lid to help hold it in place (References C200, M003, M011, M052, M065, M126, P268, P317).

In order to ensure a consistent and uniform geometry that was conducive to assay, HDPE bottles that exceeded 50 Pu-239 FGE where packaged into a plastic or steel centering sleeve in the 55-gallon drum. HDPE bottles containing lower levels of activity

were accumulated and packaged directly into a 55-gallon drum with less than 50 Pu-239 FGE with one or two layers of 14 bottles per layer. If there were less than 14 bottles in a layer, NFS may have completed the layer with wrapped empty 2-liter bottles. Also, a false lid may have been press fit down into the liner to help stabilize the bottles in the drum. Vermiculite was identified as a possible filler instead of using a false lid (References C203, C210, M051, M052, M067, M126, P218, P274).

DOT specification 7A Type A 55-gallon drums are used for waste repackaging at the TWPC (References P256, P432). Drums are lined with a filtered 6-mil poly liner bag; rigid liners are not used. When a drum is ready to be closed, the liner bag is twisted, and a cable tie wrap is wrapped around the twisted section and tightened. Additional tape is then wrapped around the twisted section (References P252, P253, P254). Hydrogen diffusion rate testing of cable tie wraps indicates that they are an acceptable closure method (References 11, P276).

A special packaging configuration is used at the TWPC to repackage the drums with 2-liter HDPE bottles loaded directly into the drum. This configuration will provide a more consistent and uniform geometry that will be conducive to assay and will allow RTR to examine all of the bottles. The configuration consists of two vertical cardboard tubes (diameters of 10.5-inches and 6-inches) in the center of the drum and several vertical cardboard tubes around the outside. The bottles of immobilized waste are placed in the outer tubes; the center tube may contain the plastic identification tag from the parent drum and a small amount of plastic from the daughter drum docking station. For example, a drum with 14 bottles will be configured with four tubes containing three bottles and one tube containing two bottles. The cardboard tubes are considered packaging material, not waste (Reference P1398).

For the drums that contain a plastic or steel centering sleeve with only two or three HDPE bottles, these drums are also repackaged at the TWPC into new drums with the same cardboard tube configuration, but in this case the two or three bottles are placed in the center tube (if each bottle in the drum has a surface dose rate less than 200 mR/hr) or an outer tube (if any one bottle in the drum has a surface dose rate greater than 200 mR/hr). The centering sleeve and the cardboard tubes are considered packaging material, not waste (Reference P1398). During the repackaging of this waste stream, seven bottles were identified that require repackaging into 55-gallon drums containing standard 12-inch pipe overpack components due to the high surface dose rates of these bottles. The standard pipe overpack consists of a pipe component centered in a DOT specification 7A Type A 55-gallon drum using dunnage consisting of fiberboard and plywood spacers within a rigid polyethylene liner. The pipe overpack component is a stainless steel cylindrical pipe with a bolted stainless steel lid sealed with an o-ring. The pipe component is approximately 12 inches in diameter, two feet long, and 0.25 inches thick. Each 55-gallon drum and pipe component is equipped with a manufacturer installed filter vent. Once the waste bottles and plastic bags (which have been breached) are placed into the pipe component, the pipe component lid is secured with bolts, the rigid liner lid (which includes a vent hole) is snapped into place, and the drum lid is installed (Reference P1407).

7.5.1 Filter Vents

TRU waste drums were fitted with approved filter vents by NFS at the time of generation (References C201, M003, P253). However, as described in Section 7.4.4, the drums contain prohibited heat-sealed bags and must be repackaged. The repackaged drums will be fitted with approved filter vents at the TWPC (References M075, P253).

7.5.2 Layers of Confinement

The HDPE bottles of immobilized waste were packaged in heat-sealed bags. As described in Section 7.4.4, these heat-sealed bags are prohibited and must be breached. The repackaged drums containing the cardboard tube configuration will have one layer of confinement (drum liner bag) (References M075, P254). The drums containing pipe overpack components will also have one layer of confinement (the filtered pipe component) (Reference P1407).

8.0 REQUIRED WASTE STREAM INFORMATION: OR-NFS-CH-HOM-B

This section presents the mandatory AK for waste stream OR-NFS-CH-HOM-B required by the WIPP-WAP (Reference 2). Attachment 1 for waste stream OR-NFS-CH-HOM-B (created in accordance with procedure CCP-TP-005) provides a list of TRU waste stream information required to be developed as part of the AK record (Reference 1).

8.1 Area of Building of Generation

Waste stream OR-NFS-CH-HOM-B, groundwater treatment sludge, is generated in the 234 Excavation Facility during the final phase of NFS decommissioning. This facility is a containment structure erected in place of Building 234 which was previously demolished. The 234 Excavation Facility contains compartmentalized structures for the excavation, handling, and packaging of plutonium contaminated soil from beneath the former Building 234 Wet Cell and equipment to treat groundwater removed from the excavation pit. As shown in Figure 5, sludge (solids separated from the contaminated groundwater) is generated in the water treatment area of the 234 Excavation Facility (References P1373, P1399).

8.2 Waste Stream Volume and Period of Generation

There are currently no drums in storage at ORNL in waste stream OR-NFS-CH-HOM-B. NFS estimates approximately 570 55-gallon drums of groundwater treatment sludge will be generated (Reference M206).

As the drums are shipped to ORNL, the NFS Waste Container Packaging Forms are evaluated and the drum numbers and closure dates are added to the Waste Containers List (References P1401). The Waste Containers List is maintained as a quality record as required by procedure CCP-TP-005 (Reference 1).

8.3 Waste Generating Activities

8.3.1 Groundwater Pretreatment at Nuclear Fuel Services

The 234 Excavation Facility operations excavate contaminated soil and pump groundwater into a treatment tank during soil excavation. The 234 Excavation Facility groundwater pretreatment system (GPS) processes the groundwater from the excavation area. Water is pumped from the excavation area to a process treatment tank in the water treatment compartment of the primary containment structure. During the liquid transfer from the excavation area, a series of filters may be used to pre-filter groundwater or they may be bypassed. Once the process tank has received the appropriate amount of water for treatment, the pump is stopped and chemicals (lime and flocculent) are prepared for the batch treatment of the groundwater. Lime (calcium hydroxide) is added to the groundwater treatment tank to precipitate metals and other dissolved chemicals from the water. As necessary, sodium hydroxide is added to adjust the pH. POLYFLOC AP125 (polymer flocculent) is then added to destabilize the

suspension of fine particles in solution which coagulate and settle out of solution. Once these treatment steps are complete, the treated water is transferred through filtration to a day tank. Water filtration involves bag filters or a combination of bag and cartridge filters. After the transfer is complete, a sample is collected and sent to the lab. Once the analyses are complete and verified to be within range, the water is transferred from the day tank to a large storage tank. The treated water is then transferred from the storage tank to the NFS Waste Water Treatment Facility (References C321, M011, P1372, P1399).

Settled solids (sludge) are pumped from the bottom of the treatment tank into a drum, and approximately 22 pounds of sodium polyacrylate polymer absorbent (i.e., Encap®, Waste-Lock 770, or Quik-Solid) are added to the top of the sludge. A pneumatic drill with an auger attachment is used to thoroughly mix the sludge and absorbent. A core sample is obtained from each drum, and the paint filter test is performed. The sludge sample is placed into a fine mesh conical paint filter, and if liquid passes through and drops from the filter within five minutes, the sludge is deemed to contain free liquids. If the paint filter test fails, 3.5 gallons of additional absorbent are mixed into the sludge with the auger and the paint filter test is repeated (References P1399, P1401). A diagram showing this process is provided in Figure 10, Groundwater Pretreatment System.

8.3.2 Transuranic Waste Processing Center in Oak Ridge

Waste stream OR-NFS-CH-HOM-B is packaged by NFS in accordance with the WIPP disposal requirements, and therefore, is not expected to be repackaged at the TWPC. However, this waste stream is sludge mixed with absorbent and will have a high moisture content. If RTR identifies prohibited quantities of liquids, the drums will be opened and absorbent (e.g., Nochar sodium polyacrylate polymer) will be added. Section 5.3.2 has additional details regarding the TWPC glovebox and BBA operations.

8.4 Types of Wastes Generated

This section describes the waste materials based on process inputs and outputs, waste matrix code assignment, waste material parameter weight estimates, radionuclide contaminants, and hazardous waste determinations for waste stream OR-NFS-CH-HOM-B.

8.4.1 Materials Related to Physical Form

Waste stream OR-NFS-CH-HOM-B is comprised of an aqueous sludge produced from the treatment of groundwater. The sludge is pumped from the bottom of a tank directly into a lined 55-gallon drum, and an organic polymer absorbent is added and mixed into the sludge (References P1399, P1401).

8.4.1.1 Waste Matrix Code

As described in the previous section, waste stream OR-NFS-CH-HOM-B is comprised of groundwater treatment sludge mixed with absorbent. Therefore, Waste Matrix Code S3120, Inorganic Sludges, is applied to this waste stream. The definition of this Waste Matrix Code is provided in the *DOE Waste Treatability Group Guidance* (Reference 4). This category includes waste that is at least 50 percent by volume inorganic sludges. The inorganic sludge may be mixed with stabilization agents.

8.4.1.2 Waste Material Parameters

As of the date Revision 7 of this AK Summary Report was issued, NFS has not begun shipping the sludge to ORNL. As shipments arrive, the NFS Waste Container Packaging Forms will be reviewed, and the drums will be added to the waste stream as appropriate. This will include a review of the waste material parameter data for each drum which will be documented in a Waste Stream Container Evaluation Memorandum in accordance with CCP-TP-005 (References P1401).

The waste material parameter weight estimates for waste stream OR-NFS-CH-HOM-B were derived from NFS waste packaging and operations procedures, waste container packaging forms, and discussions with NFS personnel. These estimates are presented in Table 8-1, Waste Stream OR-NFS-CH-HOM-B Waste Material Parameters. As described above, sludge is pumped from the bottom of the treatment tank into a drum, approximately 22 pounds of organic polymer absorbent (i.e., Encap®, Waste-Lock 770, or Quik-Solid) are added to the sludge, and the absorbent is thoroughly mixed into the sludge. After mixing, an additional three to four inches (approximately 25 pounds) of absorbent are added to the top of the waste (References C321, P1399, P1401).

A solidification testing report indicates that 13 pounds of sludge require one pound of absorbent (Reference P1404). If 22 pounds of absorbent are mixed into the sludge, the minimum sludge weight would be 286 pounds (13 x 22). Therefore, the total absorbent weight per drum will be approximately 47 pounds (22 + 25) or about 14 Wt% (47 / [286+47]). The actual weights will likely have some variation, so until sufficient container-specific data are available, the above data will be used to calculate the waste material parameter weight percentages. This waste material parameter evaluation is documented in a memorandum (included with Attachment 6 completed per CCP-TP-005) (Reference 1).

For the mixture of sludge and absorbent, RTR will not be able to distinguish between the two. The inorganic sludge will be the prevalent mass, and therefore, RTR will assign "Inorganic Matrix" to the mixture. The layer or absorbent added to the top of the waste should be identifiable by RTR and will be categorized as "Organic Matrix." The rigid liner and drum liner bag are considered packaging and therefore are not included in this evaluation.

Table 8-1. Waste Stream OR-NFS-CH-HOM-B Waste Material Parameters

Waste Material Parameter	Wt%	Wt% Range
Aluminum-based Metasl/Alloys	0%	0%
Iron-based Metals/Alloys	0%	0%
Other Metals	0%	0%
Other Inorganic Materials	0%	0%
Cellulosics	0%	0%
Plastics (waste materials)	0%	0%
Rubber	0%	0%
Organic Matrix	7.5%	To be determined
Inorganic Matrix	92.5%	To be determined
Soils/Gravel	0%	0%

8.4.2 Radiological Characterization

The Building 234 facility performed MOX fuel fabrication work under subcontracts to two U.S. Government contracts administered by the AEC, and two smaller commercial contracts. The largest of the two government-sponsored orders was to manufacture fuel rods for the SEFOR. The other government work was sponsored by DOE-SRS. The commercial contracts were for the Halden reactor and Consumers Power Company (References C099, C100, P273). Table 8-2, Mixed Oxide Fuels Processed at NFS, shows the amount of MOX fuel processed at NFS. The isotopic composition of the MOX fuel materials is provided in Table 8-3, Mass Isotopic Distribution of Mixed Oxide Fuels Processed at NFS (References C099, C100, DR002, P212, P218, P268, P269, U016, U017).

Table 8-2. Mixed Oxide Fuels Processed at NFS

Material	%Pu	%U	Pu (kg)	U (kg)	Total (kg)
SEFOR	20%	80%	746	2,984	3,730.00
Consumers	2.27%	97.9%	47	2,027	2,070.48
SRS	0.31%	99.7%	16	5,064	5,079.37
Halden	2.5%	97.5%	3	117	120.00
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Table 8-3. Mass Isotopic Distribution of Mixed Oxide Fuels Processed at NFS

Isotope	SEFOR		Consumers		SRS		Halden	
Pu-238	0.01%	0.04%	0.01%	0.43%	--	--	0.01%	0.29%
Pu-239	18.13%	90.63%	1.73%	76.24%	0.29%	90.94%	2.00%	79.89%
Pu-240	1.67%	8.33%	0.37%	16.34%	0.02%	7.99%	0.36%	14.51%
Pu-241	0.10%	0.48%	0.07%	2.91%	0.003%	0.99%	0.06%	2.24%
Pu-242	0.01%	0.05%	0.03%	1.17%	0.0002%	0.08%	0.02%	0.83%
Am-241	0.09%	0.47%	0.06%	2.86%	--	--	0.06%	2.20%
Total	**20.0%**	**100%**	**2.27%**	**100%**	**0.31%**	**100%**	**2.5%**	**100%**
U-234	0.12%	0.15%	0.58%	0.59%	0.001%	0.001%	3.90%	4.00%
U-235	0.28%	0.35%	2.36%	2.41%	0.30%	0.30%	4.88%	5.01%
U-238	79.60%	99.50%	94.96%	97.00%	99.40%	99.69%	88.73%	91.01%
Total	**80.0%**	**100%**	**97.9%**	**100%**	**99.7%**	**100%**	**97.5%**	**100%**

NOTE: For each of these materials, column one represents the overall mass fractions of the MOX fuel, and column 2 provides the mass fractions of the plutonium and uranium separately.

There are two groundwater monitoring wells on the west side (down gradient) of the former Building 234. Over 200 samples have been collected from these wells over the last 15 years. Analyses conducted on these water samples included U-234, U-235, and U-238 and Pu-238 and Pu-239 (References P1375, U597). No more than six percent of the samples have calculated uranium mass fractions consistent with low-enriched uranium, and none of the samples are consistent with depleted uranium which was the primary uranium material processed in Building 234 (Reference M211). It may be that there are contributions from other facilities such as a scrap facility in the 200 Building Complex that recovered highly enriched uranium scrap (Reference C321). The Pu-239 to Pu-238 mass ratios compare somewhat favorably to the plutonium materials processed in Building 234; however, this comparison is less meaningful because Pu-238 is such a small contributor to the total plutonium (Reference M211).

One sample will be collected of the first batch of groundwater pumped from the excavation site to the treatment tank prior to treatment. This will be performed prior to any addition of treatment chemicals, therefore providing a representative sample of the groundwater that was pumped from the excavation site. The sample will be analyzed to confirm process knowledge of the constituents present in groundwater beneath the Building 234 area. The sample will be analyzed for technetium-99 and other radionuclides by gamma spectroscopy and alpha spectroscopy (Reference P1372). The results of these analyses will be provided once they become available.

8.4.2.1 NFS Assay of Groundwater Treatment Sludge

Each drum of groundwater treatment sludge is assayed by NFS using the VAGAS or a new gamma spectroscopy mobile counting system. The NDA system directly measures

Am-241 and scales the plutonium isotopes using decay-corrected historical plutonium isotopic (References C321, I067, P1374, P1403).

As of the date Revision 7 of this AK Summary Report was issued, NFS has not begun shipping the groundwater treatment sludge to ORNL. As shipments arrive, the NFS Waste Container Packaging Forms will be reviewed, and the drums will be added to the waste stream as appropriate (References P1401). This will include a review of radiological data for each drum which will be documented in a Waste Stream Container Evaluation Memorandum in accordance with CCP-TP-005. Once sufficient assay data are available, a table summarizing the weight and activity percentages will be included in this section. In addition, an NDA Memorandum will be developed to document the radiological evaluation for this waste stream as required by CCP-TP-005 (Reference 1).

8.4.3 Chemical Content Identification – Hazardous Constituents

NFS has characterized this groundwater treatment sludge as nonhazardous waste, and therefore, they did not assign EPA hazardous waste numbers to this waste. Based on a review of available AK documentation to identify chemical usage and potentially hazardous materials that may have been introduced into the waste stream, and MSDS information compiled for commercial products used during decommissioning, this waste stream will remain nonhazardous (Reference M011). Therefore, EPA hazardous waste numbers are not assigned to waste stream OR-NFS-CH-HOM-B in accordance with RCRA.

One sample of the first batch of groundwater pumped from the excavation site to the treatment tank prior to treatment will be collected. This will be performed prior to any addition of treatment chemicals, therefore providing a representative sample of the groundwater that was pumped from the excavation site. NFS will also collect one core sample from the first drum of groundwater treatment sludge. The groundwater and sludge samples will be analyzed for metals, volatile organic constituents, semivolatile organic constituents, and PCBs. The groundwater will also be analyzed for pH and flashpoint (Reference P1372).

8.4.3.1 F-Listed Constituents

Waste stream OR-NFS-CH-HOM-B is not an F-listed hazardous waste because the groundwater treatment sludge was not derived from the treatment of hazardous wastes from non-specific sources as listed in 40 CFR Part 261, Subpart D (40 CFR 261.31) (Reference 13).

Products used during decommissioning did not contain listed solvents (Reference M011). The only listed solvents identified in the MOX fuel production process were methylene chloride and trichlorotrifluoroethane contained in a binder material; however, these solvents do not meet the definition of an F-listed waste (References C142, P273).

The groundwater and groundwater treatment sludge will be sampled and analyzed for volatile organics (Reference P1372). Waste stream OR-NFS-CH-HOM-B will remain nonhazardous waste until these sampling results are available and can be evaluated. This section will be revised once these data are available.

8.4.3.2 Toxicity Characterisitic Metals

Waste stream OR-NFS-CH-HOM-B does not exhibit the characteristic of toxicity for metal compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24) (Reference 13).

Toxicity characteristic metal constituents were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic metal constituents (Reference M011). The groundwater and groundwater treatment sludge will be sampled and analyzed for metals (Reference P1372). The results of the analysis will be included in this section when they are available.

8.4.3.3 Toxicity Characterisitic Organics

Waste stream OR-NFS-CH-HOM-B does not exhibit the characteristic of toxicity for organic compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24) (Reference 13).

Toxicity characteristic organic compounds were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic organic compounds (Reference M011). The groundwater and groundwater treatment sludge will be sampled and analyzed for volatile and semivolatile organics (Reference P1372). The results of the analysis will be included in this section when they are available.

8.4.3.4 U-, P-, and K-Listed Wastes

Waste stream OR-NFS-CH-HOM-B does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33) (Reference 13). Based on the AK documentation reviewed, U- and P-listed compounds were not used during MOX production or facility decommissioning (References M011, P273). Based on the AK documentation reviewed, beryllium was not used by NFS (Reference C210). Therefore, this waste stream is not a P015-listed waste, and beryllium will not be present in amounts greater than one percent by weight of the waste in each drum. Therefore, U-and P-listed EPA hazardous waste numbers, including U134 (hydrofluoric acid), are not assigned to this waste stream.

The material in waste stream OR-NFS-CH-HOM-B is not a hazardous waste from any of the sources specified in 40 CFR 261.32 (Reference 13). Waste stream OR-NFS-CH-HOM-B is therefore not assigned a K-listed hazardous waste number.

8.4.3.5 Ignitables, Corrosives, and Reactives

Ignitability

This waste stream does not meet the definition of ignitability as defined in 40 CFR 261.21 (Reference 13). The waste is sludge produced from treatment of groundwater which will not be ignitable. The waste is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. The waste is not an ignitable compressed gas or an oxidizer (References P1399, P1401). Waste stream OR-NFS-CH-HOM-B is therefore not ignitable (D001).

Corrosivity

This waste stream does not meet the definition of corrosivity as defined in 40 CFR 261.22 (Reference 13). The waste is sludge produced from treatment of groundwater which will not be corrosive (References P1399, P1401). Waste stream OR-NFS-CH-HOM-B is therefore not corrosive (D002).

Reactivity

This waste stream does not meet the definition of reactivity as defined in 40 CFR 261.23 (Reference 13). The waste is sludge produced from treatment of groundwater. The waste is stable, will not undergo violent chemical change, and will not detonate. The waste will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The waste does not contain explosive materials, nor is it capable of detonation or explosive reaction. The waste does not contain reactive cyanide or sulfide compounds (References P1399, P1401). Waste stream OR-NFS-CH-HOM-B is therefore not reactive (D003).

8.4.3.6 Polychlorinated Biphenyls

This waste stream does not contain PCBs greater than 50 ppm, and therefore, is not regulated as a TSCA waste under 40 CFR 761 (Reference 14). The waste is sludge produced from treatment of groundwater, and therefore, is not expected to contain PCBs. The groundwater and groundwater treatment sludge will be sampled and analyzed for PCBs (Reference P1372). The results of the analysis will be included in this section when they are available.

8.4.4 Prohibited Items

An organic polymer absorbent is added to the sludge, and a pneumatic drill with an auger attachment is used to thoroughly mix the sludge and absorbent. A core sample is obtained from each drum, and the paint filter test is performed to ensure liquid does not drain from the sludge. If the paint filter test fails, additional absorbent is mixed into the sludge with the auger and the paint filter test is repeated (References P1399, P1401). Therefore, this waste stream is not expected to contain prohibited quantities of observable liquid. However, if RTR identifies prohibited quantities of liquids, the drums will be opened and absorbent (e.g., Nochar organic polymer) will be added.

Certified RTR is performed by CCP to ensure the waste does not contain prohibited items in accordance with the WIPP-WAC and WIPP-WAP.

8.5 Waste Packaging

The groundwater treatment sludge is packaged in DOT specification 7A Type A 55-gallon drums. Each drum contains a filtered polyethylene liner bag and a 90-mil rigid liner inside the liner bag. The sludge is loaded directly into the rigid liner, and absorbent is added to the sludge and thoroughly mixed into the sludge. Three to four inches of additional absorbent is added to the top of the waste. Rigid liner lids are not used. The liner bag is twisted, a plastic cable tie is wrapped around the twisted section and tightened, and tape is wrapped around the twisted section (References C321, P1399, P1401). Hydrogen diffusion rate testing of cable tie wraps indicates that they are an acceptable closure method (References 11, P276).

8.5.1 Filter Vents

NFS TRU waste drums are fitted with approved filter vents (Reference P1401).

8.5.2 Layers of Confinement

This waste has one layer of confinement which is the filtered polyethylene liner bag (Reference P1401).

9.0 CONTAINER SPECIFIC INFORMATION

For the decommissioning waste generated in the early-1990s during the initial decommissioning phase, several forms were filled out, including the NFS TRU Waste Data Package Form and the ORNL UCN-2822 form. For the waste generated during the second decommissioning phase, NFS completed a Radwaste Package Certification Record, a Drum Content Log, and a CH-TRU ORNL UCN-2109 form. For the waste generated during the final decommissioning phase, NFS completed a Waste Container Packaging Form. The types of information included on these forms is as follows:

NFS TRU Waste Data Package Form

- Container number
- Date packaged
- Gross and tare weights
- Physical description
- Iron content & Organic content
- Radiological data (e.g., FGE, plutonium equivalent curies)
- Hazardous constituents

ORNL Form UCN-2822

- Container number
- Origin of waste
- Brief description of waste (e.g., concrete)
- Date
- Container type

NFS Radwaste Package Certification Record

- Container number
- Generation location
- Container type
- Package date
- Waste description code (e.g., M = metals, P = plastics)
- Prohibited materials
- Hazardous waste listing

NFS Drum Content Log

- Item number
- Waste description (for each item in drum)
- Date

ORNL Form UCN-2109

- Container number
- Generator
- Waste description
- Origin date
- Prohibited items
- Radiological data

NFS Waste Container Packaging Form

- Container number
- Packaging date
- Container type
- Inner packaging configuration
- Drum weight
- Fill percentage
- Summary category group
- Waste description
- Waste material parameter weight percentages
- Radiological properties

In accordance with procedure CCP-TP-005 (Reference 1), a CCP Waste Containers List (Attachment 8 of the procedure) is completed and maintained as a quality record for waste tracking purposes. Information tracked includes container identification number, waste stream number, and the closure date for each container.

10.0 REFERENCES

1. CCP-TP-005, *CCP Acceptable Knowledge Documentation,* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

2. *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan*, New Mexico Environment Department, Santa Fe, New Mexico, Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

3. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan,* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

4. DOE/LLW-217, *DOE Waste Treatability Group Guidance*, Idaho Falls, Idaho, INEL-Lockheed Idaho Technologies

5. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, Carlsbad, New Mexico, U.S. Department of Energy

6. Public Law 102-579, *The Waste Isolation Pilot Plant Land Withdrawal Act,* October 30, 1992 as amended by Public Law 104-201, September 23, 1996

7. 42 U.S.C 10101, *Nuclear Waste Policy Act of 1982*

8. CCP-PO-002, *CCP Transuranic Waste Certification Plan,* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

9. DOE/TRU-12-3425, *Annual Transuranic Waste Inventory Report – 2012*

10. Environmental Protection Agency EnviroMapper for Envirofacts, URL: http://134.67.99.122/enviro/emef.asp. Last updated on October 31, 2005. Retrieved August 28, 2007

11. *CH-TRU Payload Appendices*, Waste Isolation Pilot Plant

12. CCP-AK-ORNL-002, *Central Characterization Program Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Radiochemical Engineering Development Center Contact-Handled Transuranic Waste, Waste Stream: OR-REDC-CH-HET*

13. 40 CFR Part 261, *Identification and Listing of Hazardous Waste*, U.S. EPA

14. 40 CFR Part 761, *Polychlorinated Biphenyls [PCBs] Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions,* U.S. EPA

15. CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*, Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

16. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC),* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

17. DOE M 435.1-1, *Radioactive Waste Management Manual,* U.S. Department of Energy

11.0 AK SOURCE DOCUMENTS

Tracking Number	Title
C099	Letter to Harold Johnson, CBFO DOE re: KAPL-NFS Transuranic Waste Background Information
C100	Interview with Richard Booth and faxed defense and waste information for NFS, Erwin, TN TRU waste
C119	Removal of Contaminated Pipe, Building 234 Area B, Memo to Ron Mitchell, Letter of Authorization (LOA)
C120	Removal of Contaminated Piping, Building 234, Memo to Larry Burleson, Letter of Authorization (LAO)
C121	DVRF Bale Packaging Glovebox Removal, Memo to Ron Mitchell
C122	Building 234 Characterization Results, Memo to Heather Little
C125	Cleaning and Surveying the DVRF Shear Baler for PCBs, Memo to Building 234 Supervision
C126	Waste Packaging of the DVRF Decon Cell Perma-Con Structure, Memo to Richard A. Moore
C127	Size Reduction of the NDA Station 2 Glovebox In the DVRF Decontamination Cell, Memo to Ron Mitchell and Rick Leitner
C129	Size Reduction Process Ductwork within the Decontamination Cell, DVRF, Memo to Ron Mitchell and Rick Leitner
C130	Cleanout of DVRF Bale Packaging Glovebox, Memo to Ron Mitchell and Rick Leitner
C142	Legal Analysis regarding Solvent Binder Used to Make Fuel
C143	Memo to F. J. Schultz re: NFS Project Update from the WEAF
C144	Memo to Distribution re: Experience in Receipt and Inspection of Waste Shipments from Nuclear Fuel Services, Inc.
C145	Memo to Distribution re: Nuclear Fuel Services, In. (NFS) Background Information
C146	Paper from EPA website: Waste Minimization Assessment for a Manufacturer Producing Printed Circuit Boards
C147	Retrieved from EPA website: Consumer Product links for Mercury
C200	Internal Correspondence to M.W. Tull subject: On the Use of Rad-Sorb in NFS TRU-Waste Drums
C201	Letter to Mr. Bill Reynolds, EcoTek from Terry Wickland, Product Engineer regarding Seal for 16 gauge DOT 17H stainless steel drum lid
C202	Letter from Scott A. Toler to L.C.M. Roddeye regarding formal request for variance from Section 4.5.5 of the ORNL/NFS: NFS Waste Parameter Verification Program
C203	Letter to Martin Tull from Robert A. Hunt regarding a picture of the proposed method to "lab pack" bottles of immobilized respirable fines and residual materials

Tracking Number	Title
C204	Letter to Martin W. Tull, Martin Marietta Energy Systems, from Michael L. West, Nuclear Fuel Services, Inc. regarding response to his request for information relating to the discovery of mercury during the decommissioning of Station #15 in Building 234.
C205	Internal Correspondence to Distribution regarding Minutes of November 5, 1991 Meeting with NFS Regarding Process-Line Samples
C206	Numerous Faxes containing handwritten notes (oversight reports) from Paul O. Emerson re: such items as sampling the top of the underground tank, Pu Crew activities, equipment issues, processing of gloveboxes, and information on drums that were packaged.
C209	Internal Correspondence to F.J. Shultz from J.A. Chapman regarding NFS Project Accomplishments for Month of April 1992
C210	Interview re: NFS TRU Waste Shipped to Oak Ridge National Laboratory. Interviewees: Richard Booth, Richard Moore, Bob Hunt, Scott Toller, Marie Moore
C227	Interview with Scott Morie from NFS
C230	E-mail from Brian Oakley to Jeff Harrison, RE: NFS Schedule
C309	Record of Communication Subject: NFS Soil Sampling/Analysis Data Tetrachloroethylene Use
C321	Record of Communication. Subject: Soil and Groundwater Treatment Sludge to be Generated in 2011.
C622	Email from Don Coffey to Jeff Harrison RE: NFS BBA REPACKS NFS0385 A-H
DR001	Discrepancy Resolution re: OR-NFS-CH-HET EPA Hazardous Waste Numbers
DR002	Discrepancy Resolution for OR-NFS-CH-HET re: Radionuclides
DR006	Discrepancy Resolution re: Physical Form of NFS-0116 & NFS-0929
DR010	Discrepancy Resolution re: Incorrect Waste Stream Assignment of Soil Waste Containers
DR013	Discrepancy Resolution re: NFS Soil and Debris EPA Hazardous Waste Numbers
DR015	Discrepancy Resolution re: OR-NFS-CH-HET-A Heterogeneous Debris from NFS
DR022	Discrepancy Resolution re: OR-NFS-CH-SOIL and OR-NFS-CH-HET-A Waste Stream Designation
DR023	Discrepancy Resolution re: NFS0815 and X10C0506069
DR026	Discrepancy Resolution re: Reassignment of NFS815 to OR-NFS-CH-SOIL
DR030	Discrepancy Resolution re: Drum NFS0929
DR031	Discrepancy Resolution re: OR-NFS-CH-HOM-A EPA Hazardous Waste Number Assignment
I022	DOE Order 435.1, Radioactive Waste Management

Tracking Number	Title
I023	Radioactive Waste Management Manual
I043	Implementation Guide for Use with DOE M 435.1-1
I052	Memorandum; Building 234 Shear Baler Characterization Samples
I053	KAPL-TN Waste Profile for NFS Building 234 Soil
I056	Removal of Building 234 Wet Cell Permacon Containment Enclosure
I058	Dismantlement of the West Wet Cell Wall in Building 234
I059	Waste Packaging of Wet Cell Wall in Building 234
I061	Size Reduction of the DVRS Glovebox
I067	Procedure for the Operation of the Versatile Automated Gamma Assay System (VAGAS)
I068	Size Reduction of 4-inch Diameter Duct Section in Area C
M003	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork for Waste Stored at ORNL (container paperwork)
M007	Internal Correspondence and the Environmental Assessment for the Receipt and Storage at ORNL, of Transuranic Waste, Mixed Transuranic Waste, and Mixed Oxide Waste from Nuclear Fuels and the Environmental Assessment for Disposition of Transuranic Waste
M008	Fax from John E. Kirkpatrick to Robert C. Mason on 01/16/1991 and the PuO2 + UO2 (mixed oxide) fuel production flow chart for Pellet Production, Rod/Assembly Fabrication, Scrap Dissolution/Recovery
M011	MSDS (Material Safety Data Sheets) for Products used at NFS
M012	EM Waste Database Query - Container Information; Waste Description; Isotopes
M013	EM Waste Database Query - NFS Box Daughter and Repack Drums: Container; Waste Description; Isotopes
M016	Incoming Container Travelers for NFS Waste - VE Data
M017	NFS NDA Data from Foster Wheeler (by container)
M018	NFS Radiography (NDE) Data from Foster Wheeler (by container)
M019	NFS VE Data from Foster Wheeler (by container)
M020	NFS HSG Data from Foster Wheeler (by container)
M021	Defense Determination Approval for ORNL/NFS-HD-001, Heterogeneous Debris - NFS
M050	Photos of the Site

Tracking Number	Title
M051	Fax from Bob Hunt from Martin Tull transmitting drawing for EcoTek - The Hunt 55 Gallon Poly. Insert
M052	Account Book No. S149 - DVRF Decommissioning and Volume Reduction Facility
M053	Letter from L.C.M. Roddye to R.L. Booth regarding Nuclear Fuel Services, Inc. - Contract DE-SCOT-86ID12630 - Closure of Nonconformance Reports NCR-X-94-WMRAD-0011, NCR-X-94-WMRAD-0012, NCR-X-94-WMRAD-0013, NCR-X-94-WMRAD-0014 AND NCR-X-94-WMRAD-0015
M054	Internal Correspondence to Distribution from D.W. Turner regarding Information Concerning NFS D&D Operations
M058	(Handwritten Document) Methods for: Measuring Activity in Baled Waste; Flowsheet for Immobilizing Fines; Assigning Values to Soil; Flowsheet for Packaging and Measuring Raschig Rings
M059	Memo transmitting NCR-X-WMRAD-0015 for Liquid in Liners
M060	Correction Actions to Prevent Recurrence of NCR-X-94-WMRAD-0011
M061	Internal Correspondence to Distribution from J.A. Chapman regarding An Evaluation of NFS Isotopic Estimates by Gamma-ray and Alpha-particle Spectroscopy
M062	NFS Data Set No. 2 PCB Reanalysis of Gasket and K1 Samples
M063	NFS Data Sheet No. 3 PCB Analysis of Fresh Gasket and Pall Filter Samples and Cadmium in Pall Filter TCLP Leachate
M064	Analysis Results for Process Line Samples from Nuclear Fuel Services, Inc. and NFS Sample Set No. 3
M065	WEAF Data for NFS Drums (by container); WEAF Waste Acceptance Report; NFS Storage Project (by container)
M066	Surveillance: Source Surveillance at Scientific Ecology Group, Oak Ridge, TN
M067	Surveillance: Source surveillance for Contact-Handled Transuranic and Mixed Oxide Wastes
M068	Review of WEAF RTR Video Tapes
M075	TWPC Contact Handled Waste Repackaging Data Forms for NFS Waste (container paperwork)
M076	Evaluations of Additional Containers for Waste Stream OR-NFS-CH-HET-A (drum additions)
M126	RTR Video Tapes and DVDs from the WEAF Facility for Oak Ridge Waste
M128	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL, dated September 5, 2008
M129	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET, dated 9/8/2008
M130	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET, dated 09/15/2008

Tracking Number	Title
M131	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 11/30/2007
M132	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL dated 9/24/2008
M133	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 09/24/2008
M198	eMWaste Query from ORNL Dated 08/30/2010
M202	Review of WEAF RTR Videos for NFS Immobilized Liquids and Fines
M206	Wet Cell Excavation TRU Waste Shipping Schedule
M207	NFS Waste Container Packaging Forms
M208	Evaluation of Drums for Waste Stream OR-NFS-CH-SOIL from NFS Final Decommissioning Phase
M209	Evaluation of Drums for Waste Stream OR-NFS-CH-HOM-B from NFS Final Decommissioning Phase
M210	TRU Project Waste Processing Facility Job Recipe. Subject: Soil-like Waste Remediation
M211	Evaluation of NFS Groundwater Data
M213	Duratek buys waste processing company
M214	EnergySolutions OKs deal to buy Duratek
M215	EnergySolutions Locations
M216	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET-A
M217	eMWaste Database Query from ORNL Dated 01/03/2013
M235	Evaluation of Data from Source Document M064
P014	Inventory of ORNL Remedial Action Sites: 11. Research Laboratories
P212	Lattice Experiments with Simulated Burned-Up Fuel for D2O Power Reactors
P218	Oak Ridge National Laboratory/Nuclear Fuel Services, Inc. NFS Waste Parameter Verification Program
P248	Structural Assessment of Building 234 Prepared for NFS, 1205 Banner Hill Road, Erwin, TN 37650
P251	Box Breakdown Area Operations
P252	Glove Box Operations
P253	Drum Bag In/Bag Out and Glove Ports

Tracking Number	Title
P254	Contact Handled Waste Repackaging
P255	Contact handled Waste Acceptance Criteria
P256	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis
P267	Nuclear Fuel Services Waste Acceptance and Storage Procedure
P268	ORNL WAC for Contact Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services INC.
P269	ORNL Waste Acceptance Criteria for Transuranic Waste from the Nuclear Fuel Services, Inc.; ORNL WAC for Contact-Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services, Inc.
P272	Oak Ridge National Laboratory Waste Management Plan
P273	Nuclear Fuel Services, Inc., Waste Certification Plan for Transuranic Waste
P274	Segregation and Immobilization of Particulate Fines
P276	Determination of H2 Diffusion Rates through Various Closures on TRU Waste Bag-Out Bags
P283	Plutonium Facilities Decommissioning Project Plan Condition Addendum
P300	Operation of the Decontamination and Volume Reduction Facility
P301	Wet Cell
P303	Removal of Exhaust Systems
P304	Removal of Asbestos-Bearing Materials
P306	Excavation of 110 Lab Tank
P312	Maintenance for Plutonium Decommissioning
P315	Wet Cell Soil Excavation and Mixing
P316	Investigation of DOE-ORNL Nonconformance Reports for Building 234 Plutonium Shipments (Surface Contamination, Free Standing Liquids, Missing Liner Lid)
P317	Packaging for Shipment to Processing, Storage, or Burial
P319	Preparation of Gloveboxes for Decontamination in the DVRF
P320	Bag-Out and Glove Change
P321	Determination of Plutonium Isotopics for Building 110 and 234
P323	Status of Former Mixed Oxide Fuel Fabrication Facility

Tracking Number	Title
P432	TRU Waste Processing Center Document Safety Analysis
P582	PCB Decontamination
P1116	EnergX TRU Waste Processing Center Procedure: Absorbing Liquids
P1370	Evaluation of Techniques for Conditioning and Packaging Plutonium Contaminated Soil
P1371	Procedure for Removal and Decontamination of Utility and Process Lines and Systems
P1372	Building 234 Soil, Groundwater, and Groundwater Sludge Sampling and Analysis Plan (NFS)
P1373	Project Management Plan for Wet Cell Soil Excavation (NFS)
P1374	Characterization of Building 234 Waste (NFS)
P1375	North Site Characterization Report for Nuclear Fuel Services, Erwin, Tennessee
P1398	TRU Waste Processing Center, High Density Waste Item Repackaging
P1399	Operating Procedure for the 234 Excavation Facility Groundwater Pretreatment System
P1400	Operating Procedure for Soil Excavation, Processing and Packaging for the 234 Excavation Facility
P1401	Waste Packaging for WIPP Disposal
P1402	234 Wet Cell Characterization Summary
P1403	Operation of the ORTEC Mobile Counting System
P1404	Final Report: Solidification Testing for 234 Excavation Facility Decommissioning Project
P1405	Geochemical Survey of the Unaka Mountain Roadless Area, Unicoi County, Tennessee
P1407	TWPC Procedure - Pipe Overpack Container Operations
P1409	Attachment K: Compacted Drum Puck Standing Recipe, Job Recipe Number: OPSJR-STANDING-09
P1413	TRU Waste Compactor Operation
P1414	Radioactive Material Receipt
P1415	Radioactive Material Shipment to CNSI Barnwell, US Ecology Richland, and to Customer
P1416	TRU Waste Receipt and Shipment
U016	A Graphical Workbook for Estimating Important Quantities of NFS Radioactive Waste Constituents
U017	The Intercomparison of NDA Measurements on CH-TRU Waste Between Nuclear Fuel Services, Inc. and Oak Ridge National Laboratory

Tracking Number	Title
U038	ORNL TRU Waste Historical Survey; Volumes 1, 2, and 3—Origins and Characteristics of Remote-Handled Transuranic Wastes (Trabalka report) Plus Appendices
U040	NFS response to "Transuranic Waste Baseline Inventory Report Questionnaire"
U043	Final Report - Waste Characterization of Wastes Generated from D&D Activity; Buildings 110 and 234 on the NFS Site in Erwin, Tennessee
U044	Weston Report: Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations
U050	Action Description Memorandum for Disposition of Transuranic Waste and Plutonium Scrap from Nuclear Fuel Services, Inc.
U051	Return of 55-Gallon Stainless Steel Drums for Addition of Radsorb
U052	Decommissioning Strategy in Today's Environments
U054	Decontamination and Decommissioning of a Plutonium Fabrication Facility
U055	Abstract, Calibration Schemes and Measurement Techniques
U057	An Interim Report on A Time-Series Analysis of the Events Leading up to the Detection of Free-Liquid in NFS Supercompacted Drums
U058	Oak Ridge National Laboratory/Nuclear Fuel Services Inc. NFS Waste Parameter Verification Program
U597	Building 234 Groundwater Design of Experiment (Groundwater Monitoring Data) (NFS)

Figure 1. Nuclear Fuel Services, Inc.

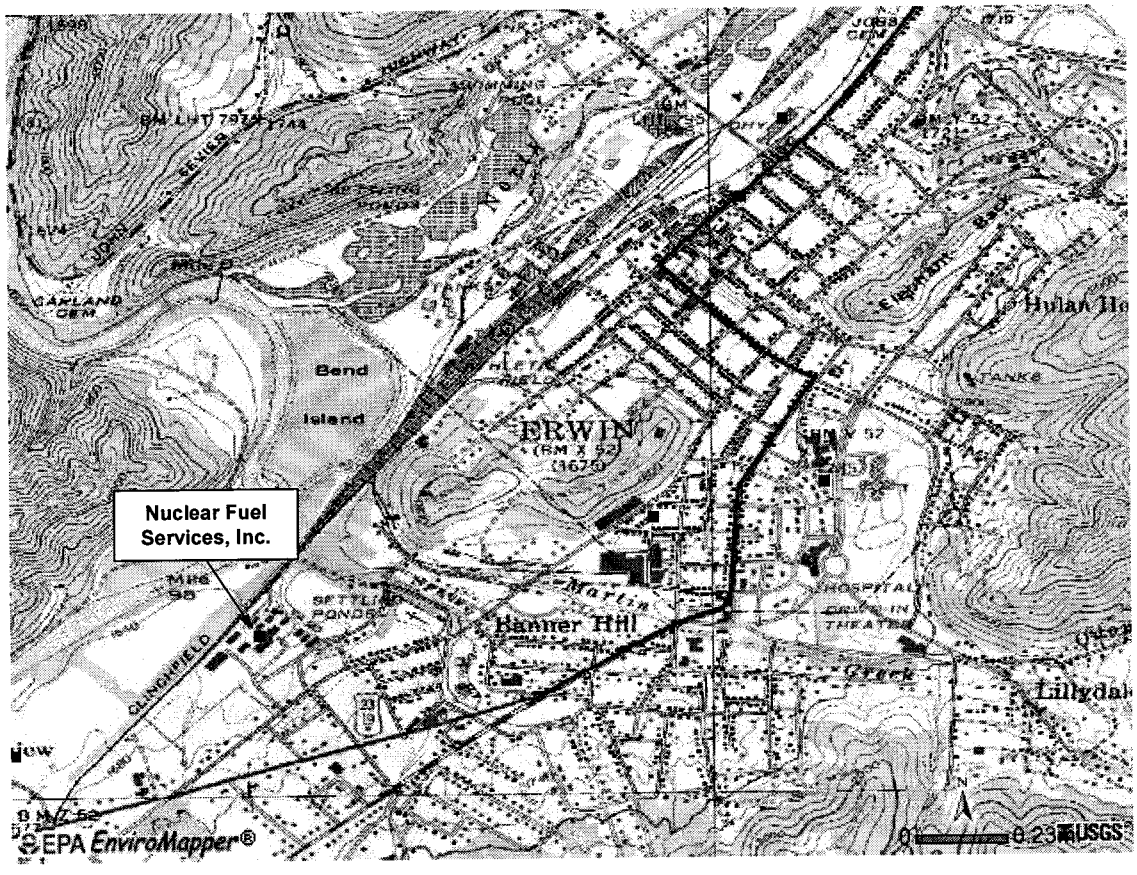


Figure 2. Buildings 234 and 110 at Nuclear Fuel Services, Inc.

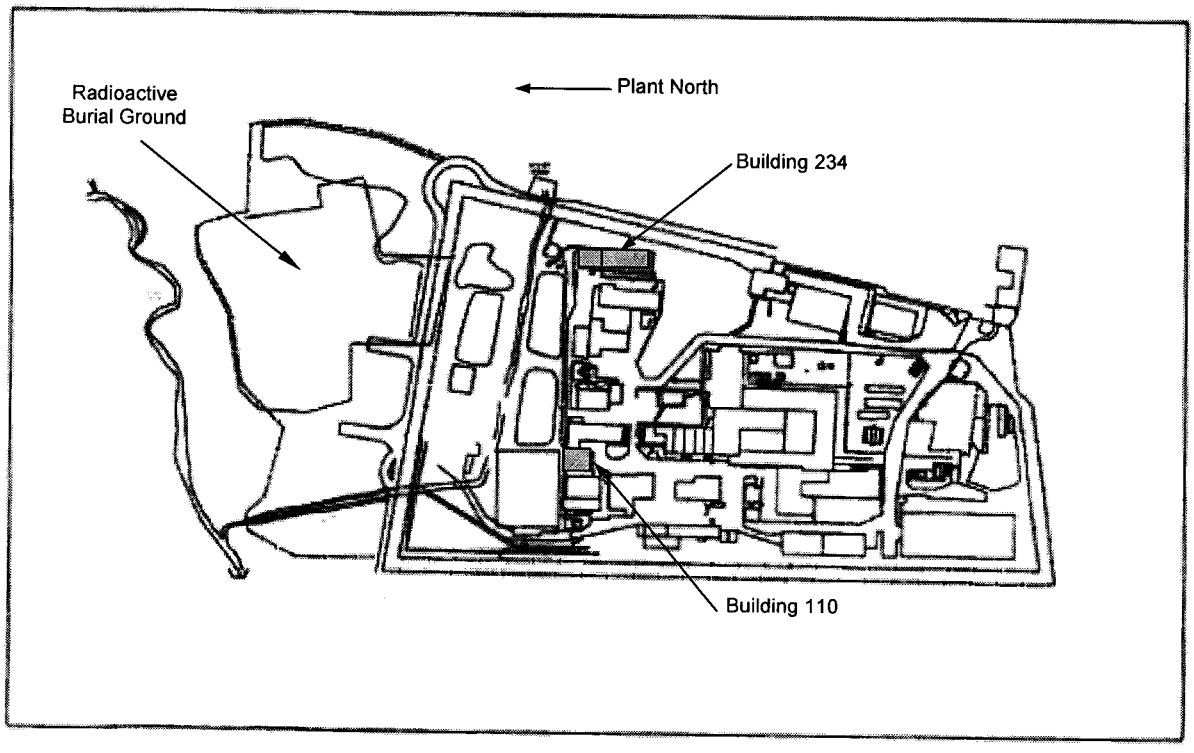


Figure 3. Photograph of Nuclear Fuel Services, Inc.

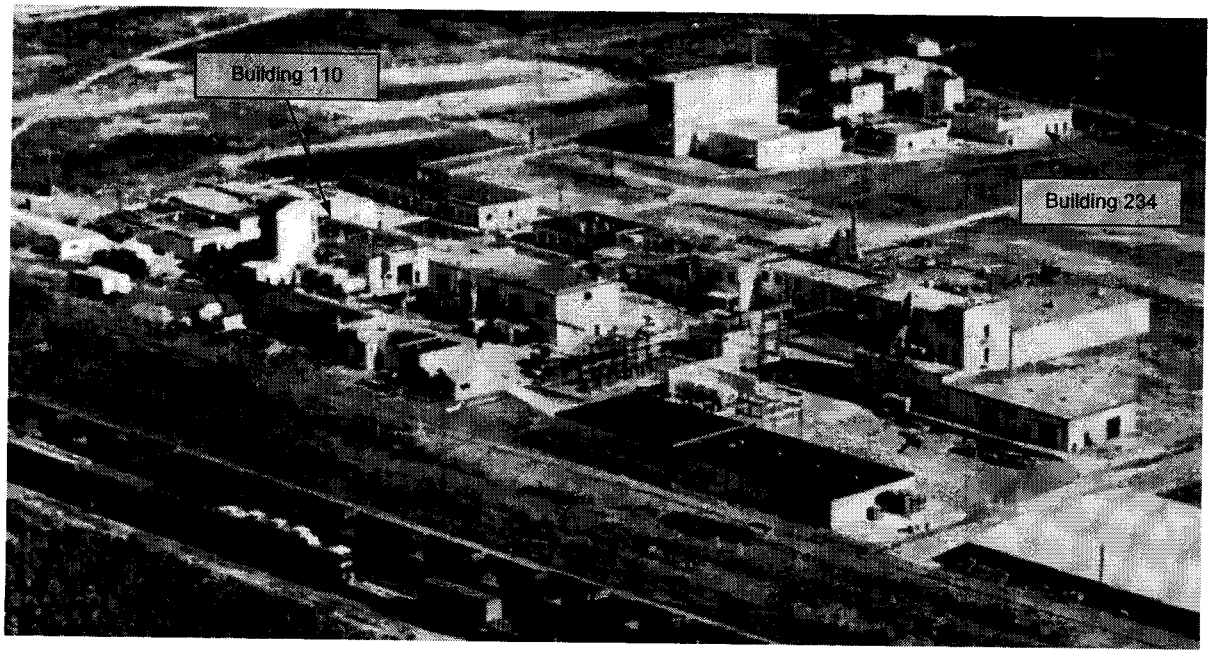


Figure 4. Decontamination and Volume Reduction Facility

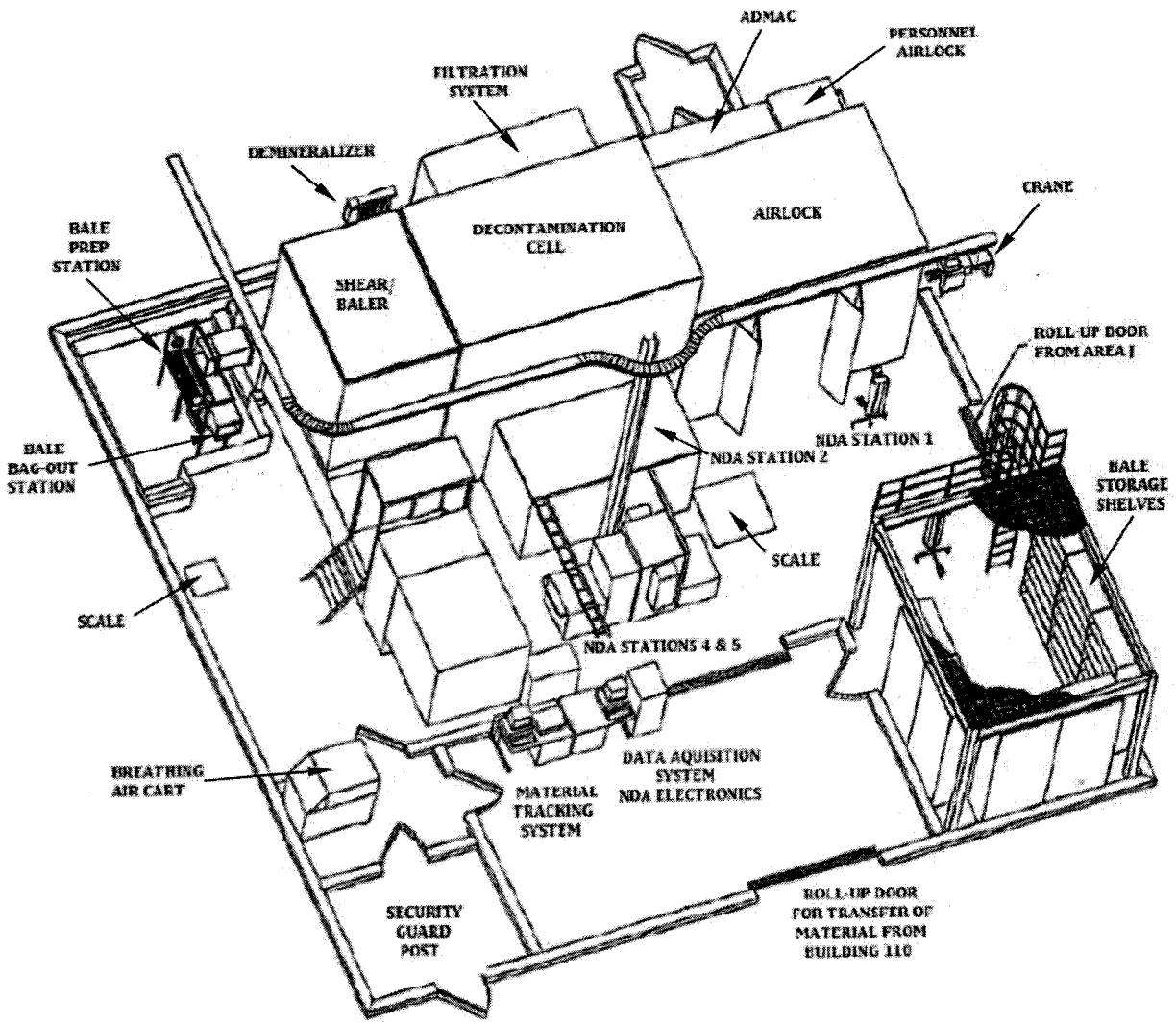


Figure 5. 234 Excavation Facility Layout

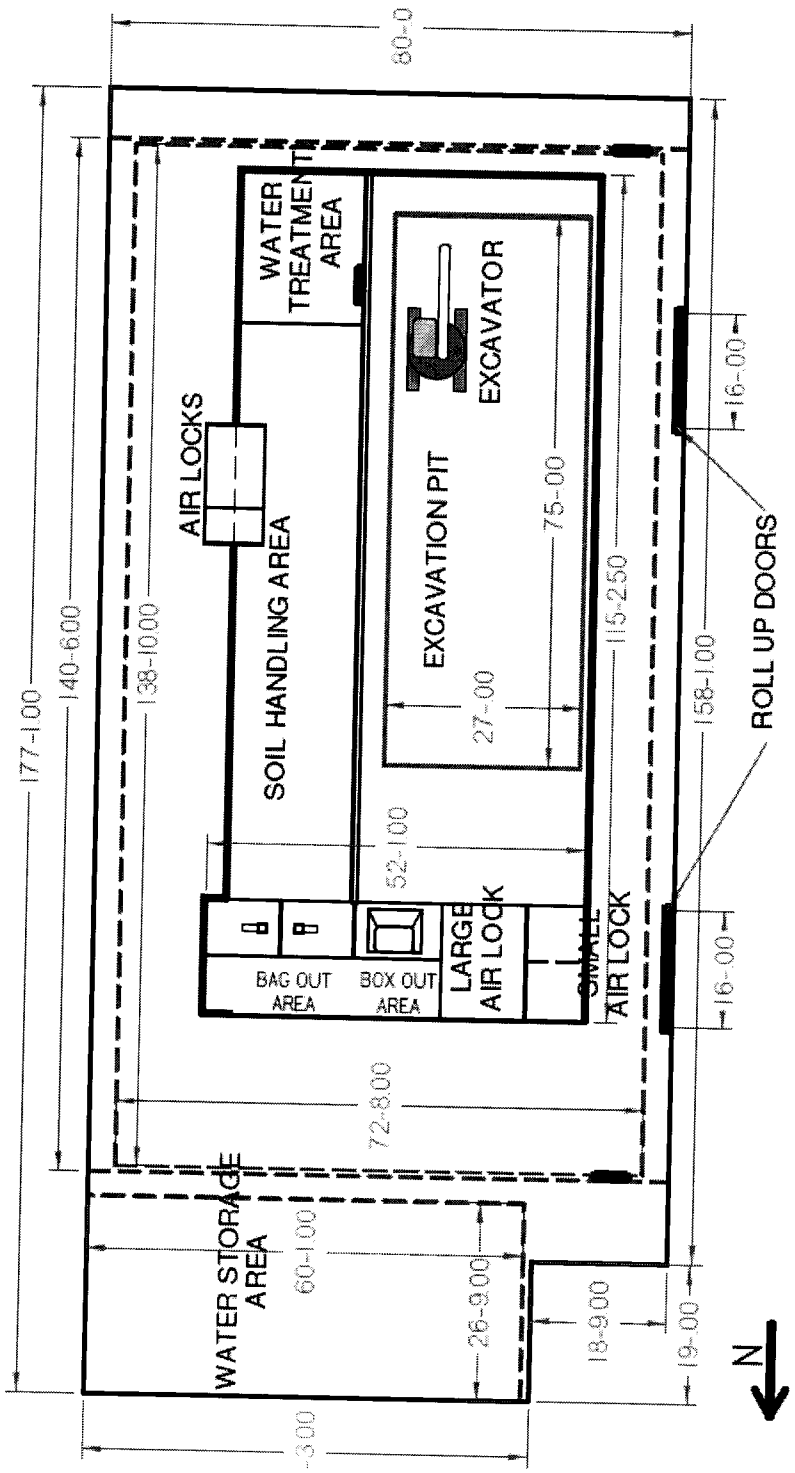


Figure 6. Oak Ridge National Laboratory and Scientific Ecology Group

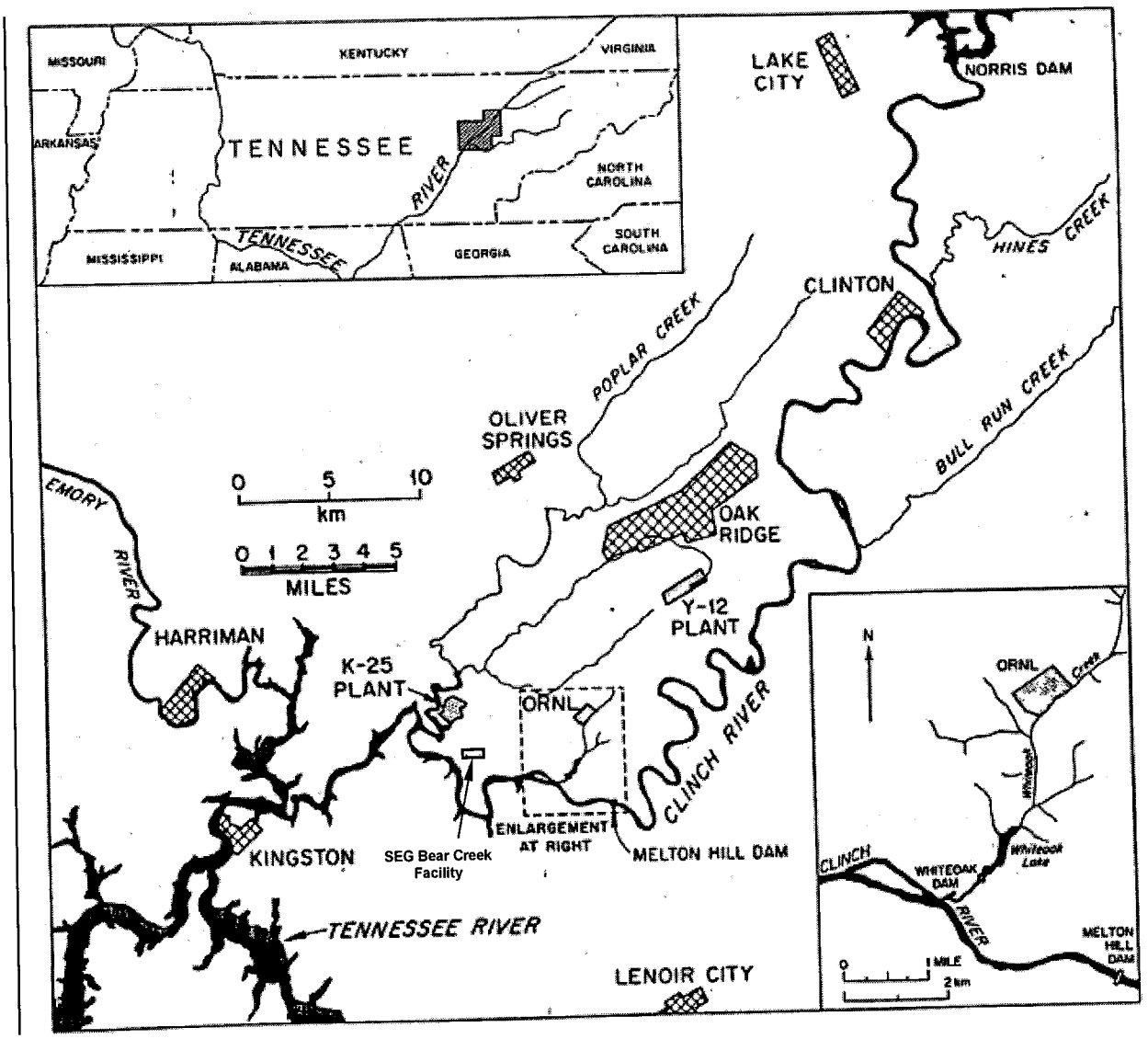


Figure 7. Transuranic Waste Processing Center and ORNL Solid Waste Storage Areas

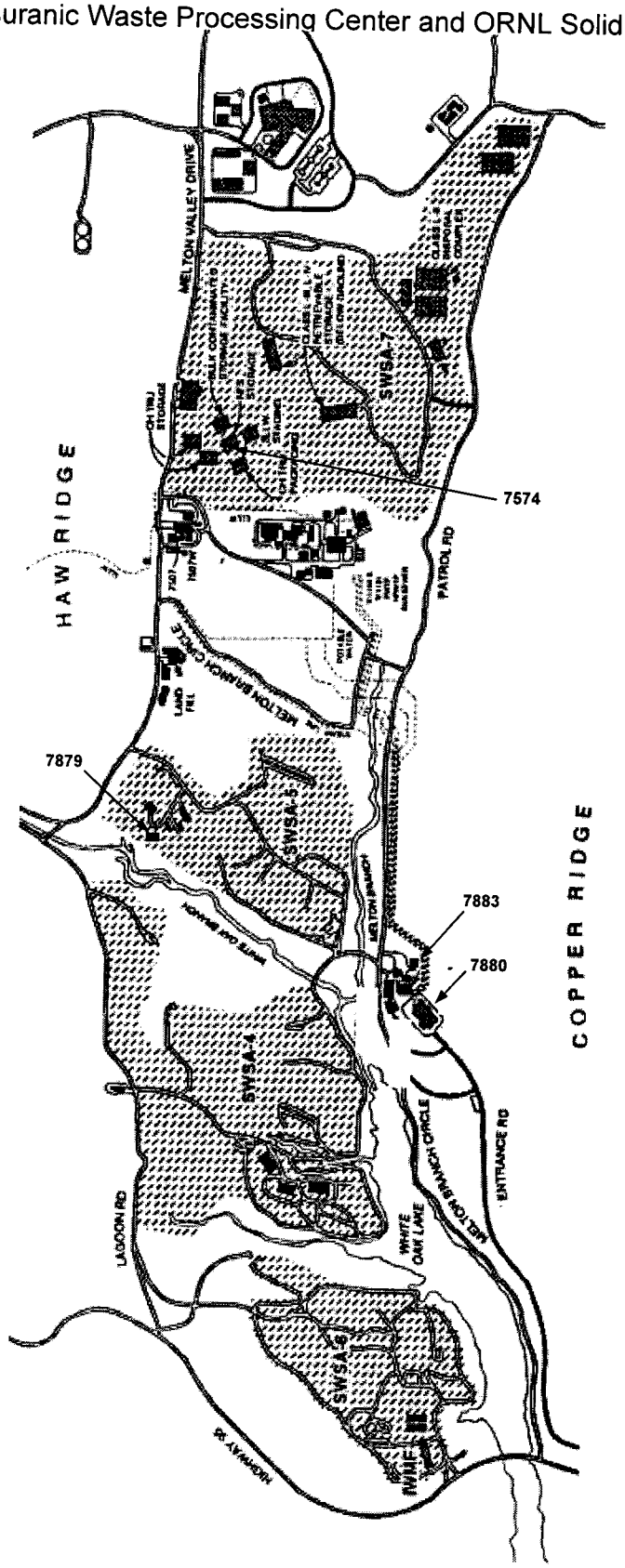


Figure 8. Equipment Decontamination and Volume Reduction

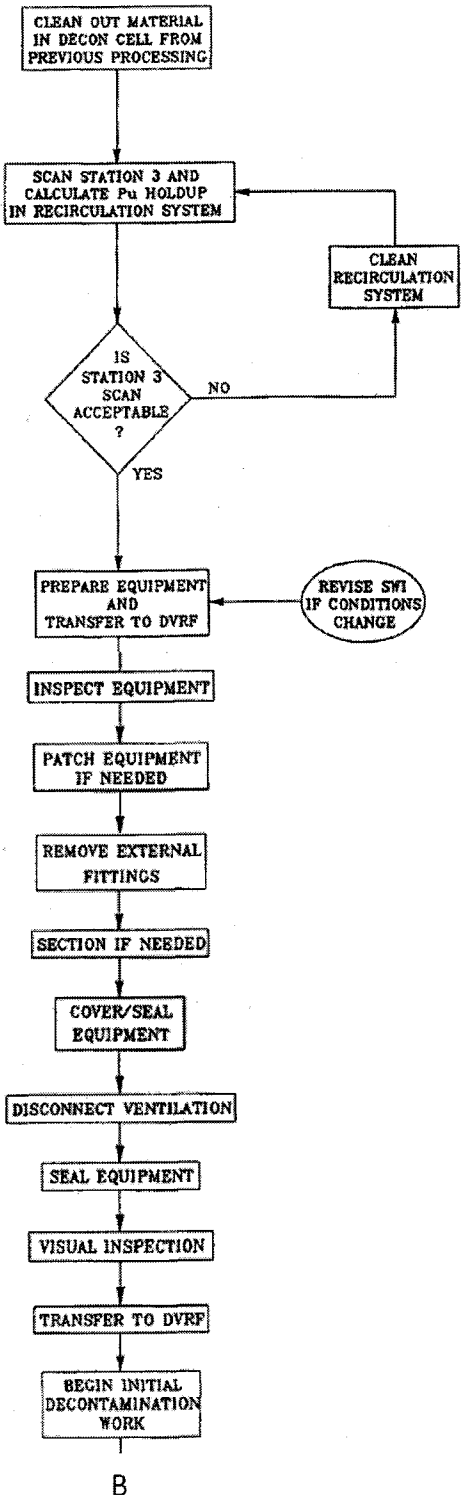


Figure 8. Equipment Decontamination and Volume Reduction (Continued)

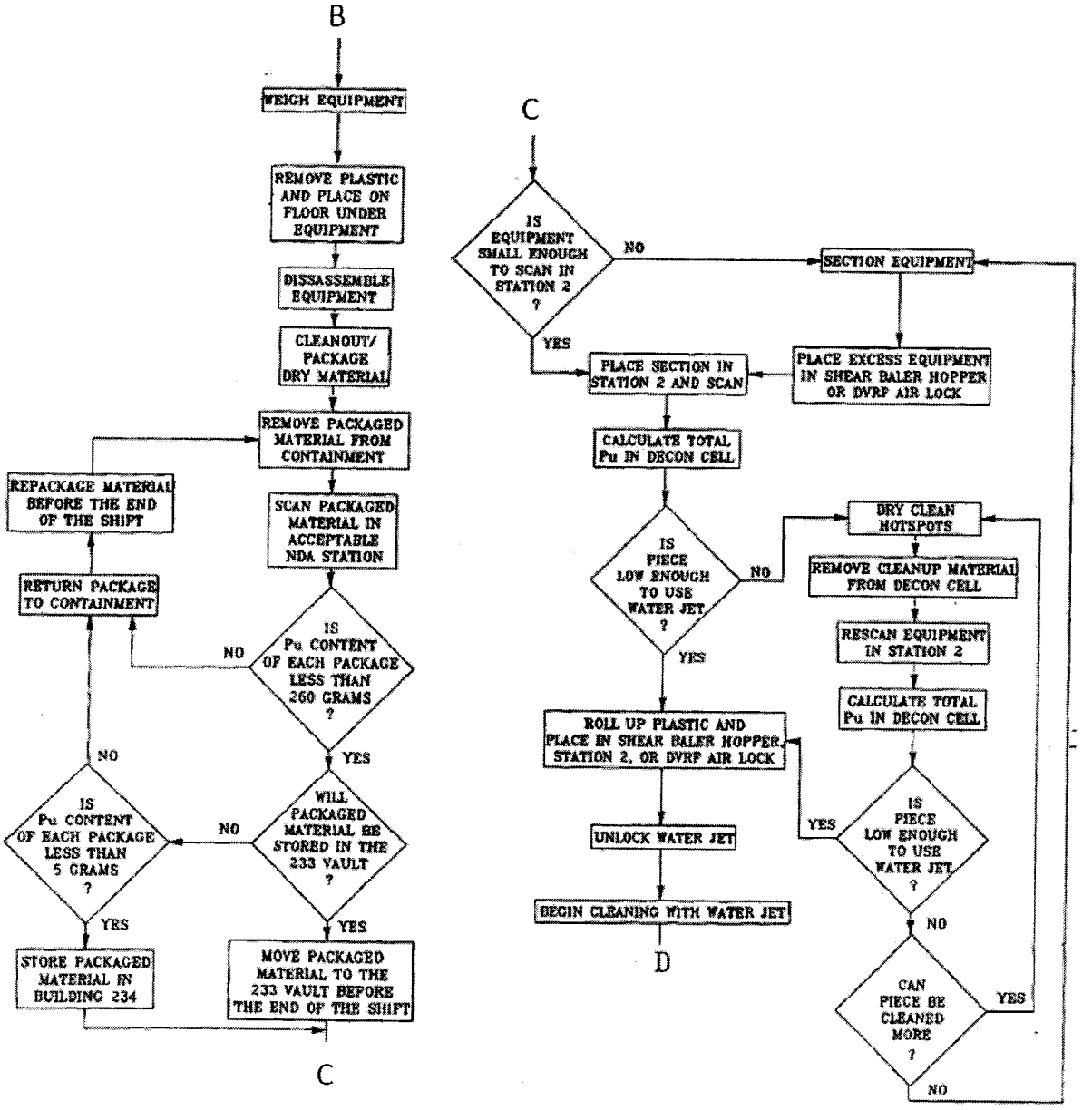


Figure 8. Equipment Decontamination and Volume Reduction (Continued)

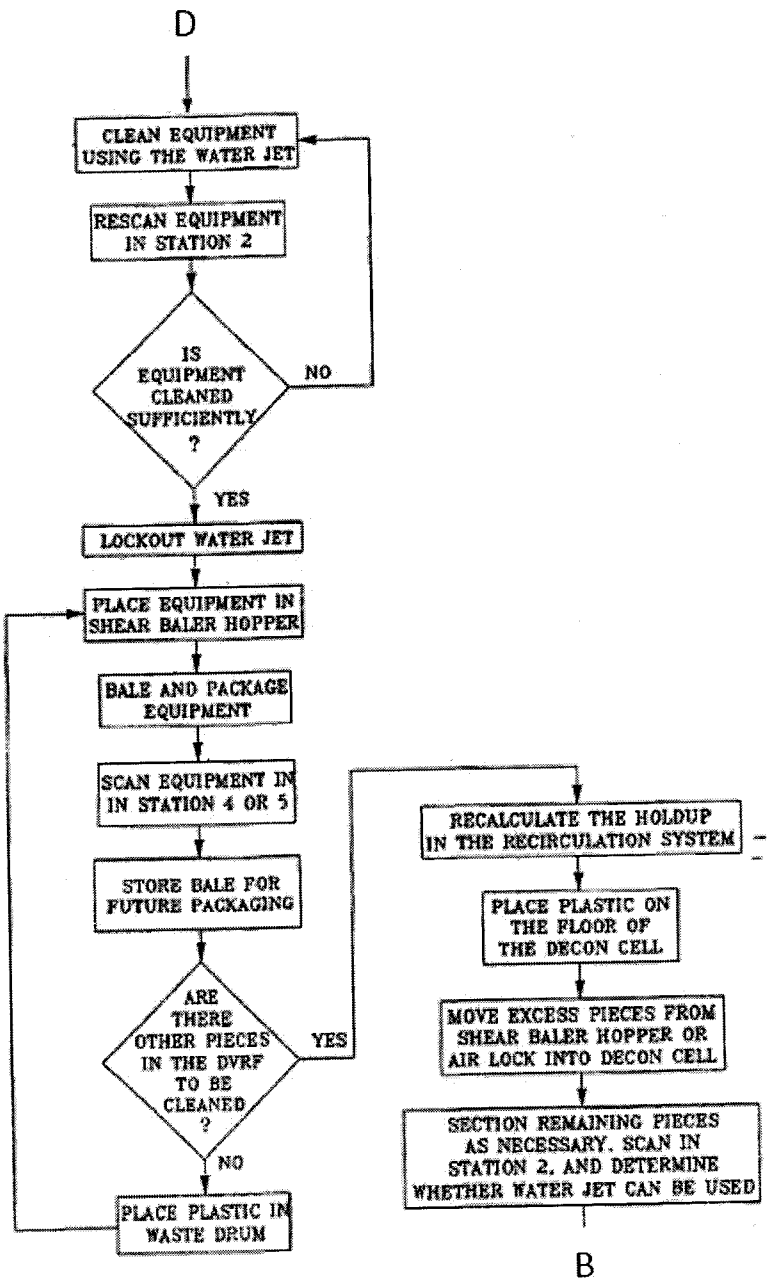


Figure 9. Transuranic Waste Processing Center CH Solid Waste Flow Diagram

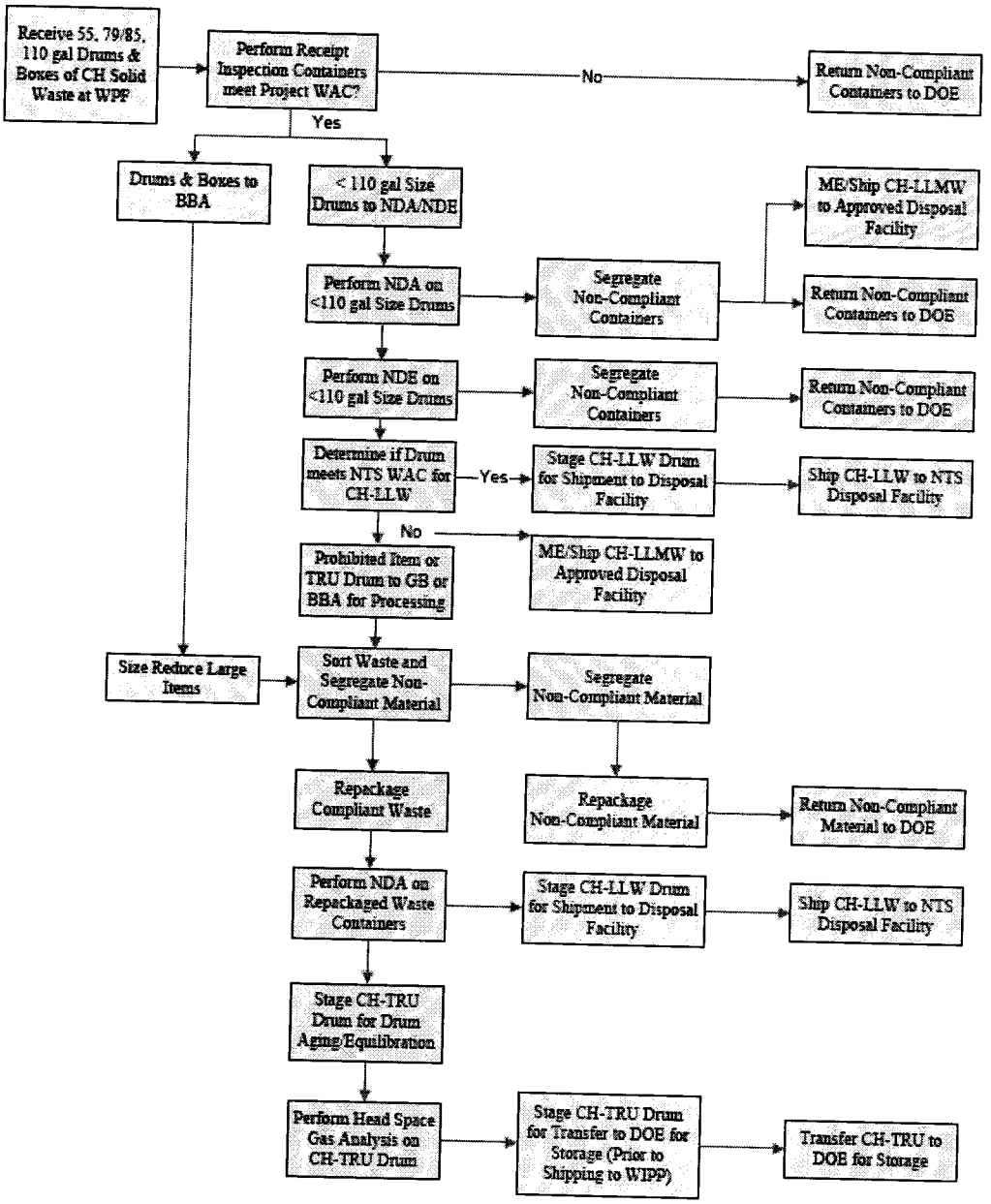
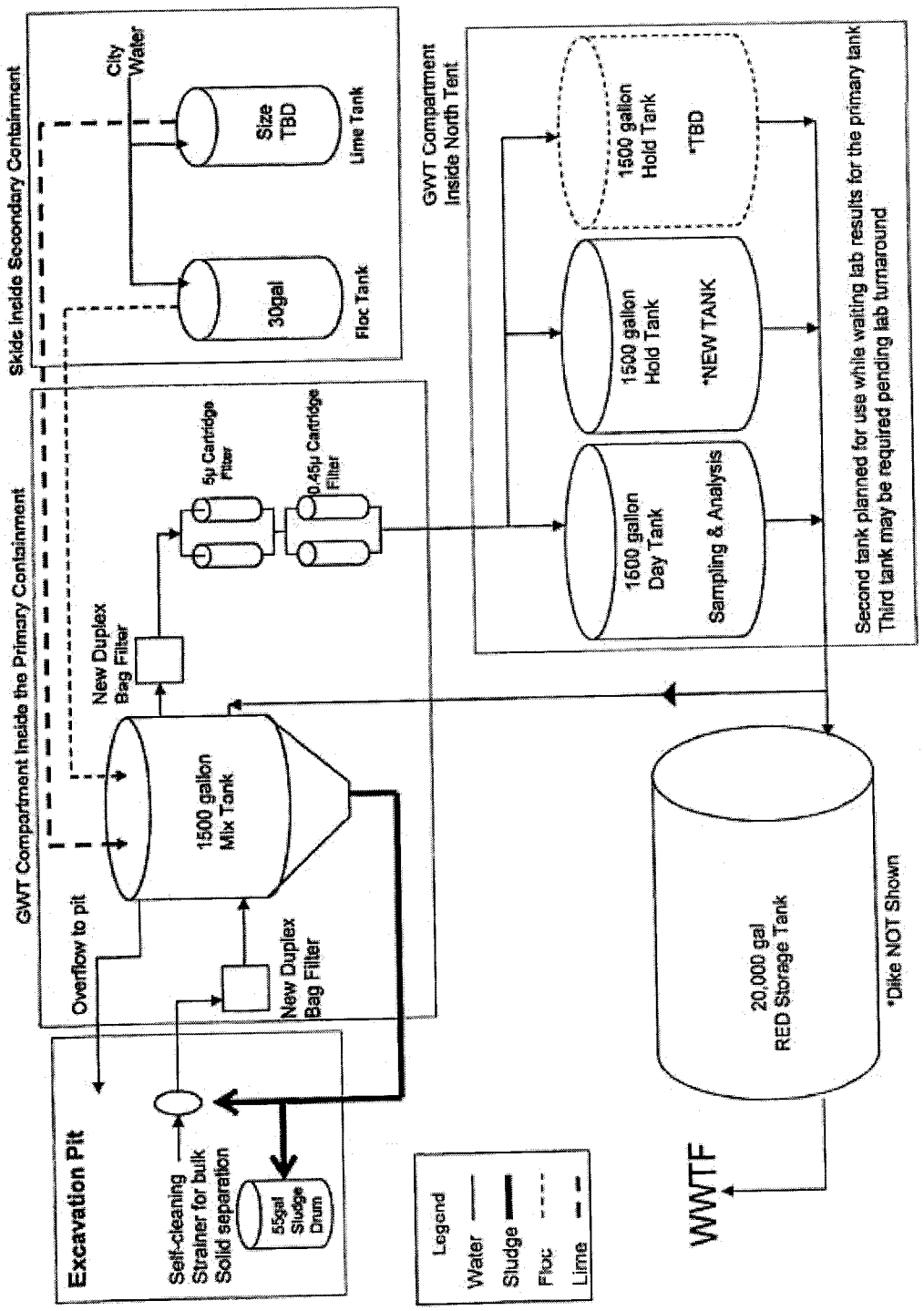


Figure 10. Groundwater Pretreatment System



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CCP-AK-ORNL-500

Central Characterization Program
Acceptable Knowledge Summary Report
For

Oak Ridge National Laboratory
Radiochemical Engineering Development Center
Remote-Handled Transuranic Waste

Waste Stream:
OR-REDC-RH-HET

REVISION 3

January 8, 2014

Irene Joo
Printed Name

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	05/02/2008	Initial issue.
1	10/03/2008	Revised to address freeze file changes and recent discrepancy reports (DR008, DR009, DR600, DR601, and DR602) and address issues identified during Carlsbad Field Office (CBFO) Certification Audit A-08-12 (June 30 – July 2, 2008). Revised to remove Waste Incidental to Processing discussion in Section 5.4.5 (DR009). Expanded polychlorinated biphenyl (PCB) discussion in Section 5.4.4.
2	01/13/2011	Revised to address issues identified During U.S. Environmental Protection Agency (EPA) Tier 1 Inspection No. EPA-ORNL-CCP-RH-SETF-T1-09 (July 8, 2009), update packaging configurations, and address miscellaneous editorial changes. Revised to address permit modification changes in the November 30, 2010 WIPP-WAP.
3	01/08/2014	Revised to format the report consistently with Current revision of CCP-TP-005, *CCP Acceptable Knowledge Documentation*; to incorporate Nuclear Waste Partnership (NWP) transition changes; and incorporate freeze file changes submitted following Revision 2 (CBFO Recertification Audit A-1108) to address NMED observer suggestions.

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LIST OF ACRONYMS AND ABBREVIATIONS

AK	acceptable knowledge
ATWIR	*Annual Transuranic Waste Inventory Report*
CBFO	Carlsbad Field Office
CCP	Central Characterization Program
CFR	Code of Federal Regulations
CH	contact-handled
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DQO	Data Quality Objective
DTC	dose-to-curie
EPA	U.S. Environmental Protection Agency
FFTF	Fast Flux Test Facility
HEPA	High Efficiency Particulate Air
HFIR	High Flux Isotope Reactor
HLW	High-level waste
HWNs	Hazardous Waste Numbers
ISSS	Information Scheduling and Storing System
kg	kilogram
LAA	Limited Access Area
LANL	Los Alamos National Laboratory
LWA	Land Withdrawal Act
LWR	Light Water Reactor
m^3	cubic meters
MCNP	Monte Carlo Neutron-Particle
mrem/hr	millirems per hour
MSDS	Material Safety Data Sheet
NDA	Nondestructive Assay
NDE	Nondestructive Examination
NWPA	*Nuclear Waste Policy Act of 1982*
ORNL	Oak Ridge National Laboratory
PCB	Polychlorinated biphenyl
PPE	Personal Protective Equipment
ppm	parts per million
QA	Quality Assurance
QAO	Quality Assurance Objective
RCRA	Resource Conservation and Recovery Act
RCW	Recirculating Cooling Water
RH	remote-handled
RH TRUCON	RH TRU Waste Content Code
REDC	Radiochemical Engineering Development Center
RIDS	Records Inventory and Disposition Schedule
RTR	real-time radiography
SETF	Solvent Extraction Test Facility

LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

SNF	Spent Nuclear Fuel
SRS	Savannah River Site
TA	Transfer Area
TBD	To Be Determined
TDEC	Tennessee Department of Energy and Conversation
TRU	transuranic
TWPC	Transuranic Waste Processing Center
VE	visual examination
WCPIP	*Remote-Handled TRU Waste Characterization Program Implementation Plan*
WIPP	Waste Isolation Pilot Plant
WIPP-WAC	*Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
WIPP-WAP	*Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan*
WSPS	Waste Stream Profile Sheet

1.0 EXECUTIVE SUMMARY

This Acceptable Knowledge (AK) Summary Report has been prepared for the Central Characterization Project (CCP) for remote-handled (RH) transuranic (TRU) waste generated at the Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee. The waste described in this report was generated in Building 7920 of the Radiochemical Engineering Development Center (REDC) and subsequently repackaged in Building 7880 of the Transuranic Waste Processing Center (TWPC). This report was prepared in accordance with CCP-TP-005, *CCP Acceptable Knowledge Documentation* (Reference 3), to implement the AK requirements of DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan* (WCPIP) (Reference 1); *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan,* (WIPP-WAP) (Reference 2); and DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plan* (WIPP-WAC) (Reference 18).

The WIPP-WAP AK requirements are addressed in CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (Reference 5). The WIPP-WAC AK requirements are addressed in CCP-PO-002, *CCP Transuranic Waste Certification Plan* (Reference 15). Additional, this report provides the AK information required by CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)* (Reference 19).

The CCP is tasked with certification of TRU waste for transportation to and disposal at the Waste Isolation Pilot Plant (WIPP). This report was developed in accordance with CCP-TP-005 (Reference 3), which describes how AK is collected, reviewed, and managed by the CCP. The CCP is responsible for collection, review, and management of AK documentation in accordance with CCP-TP-005, and reviews and approves this AK Summary Report. CCP maintains responsibility for this AK Summary Report and all CCP-TP-005 generated forms and records as quality assurance (QA) records. In addition, CCP maintains a copy of the "historical source documents" as non-QA records.

Waste stream OR-REDC-RH-HET includes RH TRU debris waste originating from the REDC hot cell facility target fabrication and processing, analytical chemistry, and process development activities. This debris is currently stored in concrete casks, boxes, and drums at ORNL. These storage containers are transferred to the TWPC hot cell in the Building 7880 for repackaging and certification. The corresponding contact-handled (CH) debris waste stream OR-REDC-CH-HET is described in CCP-AK-ORNL-002, *Central Characterization Program Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Radiochemical Engineering Development Center Contact-Handled Transuranic Waste, Waste Stream OR REDC-CH-HET* (Reference 12).

This AK Summary Report includes information relating to the mission and process operations of the REDC, waste identification and characterization, waste management,

and TWPC repackaging. This report also includes information regarding the physical form, radiological characteristics, and chemical contaminants of the waste, as well as, prohibited items management.

This report, along with the referenced supporting documentation, provides a, defensible, and auditable record of the AK for an RH debris waste stream resulting from operations conducted in the REDC and repackaged in the TWPC. The references and AK sources used to prepare this report are listed in sections 8.0 and 9.0. The AK sources are referenced within this report by an alphanumeric designator (e.g., C001, DR001, I001, M001, P001, and U001), corresponding to a unique CCP Source Document Tracking Number for this waste stream. This report includes information relating to the facility's history, mission, process operations, and waste management practices. Information contained in this report was obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, interviews with cognizant personnel, and program/process documents (plans, procedures, etc.).

This report and supporting source documentation provide the mandatory waste program and waste stream-specific information required by the WIPP-WAP (Reference 2). This report also compiles data relevant to the applicable U.S. Environmental Protection Agency (EPA) requirements and presents the documentation necessary to satisfy each WCPIP data quality objective (DQO) and quality assurance objective (QAO) for RH TRU waste streams (Reference 1).

2.0 WASTE STREAM IDENTIFICATION SUMMARY

Site Where TRU Waste Was Generated and Stored

Generation and Storage Location:
Oak Ridge National Laboratory
1 Bethel Valley Road
Oak Ridge, TN 37831
U.S. Environmental Protection Agency (EPA) Identification TN1890090003

Facility Where TRU Waste Was Generated

This waste was generated in Building 7920 which is part of the REDC located at the ORNL in Oak Ridge, Tennessee. The waste is transferred to the TWPC hot cell in Building 7880 for repackaging and certification.

Facility Mission

Since 1966, the primary mission of Building 7920 has been the fabrication of target rods containing plutonium, americium, and curium, and to separate and purify heavy actinide elements including Bk-249, Cf-252, Es-253, and Fm-257 isotopes from the irradiated targets. Between 1979 and 1986, some uranium fuel cycle development work was performed in specially designed equipment in one of the Building 7920 hot cells. Since 1991, Building 7920 has also processed Mark-42 target assemblies. Fundamental research, chemical process development, and analytical chemistry are also performed in Building 7920 (refer to section 4.3).

The TWPC serves as the primary ORNL processor of CH and RH wastes originating from containerized RH and CH waste inventories in storage at ORNL; ongoing and future ORNL demolition, decontamination, and remediation operations; future laboratory operations; and existing inventories or wastes received from other regional U.S. Department of Energy (DOE) sites. TRU waste inventories are transferred to the TWPC hot cell in the Building 7880 where RH waste streams are repackaged and certified for WIPP disposal (refer to section 4.3).

Waste Stream:	OR-REDC-RH-HET
Summary Category Group:	S5000
Waste Matrix Code Group:	Heterogeneous Debris
Waste Matrix Code:	S5400, Heterogeneous Debris
RH TRU Waste Content Code (RH TRUCON):	OR 325, OR 321, OR 322

Annual Transuranic Waste Inventory Report (ATWIR) Number(s):

As described in DOE/TRU-13-3425, *Annual Transuranic Waste Inventory Report – 2013* (ATWIR) (Reference 4), waste stream OR-RF-RH-HET is included in ATWIR Waste Stream Identification OR-REDC-RH-HET.

Waste Stream Description:

As described in section 5.4, waste stream OR-REDC-RH-HET is comprised primarily of repackaged organic and inorganic debris waste items. The waste includes cellulosics (paper), plastic, rubber, metal, and glass items. Specific waste items present in the storage container inventory include the following:

- Cellulosic waste consists of paper, cotton, cloth, and wood items, including wipes, swabs, bags, towels, rags, protective clothing, gloves, rope, string, cardboard, brushes, blotter paper, and filter media.
- Plastic waste consists of polyethylene, polypropylene, polyvinyl chloride, Tygon, nylon, Bakelite, and Plexiglass items, including sheeting, melted plastic, beads, blocks, tape, tubing, bags, fittings, buckets, bottles, caps, pans, discs, brushes, laboratory equipment (pipettes, syringes, etc.), circuit boards, gloves, manipulator boots, and filter components.
- Rubber waste consists of items, including gaskets, rings, hose/tubing, squeegees, bulbs, stoppers, gloves, boots, leaded glovebox gloves, wire/cord/cable insulation, and filter components.
- Glass waste consists of glass and ceramic items, including bottles, laboratory glassware, pipettes, columns, plates, thermometers, light bulbs (mercury and incandescent bulbs), mirrors, lenses, insulation, and unidentified broken glass items.
- Metal items including ferrous materials made from carbon steel, stainless steel, and iron. Non-ferrous materials include items made from aluminum, brass, copper, and lead. Specific metal waste items include cans (including aerosol cans), needles, tubes, valves, cable, wire, planchets, valves, piping, tools (tongs, dies, punches, wrenches, knives, clamps, tweezers), foil, weights, blocks, plates, frames, columns, racks, shielding, sheeting, light fixtures, equipment (pumps, motors, balance, ultrasonic cleaner, hot plates, furnace, centrifuge, and other electronic equipment), hardware (nuts, bolts, brackets, washers, etc.), manipulator parts, filter components, and alkaline batteries.

The AK record identifies numerous packaging configurations utilizing plastic bags and liners, 1-gallon paint cans (some lead-lined), sealed and unsealed polyethylene buckets (2- to 5-gallon), 5-gallon lard cans, and 10-gallon rigid cardboard fiber drums. Secondary waste generated during repackaging operations in the TWPC hot cell may include solidified liquids, amalgamated mercury, personal protective equipment (PPE), and other miscellaneous process materials and equipment generated during routine

operations of the hot cell. Although the waste stream, as a whole, is comprised of more than 50 percent heterogeneous debris, the casks are expected to contain a wide range of the waste material parameters. No individual repackaged drum of RH waste will contain greater than 50 percent homogeneous solids in this waste stream (e.g., solidified/absorbed liquids, grouted resins, graphite, and Hopcalite filter bed media, etc.).

This waste stream was determined to contain Resource Conservation and Recovery Act (RCRA)-regulated constituents and is assigned the following EPA Hazardous Waste Numbers (HWNs): D004, D005, D006, D007, D008, D009, D010, D011, D019, F002, and F005 (Refer to Section 5.4.2).

According to TRU waste packaging procedures dating back to 1988, liquids are removed from the waste or absorbed onto a solid such as vermiculite, and semi-liquid waste forms such as sludges and resins are immobilized (e.g., grouted). Waste generated prior to 1988 may contain un-punctured aerosol cans or small amounts of liquids, and waste generated prior to the mid-1990s may contain sealed containers greater than four liters. The following steps are taken to assure that prohibited items are not included in the RH drums repackaged at the TWPC:

- Residual liquids are removed or immobilized (e.g., vermiculite and Nochar).
- Un-punctured aerosol cans are punctured or removed from the waste stream.
- All internal containers (buckets, cans, and bags) are opened and all layers of confinement breached.

Certified Visual Examination (VE) is performed to ensure the waste does not contain prohibited items in accordance with the WCPIP and WIPP-WAP.

REDC waste will be repackaged in the TWPC hot cell into unlined, vented 55-, 30-, or 15-gallon drums (no layers of confinement in drums).

As described in Section 4.6.1, waste stream OR-REDC-RH-HET meets the WIPP-WAP and the WCPIP waste stream definitions. The waste is similar in material, physical form, hazardous constituents, and radiological properties and generated from a single process or activity (Building 7920 process development, analytical chemistry, and facility maintenance operations). The waste was generated from a single process or from an activity that is similar in material, physical form, hazardous constituents, and radiological constituents.

3.0 ACCEPTABLE KNOWLEDGE DATA AND INFORMATION

TRU waste destined for disposal at the WIPP must be characterized prior to shipment. Development of knowledge of the waste materials and processes that generate and control the waste is required to provide a clear and convincing argument about the characteristics of each waste stream. The AK characterization documented herein complies with the requirements of the WIPP-WAP (Reference 2) and the WCPIP (Reference 1), and was developed in accordance with CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (Reference 5). The WCPIP identifies waste characterization requirements and methods to satisfy requirements in:

- 40 Code of Federal Regulations (CFR) Part 191, *Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes* (Reference 6)

- 40 CFR Part 194, *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR 191 Disposal Regulations* (Reference 7)

- *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations: Certification Decision* (Reference 8)

- Public Law 102-579, *The Waste Isolation Pilot Plant Land Withdrawal Act* (LWA) (Reference 9).

A majority of the AK sources used for development of this report were originally collected by Weston Solutions, Inc. for CH debris waste from the REDC. These ORNL sources include laboratory logbooks, standard operating procedures, safety analysis reports, program plans, radiological data, waste packaging logs, container forms, inventory reports, and personnel interviews. Additional information for the REDC CH and RH inventories was collected and interviews were conducted with cognizant REDC personnel to augment and clarify the data collected. The corresponding REDC CH debris waste stream (OR-REDC-CH-HET) is described in CCP-AK-ORNL-002 (Reference 12).

The references and AK sources used to prepare this report are listed in sections 8.0 and 9.0, respectively. The AK sources referenced within this report by alphanumeric designations (e.g., C001, DR001, I001, M001, P001, and U001) correspond to the unique CCP Source Document Tracking Number using the following convention:

- C – Correspondence
- DR – Discrepancy resolutions
- M – Miscellaneous data
- P – Published documents and procedures

- U – Unpublished documents

The alphanumeric "I" designator (i.e., I001) was originally assigned to source documents (primarily internal procedures) collected by Weston Solutions, Inc. during the initial AK program conducted at ORNL. These documents have been assigned the same Source Document Tracking Numbers to maintain traceability to earlier reports; however, this designator has not been assigned during subsequent CCP AK collection and review operations.

4.0 PROGRAM INFORMATION

This section presents the mandatory TRU waste program information required by the WIPP-WAP and the WCPIP for waste stream OR-REDC-RH-HET (References 1 and 2). This section provides a description of the facility and operations associated with the generation of REDC RH TRU waste. Included is a description of the location of the REDC facility. In addition, a description of the facility, summary of the mission, defense determination, and descriptions of the TWPC waste repacking operations associated with the generation of waste stream OR-REDC-RH-HET are provided.

4.1 Facility Location, Description

ORNL is located on the DOE Oak Ridge Reservation within the Bethel and Melton Valleys of Roane County, Tennessee, approximately six miles southwest of the city of Oak Ridge and about 23 miles west of downtown Knoxville. Building 7920 is located in the Melton Valley area of ORNL within the 7900 building area which includes the REDC (Buildings 7920 and 7930) and the High Flux Isotope Reactor (HFIR). Maps showing the locations of ORNL, the REDC, and Building 7920 are presented in Figure 1, Map of Oak Ridge National Laboratory; Figure 2, Map of Radiochemical Engineering Development Center, Transuranic Waste Processing Center, and Solid Waste Storage Areas; and Figure 3, Location of Building 7920, at the end of this report (References P014, P161, and P272).

Prior to 1972, RH TRU waste generated at ORNL facilities was disposed in shallow land burial trenches. From 1972 on, the wastes were retrievably stored, initially in a series of 22 earthen trenches and later in engineered bunker-type facilities. RH TRU waste generated in Building 7920 is currently stored in large concrete casks, boxes, and 55-gallon drums in Buildings 7572, 7823, 7823B, 7823C, 7823D, 7823E, 7834, 7855, 7879, and 7883 which are also located in the Melton Valley area of ORNL. A map denoting the locations of the TRU waste storage buildings is shown in Figure 2. All of the concrete casks will be overpacked into carbon steel RH casks prior to processing in the TWPC (References M024, M100, P272, P953, U038, and U046).

The TWPC is located within an approximate five-acre area in the Melton Valley area of ORNL. RH storage containers are transferred to the hot cell in Building 7880 at the TWPC where the waste items are extracted, sorted, segregated, and reduced in volume for repackaging and certification to produce waste suitable for disposal at WIPP. The location of TWPC is shown in Figure 2 (References P256, P272, and U046).

4.2 Facility Description

Building 7920, constructed in the mid-1960s, is a two-level structure with a high bay area housing a heavily shielded, reinforced concrete hot cell bank, hot cell support area, laboratories, and an office wing (Reference P161).

The bank of nine hot cells contains equipment for radiochemical processing and target fabrication activities. Each hot cell contains a cubicle which is a confinement enclosure with a viewing window and master-slave manipulators. Tank pits housing process and storage tanks and piping are located behind and below the cubicles. The area above and behind the hot cell bank is a high-bay area known as the Limited Access Area (LAA). Systems and equipment are located in the LAA for interfacing with the hot cells and for movement of materials and equipment in and out of the hot cells and cubicles, and in and out of the building. The Transfer Area (TA), which is adjacent to Cubicle 9, contains the transfer cubicle, gloveboxes, and other equipment used for the addition and removal of small equipment and materials in the hot cell bank. The chemical make-up area (Room 213) is above the control room on the second floor and contains solution make-up and addition tanks, and other service equipment and instrumentation for the hot cell operations. The decontamination glovebox room (Room 216) is on the second floor adjacent to the LAA. This room contains the decontamination glovebox, equipment repair glovebox, and liquid waste transfer boxes. Also on the second floor adjacent to the LAA is the recirculating cooling water (RCW) equipment room (Room 215), where process water is supplied to the closed-loop RCW system for use in cooling process equipment in the hot cells, cubicles, and other building areas (Reference P161).

The laboratory area of Building 7920 contains three alpha laboratories (Rooms 109, 209, and 211) with gloveboxes for chemical development work and special projects. Another alpha laboratory (Room 111) contains two small hot cells, called shielded caves that provide small chemical processing areas with sufficient shielding for final purification of various transuranium elements and for special projects. The laboratory area of the building also contains two analytical chemistry laboratories for radioactive samples (Rooms 108 and 208) and two analytical chemistry laboratories for non-radioactive samples (Rooms 110 and 210) (Reference P161).

Floor plans for the first and second floors of Building 7920 are shown in Figure 4, Building 7920 First Floor, and Figure 5, Building 7920 Second Floor. Figure 6, Building 7920 Hot Cell Bank, is a plan view of the hot cell bank, and Figure 7, Building 7920 Hot Cell Bank - Cubicle Cross Section, shows a cross section of a typical cell in Building 7920. A section through the shielded transfer carrier ("mule") and the transfer area cubicle is illustrated in Figure 8, Shielded Transfer Carrier (Mule) and Transfer Area Cubicle. Figure 9, Decontamination Glovebox, shows the decontamination glovebox. Figure 10, Process Development Laboratory – Room 111 Caves and Transfer Gloveboxes, is a plan view of Room 111 showing the shielded caves and transfer gloveboxes (References P161 and U011).

The TWPC, constructed in 2003, consists of a three-story reinforced concrete structure with internal concrete and steel shielding. RH waste repackaging is performed in the TWPC hot cell on the second floor of the facility. The facility is designed to receive the over-packed concrete RH casks, then remotely repackage the RH waste into 55-, 30-, or 15-gallon drums for shipment to WIPP (Reference U046).

4.3 Facility Mission

Since 1966, the REDC has been the production, storage, and distribution center for the heavy-element research program of DOE, producing Bk-249, Cf-252, Es-253, and Fm-257. Target rods containing americium and curium are remotely fabricated in the Building 7920 hot cells, irradiated in the adjacent HFIR facility, and then processed in the Building 7920 hot cells for the separation and purification of the heavy actinide elements. The purified Bk-249, Es-253, and Fm-257 are packaged for shipment. The Cf-252 has been subsequently fabricated into neutron sources (Reference P161).

Between 1979 and 1986, some uranium fuel cycle development work was performed in specially-designed equipment in one of the Building 7920 hot cells known as the Solvent Extraction Test Facility (SETF). Solvent extraction flow sheets for processing irradiated fuels from commercial light water reactors (LWRs) and fast breeder reactors were developed and tested, and plutonium recovery schemes were demonstrated. This equipment is no longer used for its original purpose but remains in place and has been adapted and used for other processing and development activities related to the facility mission (References I044, P161, and U011).

Starting in 1991, the REDC has processed Mark-42 target assemblies irradiated at the Savannah River Site (SRS). High-purity Am-243, Cm-244, and Pu-242 are separated and recovered in the Building 7920 hot cells for shipment to the Los Alamos National Laboratory (LANL). The Mark-42 Processing Program activities utilize many of the same processes used for the transuranium element targets, allowing for dual use of the same hot cell equipment (Reference P161).

The four alpha laboratories are used for transuranium element product finishing operations and for fundamental research and chemical process development. Small-scale process development and special project operations similar in type to those done in the processing areas may be performed in the gloveboxes and shielded caves. The analytical chemistry laboratories provide support for the REDC production, research, and development programs as well as environmental and waste management at ORNL. Two hot cell cubicles have been used to perform analyses that must be done without dilution on highly-irradiated samples, and to make dilutions for subsequent analyses in the glovebox laboratories (References P161 and U011).

The TWPC was designed with the capability and flexibility to serve as the primary ORNL processor of CH and RH wastes originating from (Reference U046):

- Containerized RH and CH waste inventories in storage at ORNL
- Ongoing and future ORNL demolition, decontamination, and remediation operations
- Future laboratory operations
- Existing inventories or wastes received from other regional DOE sites

4.4 Defense Waste Assessment

The WIPP requires generator sites to use AK to document that TRU waste streams to be disposed of at WIPP meet the definition of TRU defense waste. TRU waste is eligible for disposal at the WIPP if it has been generated in whole or part by one of the atomic energy defense activities listed in Section 10101(3) of the *Nuclear Waste Policy Act of 1982* (NWPA) (Reference 10). In April 2006, the formal defense determination submitted by ORNL in April 2005 was approved by DOE Carlsbad Field Office (CBFO) for TRU waste originating from the operations in the REDC complex (including Building 7930). This determination concluded that the wastes generated by operations in the REDC are irretrievably commingled with materials generated, in part, by the following atomic energy defense activities (Reference M023):

- Naval reactors development
- Defense nuclear materials production
- Defense nuclear waste and by-products management
- Defense research and development activities

Specifically, the HFIR target campaigns that ultimately produce Cf-252 that is fabricated into neutron sources have been ongoing since inception of the REDC operations in 1966 and continue to generate waste today (References P161, U038, and U039). The Cf-252 neutron sources have many applications, several of which are related to defense activities. These include neutron radiography of weapons components and military aircraft, neutron counting of fissile material and transuranic waste, landmine detection, and in-field inspection and verification of chemical weapons and high explosives (References M023, P258, P281, and U038).

The SETF operations, consisting of nine campaigns conducted from 1979 to 1986, were research and development activities supporting the DOE Breeder Reactor Program. The Mark-42 Processing Program, which began in 1991, supported the recovery of Pu-242, Am-243, and Cm-244 for use in other DOE and U.S. Department of Defense (DOD) programs. The HFIR target campaigns ran concurrently with the SETF and Mark-42 campaigns. Due to the similarity of contamination in the REDC hot cells from prior HFIR target campaigns, the waste generated from SETF and Mark-42 campaigns have not been segregated from waste generated by the HFIR target campaigns (Reference I044).

4.5 High-Level Waste and Spent Nuclear Fuel Assessment

The WIPP LWA bans the disposal of spent nuclear fuel (SNF) and high-level waste (HLW), as defined by the NWPA (Reference 10). According to the NWPA, "spent nuclear fuel" is defined as "fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing." "High-level waste" is defined by the NWPA as "the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid

waste that contains fission products in sufficient concentrations, and other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation." These requirements are also defined in DOE M 435.1-1 which is the mandatory requirements manual for implementing DOE Order 435.1 (References I022 and I023).

The SNF and HLW requirements were reviewed by the ORNL operating contractor (Bechtel Jacobs Company, LLC) and DOE-Oak Ridge Operations. Based on this evaluation it was determined that the targets processed in the REDC are not SNF. Additionally, the LWR and fast reactor test specimens associated with the SETF program involved the processing of these materials for development of separation and recovery technologies (References U038 and U647). For these reasons, the HLW requirements defined in DOE M 435.1-1 are not applicable to the REDC and these requirements were not included in the ORNL Implementation Plan for DOE Order 435.1 (Reference P569). Therefore, waste stream OR-REDC-RH-HET does not contain SNF or HLW (Reference DR009).

4.6 RH TRU Waste Management

In approximately 1987, Building 7920 implemented a program for the identification and segregation of hazardous waste regulated by the RCRA, Title 40 CFR Part 261, *Identification and Listing of Hazardous Waste* (References 11, P240, and P263). Data log sheets for packaging TRU waste identified the presence or absence of hazardous materials. The UCN-2109 form also identified whether or not waste is RCRA-regulated (References M005 and M100).

Even with implementation of a RCRA program in 1987, the earliest generation date of waste assigned EPA HWNs is 1994. The EPA HWNs assigned by generators included D005 (barium), D006 (cadmium), D008 (lead), D009 (mercury), and D011 (silver) based on the presence of lead, incandescent light bulbs, mercury-vapor light bulbs, and equipment containing solder with lead or silver. A Tennessee Department of Environment and Conservation (TDEC) inspection conducted in 2003 identified numerous instances where containers of waste in storage had not been properly characterized. There are several REDC CH drums generated before 1987 and some after 1987 where the generator indicated no hazardous materials were present but have now been identified as suspect RCRA waste. Much of the waste was suspected of containing incidental hazardous waste items and presumed to be RCRA hazardous (References 12, M005, M024, M100, M110, M120, and U038). In addition to the EPA HWNs listed above, several other RCRA hazardous materials have been identified in this waste stream (see section 5.4.2).

Prior to 1999, each waste package was monitored for beta-gamma radiation and neutron radiation, and then the surface dose rate measurements were converted to activity values based on a defined conversion factor. This activity was assigned to the dominant nuclide in the package, typically Cm-244 and/or Cf-252 (References M100 and P240).

Beginning in 1999, an isotopic distribution was developed that included 30 different nuclides. This distribution was created using a combination of knowledge of the materials processed in the hot cells, smear sampling and analysis data, and Monte Carlo Neutron-Particle (MCNP) code modeling data. Activity values are then assigned to each nuclide in the container based on the dose rate of the cask (References M024, M100, U045, and U049).

4.6.1 Types and Quantity of TRU Waste Generated

Waste stream OR-REDC-RH-HET consists primarily of repackaged RH waste originally generated between April 1972 and February 2007, packaged in 263 concrete casks (4.5-, 6-, and 12-inch thick walls), eight 55-gallon drums, and one B-88 box. It is projected that the TWPC hot cell will generate a total of 550 cubic meters (m^3) during the processing of the approximately 341 concrete storage casks currently in inventory from all ORNL RH waste generators. Since the waste from Building 7920 is estimated to account for 77 percent of waste in this inventory, it is estimated that waste stream OR-REDC-RH-HET will contain approximately 423 m^3 of RH waste packaged in 55-gallon drums from cask repackaging operations. Table 4-1, Projected Volume of Waste from Repackaging of Stored Building 7920 RH Waste Containers, provides an estimate of the number of drums to be generated during the processing of the current inventory in the TWPC. Many of the RH casks are expected to contain significant amounts of debris that may not have elevated radioactive dose rates requiring that the debris be loaded into CH drums. Although the relative proportion of RH cask waste that will be loaded into CH drums is not known, it has been estimated to be 50 percent (References C302, M024, P256, U046, U047, and U048).

Table 4-1. Projected Volume of Waste from Repackaging of Stored Building 7920 RH Waste Containers

Current Waste Inventory	Projected RH Volume (m^3)	Projected Number of 55-Gallon Drums
263 Concrete Casks	423	2,034
8 55-gallon drums	1.7	8
1 B-88 box	2.7 (maximum)	13
TOTAL	**427.4**	**2,055**

In addition to the current RH inventory, it is projected that the Building 7920 REDC operations will generate approximately an additional 3.4 m^3 (two casks) of waste to be processed in the TWPC per year with no projected end date. This estimate is based on the volume of waste generated by the facility over the past five years and input from ORNL personnel (References C302 and M024).

The WIPP-WAP defines a waste stream as waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. The WCPIP definition also includes that the materials in a waste

stream must have similar radiological properties (References 1 and 2). As described in section 4.7, the production of the heavy actinide elements and those operations that support these processes (process development, analytical chemistry, and facility maintenance) in Building 7920 have been ongoing during the entire time frame of waste generation. Based on a review of the AK record including container documentation, historic process documentation, and ORNL waste management practices, the RH debris waste containers generated during the repackaging of the REDC waste casks meet the WIPP-WAP and WCPIP waste stream definitions.

4.6.2 Correlation of Waste Streams Generated from the Same Building and Process

Waste stream OR-REDC-RH-HET consists of Building 7920 REDC process development, analytical chemistry, and facility maintenance operations. This stream is identified in the 2013 ATWIR as REDC RH-TRU Waste, assigned waste stream identification number OR-REDC-RH-HET. This RH waste stream corresponds to REDC CH waste stream OR-REDC-CH-HET described in CCP-AK-ORNL-002 (References 4 and 8).

4.6.3 Waste Stream Identification, Categorization, and Delineation

The REDC waste generators completed a UCN-2109 form in which a waste description is recorded for each container (i.e., casks, boxes, and drums). The brief waste descriptions indicate that wastes are not segregated by material type (e.g., plastic, metal, glass). For the 55-gallon drums, the UCN-2109 includes a waste container log sheet which indicates that individual packages within a drum contain a mixture of material types. The predecessor to the UCN-2109 form is the UCN-2822. The UCN-2822 for the casks only provides a brief waste description (e.g., burnable or non-burnable waste). The UCN 2822 for the drums includes waste type codes and provides a brief waste description as well as the volume of combustible waste in the 55-gallon drums. The waste type codes include (Reference M100):

- BW – Biological Waste
- CE – Contaminated Equipment
- DD – Decontamination Debris
- DS – Dry Solids
- SS – Solidified Sludge
- NC – Not Classified

DS is the only waste type code assigned to the drums in this waste stream. The brief waste description on the UCN-2822 also shows that wastes were not segregated by material type. Included with the UCN-2822 is a data log sheet which provides a brief waste description and the volume percent combustible for each inner package (drums only). The volume of combustible waste recorded on the UCN-2822, and the volume percent combustible recorded on the log sheets indicate a wide range of combustible wastes. Burnable and non-burnable wastes, or combustible and non combustible wastes, were to be segregated at one time, but review of the above forms and log sheets does not support this segregation (References M005, M100, M120, and U011).

4.7 Description of Waste Generating Process

Waste stream OR-REDC-RH-HET consists of RH debris repackaged in the TWPC originating from REDC operations generated since the early 1970s. This section provides an overview of the Building 7920 operations including chemical processing, target fabrication, analytical laboratory, and process development.

Chemical Processing

Transuranium element processing includes the dissolution of irradiated targets, the separation of the transuranium elements from miscellaneous impurities and fission products, and the separation of the transuranium elements from each other. This is accomplished using a variety of solvent extraction, precipitation, and ion-exchange process steps. The processing steps are arranged to separate the transplutonium elements as a group from fission products and gross impurities before partitioning and purifying the individual elements. Recovered americium and curium are purified and converted to oxide for fabrication of new targets. The general sequence of steps used to process transuranium element targets in the hot cells is shown in Figure 11, Transuranium Element Target Processing (References P161, P279, and U011).

After the berkelium, einsteinium, and fermium have been separated from most of the curium and californium in the hot cell cubicles, they are transferred to shielded caves or gloveboxes and purified further from radioactive and nonradioactive contaminants by additional cycles of ion-exchange. The purified products are then packaged for shipment. The californium is sorbed on cation-exchange resin and calcined to convert the californium to the oxysulfate for future use (References P279 and U011).

The SETF was in operation from 1979 to 1986 and involved the recovery of uranium and plutonium from irradiated commercial power reactor fuels. This was achieved by dissolution of irradiated fuel assembly sections, solvent extraction, ion-exchange, precipitation, and calcination process steps. The sequence of operating steps in the SETF campaigns is illustrated in Figure 12, Solvent Extraction Test Facility Operations (Reference U011).

The Mark-42 program began operation in 1991 and includes the dissolution of irradiated segments; the separation of the transuranium elements from miscellaneous impurities, activation products, and fission products; and the separation of the transuranium elements from each other. This is accomplished using a variety of solvent extraction, precipitation, and ion-exchange process steps. The general sequence of steps used to process Mark-42 segments in the hot cells is shown in Figure 13, Mark-42 Processing (Reference P161).

Table 4-2, Processing Sequence for the Campaigns conducted in the REDC, identifies the processing sequence for the HFIR, SETF, and Mark-42 campaigns conducted during the time frame of generation for waste stream OR-REDC-RH-HET. Table 4-2 shows the breakdown of the three time periods for radiological characterization including the Pre-SETF, SETF, and Mark-42 time periods. Refer to section 5.4.3 for discussion of CCP's radiological characterization approach for waste stream OR-REDC-RH-HET.

Table 4-2. Processing Sequence for the Campaigns conducted in the REDC

Campaign Number	Start Date
HFIR 33	3/6/1972
HFIR 34	3/30/1972
HFIR 35	5/16/1972
HFIR 36	9/26/1972
HFIR 37	10/20/1972
HFIR 38	11/23/1972
HFIR 39	1/23/1973
HFIR 40	3/13/1973
HFIR 41	4/27/1973
HFIR 42	5/21/1973
HFIR 43	7/7/1973
HFIR 44	7/11/1973
HFIR 45	9/24/1973
HFIR 46	2/1/1974
HFIR 47	9/6/1974
HFIR 48	2/24/1975
HFIR 49	6/4/1975
HFIR 50	1/19/1976
HFIR 51	9/15/1976
HFIR 52	1/10/1977
HFIR 53	8/26/1977
HFIR 54	1/10/1978
HFIR 55	9/9/1978

Campaign Number	Start Date
SETF 1	11/19/1978
HFIR 56	1/10/1979
SETF 2	3/26/1979
HFIR 57	7/25/1979
HFIR 58	8/27/1979
SETF 3	10/1/1979
HFIR 59	1/9/1980
SETF 4	7/1/1980
HFIR 60	9/10/1980
HFIR 61	2/24/1981
SETF 5	6/24/1981
SETF 6	10/19/1981
HFIR 62	1/12/1982
HFIR 63	10/8/1982
SETF 7	4/13/1983
HFIR 64	9/20/1983
SETF 8	3/21/1984
HFIR 65	10/17/1984
SETF 9	3/21/1985
HFIR 66	8/21/1985
SETF 10	3/15/1986
HFIR 67	1/5/1987
HFIR 68	6/14/1991

Campaign Number	Start Date
Mark-42 M1	11/20/1991
Mark-42 M2	7/6/1992
Mark-42 M3	11/5/1992
Mark-42 M4	6/17/1993
Mark-42 M5	7/23/1993
HFIR 69	9/17/1994
HFIR 70	3/28/1996
Mark-42 M6	10/31/1996
Mark-42 M7	3/17/1998
HFIR 71	10/12/1998
Mark-42 M8	9/29/1999
Mark-42 M9	12/9/2000
HFIR 72	9/9/2000
Mark-42 M10	4/9/2001
Mark-42 M11	6/20/2001
Mark-42 M12	8/8/2001
Mark-42 M13	11/7/2001
Mark-42 M14	1/27/2002
Mark-42 M15	5/23/2002
HFIR 73	2/6/2003
Mark-42 M16	7/10/2003

The operations described above represent the primary chemical processing activities in the REDC; however, special separation projects were periodically performed in cells reserved for this purpose. These special separations (e.g., separating Cf-249 from decaying Bk-249 or purifying a sample for shipment to another site) were performed in laboratory-type equipment especially installed in the cell for each job. These procedures generally involved a small fraction of the amount of material handled in the main line (Reference P279).

Target Fabrication

Actinide oxide (americium and curium) is incorporated into aluminum target rods for irradiation in the HFIR. The operations and inspections include pellet forming, weighing, measurement, calorimetry, thermal cleaning, target loading, welding, x-ray examination, helium leak tests, dimensional inspections, hydrostatic compression of the aluminum tube around the pellets, coolant shroud attachment, decontamination, and carrier loading for transfer to the HFIR. Generally, pellet forming operations with loose powders are performed in Cubicle 3, target tubes are assembled in Cubicle 2, and final assembly and inspection operations with sealed target rods are performed in Cubicle 1. Pellet and target tube fabrication and target assembly operations are illustrated in

Figure 14, Pellet Fabrication; Figure 15, Target Tube Fabrication; and Figure 16, Target Assembly (Reference P279).

Analytical Laboratory

Cubicle 8 is used exclusively to collect and store samples from the hot cells, to perform analyses that must be made without dilutions on highly-radioactive samples, and to make dilutions for analyses in the glovebox analytical chemistry laboratories. Cubicle 9 has also been used for analytical chemistry purposes. Sample preparation and analyses include pipetting, titration, dissolution, filtration, solvent extraction, and centrifugation. The operations performed inside the analytical laboratory gloveboxes are essentially the same as the analytical operations performed in the hot cells except that much smaller equipment and significantly smaller amounts of materials are used in the gloveboxes (References P161 and U011).

Process Development

The process development alpha laboratories (Rooms 109, 209, 111, and 211) have been used for fundamental studies and process development of alpha-active materials. Much of the early work was concerned with the development of sol-gel processes and with process development for the isolation and purification of various alpha-active materials. Other fundamental research and process development work has included reprocessing of reactor fuels, conversion of recovered uranium and plutonium to forms suitable for use in fabrication of recycle reactor fuel elements, and development of waste separation processes. The chemical processes (e.g., solvent extraction, ion-exchange, and precipitation) performed in the gloveboxes are much the same as the hot cells but with smaller equipment and smaller amounts of material (References P161, P279, and U011).

Maintenance Operations

The processing equipment in the hot cell bank was designed and built so that it can be maintained or replaced within the hot cell cubicles using remote techniques. Occasionally, large equipment items and equipment racks require maintenance that cannot be performed in the cubicles. These items are moved to the decontamination glovebox for cleaning and repair. As illustrated by Figures 5, 7, and 9, the decontamination glovebox is wheeled onto the top of the hot cell bank where the equipment is introduced into the glovebox from the equipment transfer case (References P279 and U011). For maintenance operations in a tank pit, work may be performed directly in the pit in supplied air or may be done remotely from the top of the pit using long-handled tools. Maintenance of the off-gas systems for the cells and the process tanks generate filter change out waste including high-efficiency particulate air (HEPA) filters and charcoal and Hopcalite organic vapor trap filters. Glovebox operations are performed using neoprene or leaded glovebox gloves which are periodically replaced. Glovebox equipment items and components require periodic decontamination, inspection, maintenance, and repair. Glovebox equipment may also

require replacement, and glovebox interiors require regular decontamination (Reference C302, P161, P279, and U011).

Process Waste Handling

Waste items generated in the Building 7920 hot cell cubicles during the process operations and maintenance activities are removed from the cubicles through connecting gloveboxes in the TA, LAA, and decontamination glovebox room. Glovebox waste transfers are accomplished using a plastic bag transfer technique through 6-inch and 12-inch diameter access ports. Some gloveboxes are also equipped with sphincter-valve devices in which materials are placed in cardboard ice cream cartons. Large pieces of equipment are transferred in and out of the hot cell through the roof door using the equipment transfer case. Liquid wastes are transferred out of the gloveboxes through liquid waste lines. Based on the waste management practices and a detailed review of the cask documentation, no deliberate segregation of the waste based on area or program of generation was conducted in the REDC (References P161 and U011).

Prior to 1976, all Building 7920 TRU solid wastes were packaged into concrete casks. In March 1976, operations to formally segregate RH- from CH-TRU wastes were initiated. Intensive segregation did not occur until the 1978 time frame with the packaging of CH-TRU waste into drums. Most of the waste generated prior to 1978 would have been placed into concrete casks called "floor casks." The majority of the floor casks have 4.5 inch thick side walls because the lower activity materials typically required much less shielding. This waste will contain significant amounts of lower dose rate waste (paper, glassware, PPE, wipes, glovebox equipment, and HEPA filters) generated from the laboratory and support areas. The amount of these lower dose rate materials would have decreased significantly in RH casks loaded after 1978, which will contain greater volumes of waste from hot cell activities (References C600, M005, M100, P125, U038, and U501).

In addition to the concrete casks with 4.5-inch thick walls, waste from REDC operations has been loaded in casks providing additional shielding with 6- and 12-inch thick concrete walls. The external dimension for all three of these cylindrical casks is approximately 7.5 feet tall by 4.5 feet in diameter. The waste materials loaded into the casks are packaged in a variety of configurations utilizing the following packaging materials (References P125, P161, and U011):

- 1-gallon metal paint cans (some lead-lined)
- Polyethylene bags, liners, bottles, and draw-string bags
- Cardboard ice cream cartons
- 3.4-gallon polyethylene plastic buckets (sealed and unsealed)
- 2-gallon Bain-Marie polyethylene plastic containers
- 5-gallon metal lard cans
- 10-gallon rigid-cardboard fiber drum

In the hot cell cubicles, waste items are typically placed into small containers (e.g., plastic buckets or metal cans) and monitored for radiation. Depending on the type of waste and radiation level, the item is acid leached, water rinsed, and air dried before placement into the bucket. Larger waste items are cut up to fit into the buckets. To reduce the volume of waste, a low-temperature furnace in Cubicle 9 is used to melt small plastic items such as polyethylene bottles to consolidate them in a metal bucket. Spent cation-exchange resins are calcined, leached with nitric acid, collected in a polyethylene bottle and melted in the furnace, then placed into a metal bucket. The cans of melted plastic may contain miscellaneous glass, metal, and cellulosic items in the plastic matrix or placed on top of the block added to the metal can after the melt process. Spent anion-exchange resins are de-nitrated, rinsed, and fixed in a concrete grout mixture in a metal bucket. Unusable empty metal buckets are compacted in a crusher. The buckets are transferred by conveyor to the TA cubicle and monitored for beta-gamma and neutron radiation. Buckets with low radiation levels are disposed in a drum for CH waste (Reference DR601, M005, M100, M120, and P161).

Larger equipment, such as processing racks (2x3x6 feet), charcoal filter beds (24x24x24 inches), and Hopcalite organic filters traps (6x24x24 inches) are directly loaded into the casks. Processing racks used in the hot cells are replaced due to malfunctions, wear, change in process requirements, or upgrades. Typically, the racks have been packaged in several layers of polyethylene bags then placed directly into the concrete cask. Lead bricks have been used to balance the processing racks and will be found in the disposal casks (References C302 and P125).

Concrete casks of TRU waste are loaded in a solid waste loading station located in the LAA. Waste to be loaded into the cask from the transfer area is generally transferred to the loading station in sealed plastic buckets and unsealed plastic bags. Larger equipment is transferred to the loading station via the equipment transfer case for disposal. The incoming empty cask is prepared by placing a polyvinyl chloride plastic bag liner (0.01 inch) into the cask. Plywood expanders are placed inside the bag (a circular disk at the bottom and a circular ring at the top), and the bag is then secured to one of the waste station roof plugs. Two roof plugs are available for loading the waste packages. One is used when the waste is to be transferred using the equipment transfer case, the other is used when plastic buckets are loaded. After the cask is loaded, the plastic bag is collapsed and an electrically-driven turntable inside the waste station rotates the cask, twisting the top of the bag. The bag is then cut and sealed with a hot-knife sealer. The cask lid is then installed, sealed with roofing pitch, and secured using two steel tapes attached around the outside of the cask. The cask lid may also be attached to the cask body by three anchor bolts aligned with holes drilled in the cask lid (References C302 and U011).

4.8 Waste Certification Procedures

In the CCP program under which the subject waste stream will be certified for shipment to WIPP, CCP-TP-005 (Reference 3), directs compilation and confirmation of AK. CCP certifies TRU waste under the program described in CCP-PO-002 (Reference 15).

5.0 WASTE STREAM INFORMATION

This section presents the waste stream information required by the WIPP-WAP and the WCPIP for waste stream OR-REDC-RH-HET (References 1 and 2). The area of generation, waste stream volume, period of generation, waste packaging, and the physical, chemical, and radiological composition of the waste stream are described.

5.1 Area and Building of Generation

Waste stream OR-REDC-RH-HET originated in REDC Building 7920. Areas within the building generating waste included in this waste stream are the TA (Room 118), the LAA (Room 120), and the decontamination glovebox room (Room 216) which are associated with the hot cell cubicle operations and waste transfers. Waste from the Building 7920 analytical chemistry laboratories (Rooms 108 and 208) and process development laboratories (Rooms 111, 211, 109, and 209) are also included. It should be noted that insignificant amounts of debris waste from REDC Building 7930 Californium Product Finishing operations have been identified in the documentation in one cask. This waste consists of a single item of rags and wipes generated during the decontamination of a source in this area (References C600, DR600, M024, M100, M120, and P161).

REDC waste management practices have resulted in the mixing of waste materials within the storage containers, with limited segregation of these wastes based on the radiological and chemical properties. Solid wastes have not been segregated according to programmatic source during the waste accumulation and packaging operations conducted to date at the REDC. Most solid wastes from the REDC were, and continue to be, accumulated over a significant period of time, resulting in mixing of campaign wastes conducted during the period of accumulation (Reference U038). As containers of REDC debris waste are generated during repackaging in the TWPC, the container-specific documentation will be reviewed to assure that each container included in waste stream OR-REDC-RH-HET meets the WIPP-WAP and the WCPIP waste stream definitions (References 1, 2, C600, M100, M120, and U038).

5.2 Waste Stream Volume and Period of Generation

As described in section 4.6.1, the current inventory of REDC waste to be repackaged into waste stream OR-REDC-RH-HET is contained in 263 concrete casks, eight 55-gallon drums, and 1 B-88 box generated between April 1972 and February 2007. It is estimated that this inventory will generate approximately 2,055 55-gallon drums (427.4 m^3) of RH and CH waste. In addition to the current RH inventory, it is projected that the Building 7920 REDC operations will generate approximately an additional 3.4 m^3 (two casks) of waste to be processed in the TWPC per year with no projected end date. This estimate is based on the volume of waste generated by the facility over the past five years and input from ORNL personnel (References C302, M024, P256, U046, U047, and U048).

5.3 Waste Generating Activities

Waste stream OR-REDC-RH-HET is generated during the repackaging of RH waste originating from REDC Building 7920 operations. Section 4.7 provides a summary of the waste generating process operations conducted in the REDC.

5.4 Type of Wastes Generated

This section describes the waste materials based on process inputs and outputs, waste matrix code assignment, waste material parameter weight estimates, radionuclide contaminants, and hazardous waste determinations for waste stream OR-REDC-RH-HET.

5.4.1 Materials Related to Physical Form

Waste stream OR-REDC-RH-HET is comprised primarily of organic and inorganic debris waste items. Waste descriptions are provided on UCN-2109 and UCN-2822 forms and waste container log sheets. The primary source for descriptions of TRU waste materials from the REDC were obtained from the waste container log sheets for the CH waste stream (OR-REDC-CH-HET) described in CCP AK Summary Report, CCP-AK-ORNL-002 (Reference 12). The waste includes cellulosics (paper), plastic, rubber, metal, and glass. Specific waste items present in the storage container inventory include the following (References M005, M024, M100, P125, P161, and U011):

- Cellulosic waste consists of paper, cotton, cloth, and wood items, including wipes, swabs, bags, towels, rags, protective clothing, gloves, rope, string, cardboard, brushes, blotter paper, and filter media.

- Plastic waste consists of polyethylene, polypropylene, polyvinyl chloride, Tygon, nylon, Bakelite, and Plexiglass items, including sheeting, melted plastic, beads, blocks, tape, tubing, bags, fittings, buckets, bottles, caps, pans, discs, brushes, laboratory equipment (pipettes, syringes, etc.), circuit boards, gloves, manipulator boots, and filter components.

- Rubber waste consists of items including gaskets, rings, hose/tubing, squeegees, bulbs, stoppers, gloves, boots, leaded glovebox gloves, wire/cord/cable insulation, and filter components.

- Glass waste consists of glass and ceramic items, including bottles, laboratory glassware, pipettes, columns, plates, thermometers, light bulbs (mercury and incandescent bulbs), mirrors, lenses, insulation, and unidentified broken glass items.

- Metal items including ferrous materials made from carbon steel, stainless steel, and iron. Non-ferrous materials include items made from aluminum, brass, copper, and lead. Specific metal waste items include cans (including aerosol cans), needles, tubes, valves, cable, wire, planchets, valves, piping, tools (tongs, dies, punches, wrenches, knives, clamps, tweezers), foil, weights, blocks, plates, frames, columns, racks, shielding, sheeting, light fixtures, equipment (pumps, motors, balance, ultrasonic cleaner, hot plates, furnace, centrifuge, and other electronic equipment), hardware (nuts, bolts, brackets, washers, etc.), manipulator parts, and filter components, and alkaline batteries.

The AK record identifies numerous packaging configurations utilizing plastic bags and liners, 1-gallon paint cans (some lead lined), sealed and unsealed polyethylene buckets (2- to 5-gallon), 5-gallon lard cans, and 10-gallon rigid cardboard fiber drums. Secondary waste generated during repackaging operations in the TWPC hot cell may include solidified liquids, amalgamated mercury, PPE, and other miscellaneous process materials and equipment generated during routine operations of the hot cell (Reference P125, U038, and U046).

5.4.1.1 Waste Matrix Code

As discussed in the previous section, waste stream OR-REDC-RH-HET is comprised primarily of organic and inorganic debris waste items and generally consists of cellulosics (e.g., paper, cloth), plastic, rubber, glass, and metal. The waste matrix code was assigned to this waste stream based on the evaluation of AK information relating to the physical form of the waste recorded on UCN-2109 and UCN-2822 forms and container log sheets. This container documentation for the concrete casks contains limited information relating to the physical composition of the waste contained; typically only whether the waste is burnable or non-burnable (Reference M100).

For the CH inventory, the UCN-2109 records an estimate of the volume percent combustible which ranges from 0 to 100 percent with an average of 62. The UCN-2822 provides an estimate for total volume and combustible volume in cubic feet. The calculated volume percent range for combustibles on the UCN-2822 forms is 0 to 100 percent, averaging 54 percent. The container log sheets provide an estimate of the volume percent combustible for each package in CH drums. The calculated volume percent combustible range for combustibles in drums with container log sheets is 33 to 98 percent averaging 65 percent (Reference M005).

Due to the high degree of variability in the amount of combustible waste in the CH waste, Waste Matrix Code S5400, Heterogeneous Debris, is applied to the CH REDC waste stream. For this reason, S5400 is also applied to waste stream OR-REDC-RH-HET, assuming that the composition of the RH waste is comparable to the CH waste generated by the same operations. The definition of this Waste Matrix Code is provided in the DOE/LLW-217, *DOE Waste Treatability Group Guidance* (Reference 13). This category includes waste that is at least 50 percent, by volume,

debris materials that do not meet the criteria for assignment as either an Inorganic Debris (S5100) or Organic Debris (S5300).

Although the waste stream, as a whole, is comprised of more than 50 percent heterogeneous debris, the casks will contain a wide range of the waste material parameters listed in section 5.4.1.2, except that no individual drum will contain greater than 50 percent homogeneous solids (e.g., solidified/absorbed liquids, grouted resins, graphite, and Hopcalite filter bed media, etc.).

5.4.1.2 Waste Material Parameters

To estimate the relative waste material parameter weights for waste stream OR-REDC-RH-HET, data were obtained from ORNL personnel in the form of electronic databases and miscellaneous site-specific waste disposal, transportation, and storage forms. The ORNL RHTRU Database Inventory was queried for containers originating from the REDC designated as RH waste generated after November 1991. These casks were selected because they are the first casks that will be repackaged in the TWPC. Additionally, the container documentation generated after 1990, typically includes waste items descriptions that are sufficient to estimate the waste material parameters within the casks. A majority of the earlier container documentation contains limited information and typically only identifies the waste as "burnable" or "unburnable" material (References M005 and M024).

The population assessed consists of 45 casks, generated between December 1991 and February 2007. It is assumed that this inventory will be representative of the entire REDC RH debris waste stream, due to the production type of operations performed over the entire time frame for this facility. Based on review of waste generator documentation (e.g., 2109 forms), each cask may contain numerous inner containers, ranging from a single plastic bag, to 63 metal cans nested inside 63 poly buckets. Site documentation did not quantify the contents of this waste in regards to waste material parameters, so estimates were based on the descriptions of the contents and the recorded volume percent of combustibles. In cases where the volume percent of combustibles was not recorded on the 2109 form, an estimate was made by averaging the percent combustibles in inner containers. An assumed specific gravity was applied for each waste material parameter to convert it to a weight percent. An average weight percent was then calculated by using the net weight of each cask as recorded in the ORNL RHTRU Database. Average, minimum, and maximum waste material parameter weight percentages, based on this evaluation are presented in Table 5-1, Waste Material Parameter Estimates for Waste Stream OR-REDC-RH-HET. This assessment is documented in a memorandum (included with Attachment 6) as required by CCP-TP-005 (References 3, M005, and M024).

Table 5-1. Waste Material Parameter Estimates for Waste Stream OR-REDC-RH-HET

Waste Material Parameter	Average Weight Percent	Weight Percentage Range		
Iron Base Metal Alloys	59.13%	30.23%	to	95.51%
Aluminum Base Metal/Alloys	0.01%	0.00%	to	0.64%
Other Metal/Alloys	5.91%	0.00%	to	52.38%
Other Inorganic Materials	16.78%	0.00%	to	47.51%
Cellulosics	6.68%	0.00%	to	18.03%
Rubber	1.66%	0.00%	to	11.90%
Plastics	8.62%	1.44%	to	30.97%
Organic Matrix	0.00%	0.00%	to	0.00%
Inorganic Matrix	1.21%	0.00%	to	7.93%
Soil/Gravel	0.00%	0.00%	to	0.00%
Total Inorganic	**83.03%**			
Total Organic	**16.97%**			

5.4.2 Chemical Content Identification – Hazardous Constituents

This section describes the characterization rationale for assignment of EPA HWNs to waste stream OR-REDC-RH-HET. The EPA HWNs assigned to this waste stream are summarized in Table 5-2, Waste Stream OR-REDC-RH-HET Hazardous Waste Characterization Summary.

The REDC waste described in this report has been historically managed in accordance with ORNL waste management practices in compliance with the requirements imposed by the TDEC . As discussed in Section 4.6, the assignment of EPA HWNs to ORNL waste began in 1994. TDEC inspections conducted as late as 2003, identified containers had not been properly characterized. These containers were subsequently identified as "RCRA suspect" with no specific HWNs assigned to be managed onsite as RCRA hazardous waste "Pending Analysis for Hazardous Waste." Containers in this waste stream have been historically managed by the generator individually or in small populations for RCRA characterization purposes. Containers included in waste stream OR-REDC-RH-HET were not managed as a single hazardous or non-hazardous waste stream. Therefore, this waste stream does not consist of containers historically segregated by the generator into separate mixed and non-mixed waste streams based on the hazardous constituents identified for specific containers. For this reason, the assignment of EPA HWNs to waste stream OR-REDC-RH-HET considered the HWNs assigned by the generators to REDC TRU waste, in addition the review of the AK record described below. The HWN assignments have been applied on a waste stream basis; individual containers may not contain all of the hazardous materials listed for the waste stream as a whole (References 12 M005, M024, M100, M110, M120, and U038).

Table 5-2. Waste Stream OR-REDC-RH-HET Hazardous Waste Characterization Summary

EPA Hazardous Waste Number	Constituent
Toxicity Characteristic Metals	
D004	Arsenic
D005	Barium
D006	Cadmium
D007	Chromium
D008	Lead
D009	Mercury
D010	Selenium
D011	Silver
Toxicity Characteristic Organics	
D019	Carbon tetrachloride
F-Listed Organic Solvents	
F002	1,1,1-Trichloroethane
F002	1,1,2-Trichloroethane
F002	Trichloroethylene
F005	Benzene
F005	Toluene

To assign EPA HWNs, AK sources including, procedures, laboratory logbooks, personnel interviews, previous AK reports, container packaging and shipping documentation, and material safety data sheet (MSDS) information for commercial products noted in the AK record were reviewed to determine potential waste material inputs and possible chemical contaminants associated with the Building 7920 REDC operations. A comprehensive list of materials and chemicals identified during this assessment are provided in Table 5-3, Waste Stream OR-REDC-RH-HET Material and Chemical Inputs. HWNs were assigned for compounds used the hot cells, due to the lack of analytical evidence quantifying the concentration of RCRA toxic contaminants in the waste matrix (References DR005, DR008, and DR602).

Table 5-3. Waste Stream OR-REDC-RH-HET Material and Chemical Inputs

Chemical/Material	Use/Description/Location	AK Source	EPA HWNs
1,1,1-trichloroethane	Component in Desicote rinsing aid.	U529	F002
1,1,2-trichloroethane	REDC organic chemical inventory.	C078, DR008	F002
1,10-phenanthroline	Iron spectrophotometric analysis reagent.	P282	NA
2,5-di-tert-butylhydroquinone (DBHQ)	Plutonium solvent extraction reagent.	C078, P145, U011	NA
2-ethylhexyl phenylphosphonic acid (Pharex)	Pharex solvent extraction reagent.	P136, P279	NA
2-ethylhexanol	Plutonium solvent extraction diluent.	C078, P136, P145, U011, U432, U533, U545	NA
2-methyl lactic acid	REDC organic chemical inventory.	C078	NA
2-thenoyltrifluoroacetone (TTA)	Total plutonium, berkelium, and neptunium analytical chemistry extraction reagent.	P282	NA
Acetic acid	REDC organic chemical inventory.	C078, U011	NA
Acetone	Equipment cleanout solvent (degreaser). Identified in laboratory logbooks. Analytical laboratory solvent.	P161, P279, P282, U011, U437, U477, U489, U506, U529	NA
Acetonitrile	Study of solvents for actinide and lanthanide reductions.	P110	NA
Adogen 364	High purity tertiary amine dissolved in diethylbenzene for solvent extraction.	C078, M022, P136, P282, U011	NA
Ajax All Purpose Cleaner	Decontamination detergent used on dampened wipes.	C148, M022, P263	NA
Alcohol (Formula 3A)	Cleanout of equipment (95% ethanol, 5% methanol).	M022, P282	NA
Aluminum chloride	REDC inorganic chemical inventory.	U011	NA
Aluminum powder (alumina)	Americium/curium fuel pellet component. Purifying diethylbenzene and kerosene.	P161, P279, U011	NA
Aluminum nitrate	Neptunium solvent extraction reagent. Uranium alpha spectroscopy reagent. High pressure liquid chromatography separation reagent.	P282	NA
Ammonia	Reagent used to precipitate nickel and copper in ion-exchange product solutions.	P229, P279	NA
Ammonium alpha-hydroxyisobutyrate (AHIB)	Chromatographic cation-exchange eluent. High pressure liquid chromatography separation reagent.	P136, P161, P279, P282, U011	NA
Ammonium hydroxide	Oxide precipitation reagent. Used to convert nitrated anion-exchange resins to the hydroxide form before drying. Neptunium solvent extraction reagent. Iron spectrophotometric analysis reagent. High pressure liquid chromatography separation reagent.	C078, P136, P145, P161, P279, P282, U011,	NA
Ammonium nitrate	Cation-exchange reagent (wash).	C078, U011	NA

Table 5-3. Waste Stream OR-REDC-RH-HET Material and Chemical Inputs (continued)

Chemical/Material	Use/Description/Location	AK Source	EPA HWNs
Ammonium persulfate	Oxidation reagent for americium.	P851, U011	NA
Ammonium thiocyanate	Uranium spectrophotometric analysis reagent.	P282	NA
Aqua regia (hydrochloric-nitric acid mixture)	Identified in laboratory logbooks.	U529	NA
Armor All Glass Cleaner	TWPC hot cell maintenance.	M022, U125	NA
Arsenic	Actinide and lanthanide hydride and metallide studies.	P114	D004
Ascorbic acid	Plutonium extraction reagent.	P136, U011	NA
Barium	Fission product contaminant of HFIR targets. Californium product solution impurity. Assigned by generator to REDC waste debris. Identified in laboratory logbooks.	M024, M100, P151, U011, U505	D005*
Benzene	Testing of solvents for extraction of actinides.	DR602, P160	F005
Beryllium	Electroplating microgram quantities of transplutonium elements on beryllium foil targets and source plate. Sources.	P223	NA
Cadmium	Californium product solution impurity. D006 assigned by generator to REDC containers (flashlight batteries and electronic equipment). Identified in laboratory logbooks.	M005, M024, M100, P151, U483, U529	D006*
Carbon/activated charcoal	Organic chemical vapor filter media.	M001, P161, U011	NA
Carbon tetrachloride	REDC organic chemical inventory.	C078, U011	D019
Cerium nitrate	Identified in laboratory logbooks.	U435	NA
Citric acid	REDC organic chemical inventory.	U011	NA
Chromium	Contaminant of aluminum target cladding and fuel matrix. Californium product solution impurity. Contaminant of Ni-63. Identified in laboratory logbooks.	P151, P161, P279, P801, U011, U529	D007
Cyanex® 301 (bis-(2,4,4-trimethylpentyl)-dithiophosphinic acid)	Organic extractant being tested for group separation of the actinide and lanthanide elements.	P819	NA
Diatomaceous earth	Process stream and liquid waste filtering media.	P161, P173, P229	NA
Diethylbenzene (DEB)	Solvent extraction organic extractant.	C078, P136, P161, P279, U011	NA
Diethylene triaminepentaacetic acid (DTPA)	REDC organic chemical inventory.	C078, P145, U011,	NA
Di (2-ethylhexyl) phosphoric acid (HDEHP)	Solvent extraction organic extractant in decane diluent.	C078, P136, P145, P161, P279, U011	NA
Diisopropylbenzene (DIPB)	REDC organic chemical inventory.	C078, U011	NA
Dimethylformamide	Study of solvents for actinide and lanthanide reductions.	P110	NA

Table 5-3. Waste Stream OR-REDC-RH-HET Material and Chemical Inputs (continued)

Chemical/Material	Use/Description/Location	AK Source	EPA HWNs
Dioctylphthalate	High efficiency particulate air (HEPA) filter testing.	P263, P279, U011	NA
Dodecane	Solvent extraction organic extractant.	P161, U011	NA
EDTA	REDC organic chemical inventory.	C078, U011	NA
Elmer's glue/water mixture	Fixative for airborne contamination in the TWPC hot cell.	U124	NA
Ethanol	Analytical Laboratory equipment cleaning reagent. Component of Formula 3A alcohol (95%) used to cleanout equipment. Decontamination and equipment repair solvent.	C078, M022, P161, P279, P282, U011	NA
Ethanol-hydrochloric acid mixture	Used as the eluent for some product finishing and special product ion-exchange operations.	P820, P826	NA
Ether (non-specific)	REDC organic chemical inventory. Identified in Building 7920 logbook.	U011, U501	NA
Ethylene glycol	REDC organic chemical inventory.	C078	NA
Ferric chloride	REDC inorganic chemical inventory.	C078, U011	NA
Ferric nitrate	Total plutonium analytical chemistry extraction reagent.	C078, P282	NA
Ferrous ammonium sulfate	Iron spectrophotometric analysis reagent.	P282	NA
Ferrous chloride	Neptunium and plutonium solvent extraction reagent.	P136, P282	NA
Ferrous sulfamate	REDC inorganic chemical inventory (SETF reductant reagent).	P229, U011	NA
Ferrous sulfate	Determination of total reducing normality reagent.	C078, P282	NA
Formic acid	Used for actinide/lanthanide separation by extraction chromatography. Identified in laboratory logbooks.	P804, U477, U489	NA
Gadolinium nitrate	Identified in laboratory logbooks.	U435	NA
Hydrazine	SETF solvent extraction reduction agent.	C078, P016, P173, P229,U011	NA
Hydrobromic acid	Identified in laboratory logbooks.	U506	NA
Hydrochloric acid	Solvent extraction aqueous solution. LiCl chromatographic anion-exchange solution. Curium and plutonium target dissolution. Process solution titration reagent.	C078, P136, P161, P223, P279, P282, U011	NA
Hydrofluoric acid	Target dissolution.	P136, P223, P279, P282, U011	NA
Hydrogen peroxide	SETF, Berkex, and Cleanex extraction reductant.	C078, P173, P223, P279, U011	NA
Hydroquinone	REDC organic chemical inventory.	C078, U011	NA

Table 5-3. Waste Stream OR-REDC-RH-HET Material and Chemical Inputs (continued)

Chemical/Material	Use/Description/Location	AK Source	EPA HWNs
Hydroxylamine hydrochloride	REDC inorganic chemical inventory (SETF reagent). Total plutonium analytical chemistry extraction reagent. Neptunium solvent extraction reagent. Iron spectrophotometric analysis reagent.	C078, P136, P229, P282, U011	NA
Hydroxylamine nitrate	REDC inorganic chemical inventory (SETF reagent).	U011	NA
Hopcalite	Organic chemical vapor filter media oxidation catalyst (CuO_2-MnO_2).	M001, P263, U011	NA
Ion exchange resins	Anion and cation exchange resins including Dowex and Ionac resins.	M022, P279, P282, U011	NA
Isopropanol	Electroplating solution for californium on platinum foils and disks.	C078, P021, P223	NA
Kerosene (Amsco)	Deodorized mineral spirits. Pharex solvent extraction diluent.	C078, P279, U011	NA
Lead	Glovebox gloves and window. Fission product contaminant of HFIR targets. Californium product solution impurity. Lead shielding, lead pigs, bricks, shavings, electronic equipment (circuit boards), and solder. Identified in laboratory logbooks	C148, C302, M005, M024, M100, P151, P272, P279, U011, U038, U429, U477, U508, U529, U531, U537	D008*
Lead-acid batteries	Contained in mule carrier lead-acid batteries.	P161	D008
Lead carbonate	Cleaning of soap film from internal surfaces of cell windows during window maintenance.	P020	D008
Lead oxide	Berkelium-Californium separation	P114	D008
Lithium	Identified in laboratory logbooks.	U429	NA
Lithium chloride	Transcurium and Mark-42 LiCl chromatographic anion-exchange oxidant. Process solutions free acid and adogen titration reagent.	C078, P136, P145, P161, P223, P279, P282, U011	NA
Lithium hydride	Identified in laboratory logbooks.	U429	NA
Lithium hydroxide	Process solutions free acid and adogen titration reagent.	C078, P282, U011	NA
Lithium hypochlorite	Cleanex extraction oxidant.	U011	NA
Lithium nitrate	REDC inorganic chemical inventory.	U011	NA
Magnesium	Identified in laboratory logbooks.	U505, U506	NA
Mercuric nitrate	Radioiodine trap reagent.	C078, U011	D009
Mercury	Contained between the liners and shells of evaporator tanks. Mercury vapor lamps, electronic equipment, thermostats, and solder.	C148, M005, M024, M100, P161, P272, U038,	D009*
Mercury amalgamation agents	Used to treat residual mercury during cask repackaging.	M022, U046	NA

Table 5-3. Waste Stream OR-REDC-RH-HET Material and Chemical Inputs (continued)

Chemical/Material	Use/Description/Location	AK Source	EPA HWNs
Methanol	Tramex extraction reagent. Ingredient in Formula 3A alcohol (5%) used to cleanout equipment. Identified in laboratory logbooks.	C078, M022, P030, P136, P145, P161, P279, U011, U425	NA
Methyl isobutyl ketone	Neptunium solvent extraction reagent (organic phase). Uranium alpha spectroscopy reagent.	P282	NA
Mr. Clean	Liquid cleaner used in ultrasonic cleaning of HFIR targets.	M022, P263	NA
Napthalene (deca hydro)	REDC organic chemical inventory.	C078	NA
N-paraffin hydrocarbon (NPH)	SEFT solvent extraction diluent.	C078, P161, P173, P229, U011	NA
Nickel chloride hexahydrate	REDC inorganic chemical inventory.	C078	NA
Nitric acid	Plutonium fuel and transcurium target dissolution. Solvent extraction aqueous solution. Plutonium and americium anion/cation-exchange feed solution and eluent. Dilute aqueous samples and cleaning counting plates for radiological analyses.	C078, P136, P145, P161, P229, P279, P282, U011	NA
Nitrous acid	Identified in laboratory logbooks.	U425	NA
Nochar	Solidifying agent for absorbing residual liquids during cask repackaging.	M022, U046	NA
Oxalic acid	REDC organic chemical inventory.	C078, U011	NA
Pentasodium diethylene-triamine pentaacetate	Decontamination solution detergent.	P279	NA
Phenolphthalein	Process solution titration end point indicator.	P282	NA
Potassium bromate	Berkelium extraction process oxidant.	P279, U011	NA
Potassium carbonate	In-tank americium and curium precipitation. Scrubbing system basic solution.	C078, P136, P145, P161, U011	NA
Potassium dichromate	Determination of total reducing normality reagent.	P282	D007
Potassium hydroxide	Scrubbing system basic solution.	C078, P161, U011	NA
Potassium iodide	Plutonium/Uranium anion-exchange reagent.	P282	NA
Potassium nitrate	REDC inorganic chemical inventory.	C078, U011	NA
Potassium oxalate	Process solution titration reagent.	P282	NA
Potassium permanganate	Neptunium solvent extraction reagent.	P282	NA
Praseodymium nitrate	Identified in laboratory logbooks.	U436	NA
Scouring powder	Used to decontaminate packages before shipment.	P263	NA
Samarium nitrate	Identified in laboratory logbooks.	U507, U529	NA

Table 5-3. Waste Stream OR-REDC-RH-HET Material and Chemical Inputs (continued)

Chemical/Material	Use/Description/Location	AK Source	EPA HWNs
Selenium metal	Actinide and lanthanide hydride and metallide studies.	P114	D010
Silica gel (quartz)	Purifying diethylbenzene and kerosene.	C078, P279, U011	NA
Silver	Photographic development solutions. Electronic equipment (circuit boards). Identified in laboratory logbooks.	C078, C148, M005, M100, U507	D011*
Silver nitrate	REDC inorganic chemical inventory.	C078	D011
Silver zeolite	Trapping radioactive iodine.	P500	D011
Sodium aluminate	Iodox process dissolver solution.	P500	NA
Sodium carbonate	Acid vapor scrubber solution.	C078, P161, U011	NA
Sodium bromate	Berkelium cation-exchange oxidant.	C078, P136, U011	NA
Sodium dichromate	Berkelium separation extraction reagent.	P282	D007
Sodium hydroxide	Aluminum cladding target dissolution. Acid vapor scrubber and I-131 sorbent solutions. Decontamination and waste line flush solution. Neutralization of process solutions. Process solution titration reagent.	C078, P145, P161, P279, P282, U011	NA
Sodium hypochlorite	Oxidation of iodine in caustic scrubber solution.	C078, P482	NA
Sodium meta bisulfite	REDC inorganic chemical inventory.	C078	NA
Sodium nitrate	Aluminum cladding target dissolution.	C078, P145, P161, P279, U011	NA
Sodium nitrite	Total plutonium analytical chemistry extraction reagent.	P282	NA
Sodium oxalate	Process solution titration reagent.	C078, P282	NA
Sodium tetraborate (borax)	REDC inorganic chemical inventory.	C078	NA
Sodium thiocyanate	Study of aqueous thiocyanate complexes of trivalent transplutonium actinides.	P114	N/A
Sodium perchlorate	Study of aqueous thiocyanate complexes of trivalent transplutonium actinides.	P114	NA
Sodium thiosulfate	Reagent for stabilization of iodine during aluminum jacket dissolution.	C078, U011	NA
Stannous chloride	Tramex holding reductant reagent. Uranium spectrophotometric analysis reagent.	P136, P279, P282	NA
Stearic acid	Fuel pellet forming die lubricant.	P161, U011	NA
Stripcoat TLC Free	TWPC hot cell maintenance.	M022, U125	NA
Sulfamic acid	Identified in laboratory logbooks.	U432	NA
Sulfuric acid	Contained in mule carrier lead-acid batteries. Berkelium extraction reagent. Determination of total reducing normality reagent. Iron spectrophotometric analysis reagent.	P145, P161, P282	NA
Tartaric acid	Iron spectrophotometric analysis reagent.	P282	NA
Tellurium nitrate	Identified in laboratory logbooks.	U435, U506	NA
Terbium nitrate	Added to various feed solutions to enhance the precipitation of the actinides as oxalates. Identified in laboratory logbooks.	P820, U543	NA

Table 5-3. Waste Stream OR-REDC-RH-HET Material and Chemical Inputs (continued)

Chemical/Material	Use/Description/Location	AK Source	EPA HWNs
Tetraethylammonium hydroxide	Precipitation of Technicium-99.	P787	NA
Thorium nitrate	REDC inorganic chemical inventory.	C078	NA
Trialkyl amine	Dissolved in diethylbenzed as an liquid ion-exchanger solution for solvent extraction operations.	P279	NA
Tributylphosphate	Solvent extraction organic phase solvent for LWR (SETF) fuels.	C078, P173, P229, U011	NA
Trichloroethylene	Solvent extraction.	C148, P827, U011, U412, U478, U489	F002
Toluene	Scintillation reagent solvent.	P223	F005
Ultima Gold	Liquid scintillation cocktail.	M022, P282	NA
Vermiculite	Used to absorb free liquids.	P263	NA
Xylene	Dilute organic samples for analyses. Total plutonium, berkelium, and neptunium analytical chemistry extraction reagent. Identified in laboratory logbooks.	P161, P282, U011, U432, U482	NA
Zinc bromide	REDC inorganic chemical inventory.	C078, U011	NA
Zircaloy/zirconium	Contaminant from process tanks. Leached fuel cladding hulls from LWR (SETF) dissolution.	C078, P136, P161, P173, P229, P223, P279, U011	NA
Zirconium nitrate	Identified in laboratory logbooks.	U453	NA
Zirconium phosphate	Cation-exchange material.	P851	NA

***EPA HWN historically assigned by ORNL generators.**

5.4.2.1 F-Listed Constituents

Based on review of AK relative to REDC chemicals usage and chemical inventory information, waste stream OR-REDC-RH-HET contains or is mixed with F-listed hazardous wastes from non-specific sources listed in 40 CFR Part 261, Subpart D (40 CFR 261.31). As shown in Tables 5-2 and 5-3, F002 and F005-listed solvents have been used during REDC operations. F003 constituents, including acetone, methanol, methyl isobutyl ketone, and xylene are listed solely because these solvents are ignitable in the liquid form. The waste stream will not exhibit the characteristic of ignitability because it is not liquid; therefore, F003 is not assigned. Although F001-listed solvents were identified in the AK record (carbon tetrachloride and trichloroethylene), EPA has provided a regulatory clarification that the F001 listing is only appropriate when the listed solvents are used in a "large-scale" degreasing operation such as cold cleaning or vapor degreasing on an industrial scale (Reference 14). Large-scale degreasing operations have not been conducted in the REDC, and therefore, EPA HWN F001 is not assigned to this waste stream. Waste stream OR-REDC-RH-HET is assigned F-listed EPA HWN F002 for 1,1,1-trichloroethane, 1,1,2-trichloroethane and trichloroethylene and EPA HWN F005 for benzene and toluene (References DR005, DR008, and DR602).

5.4.2.2 Toxicity Characteristic Constituents

Based on review of AK relative to chemicals used or present in the REDC and supporting analytical operations, waste stream OR-REDC-RH-HET is contaminated with toxicity characteristic compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24) (Reference 11). Where a constituent has been identified and there is no quantitative data available to demonstrate that the concentration of a constituent is below regulatory threshold levels, the applicable EPA HWN is applied to the waste stream.

Debris waste from the REDC operations contain or is contaminated with toxicity characteristic metal compounds listed in 40 CFR 261. Based on the references identified in Table 5-3, EPA HWNs D004, D005, D006, D007, D008, D009, D010, and D011 are assigned to waste stream OR-REDC-RH-HET (References DR005, DR008, and DR602).

The AK sources identified the use of organic toxicity characteristic compounds including benzene (HWN D018), carbon tetrachloride (HWN D019), and trichloroethylene (HWN D040). EPA HWNs F005 and F002 are assigned to the waste stream for F-listed solvents benzene (HWN F005) and trichloroethylene (HWN F002). Because the more specific F-listed EPA HWNs have been assigned for these compounds, assignment of the corresponding toxicity characteristic HWNs D018 and D040 is not necessary. Therefore only HWN D019 for carbon tetrachloride is assigned to waste stream OR-REDC-RH-HET (References DR005 and DR602).

5.4.2.3 Ignitables, Corrosives, and Reactives

Potentially ignitable, corrosive, and reactive waste materials are prohibited during the repackaging of the RH TRU waste in the TWPC. For this reason, the materials in this waste stream do not meet the definition of ignitability as defined in 40 CFR 261.21 (Reference 11). Additionally, REDC process solutions prepared with the reagents identified in Table 5-3 were prepared outside of the cubicles and introduced into the closed loop process tanks. The resulting waste process solutions were piped out of the facility and are not expected to be included in the stored inventory of REDC waste to be repackaged. The materials are not liquid and VE is performed during repackaging to ensure prohibited amounts of residual liquids are not added to the containers. This material will not cause fire through friction, absorption of moisture, or spontaneous chemical changes. This material is not a compressed gas and is not an oxidizer. Prior to WIPP disposal, prohibited quantities of liquids identified during repackaging are removed and/or immobilized. Waste stream OR-REDC-RH-HET is therefore not ignitable (HWN D001) (References P161, P241, P242, P263, P282, and U011).

The debris materials in this waste stream do not meet the definition of corrosivity as defined in 40 CFR 261.22 (Reference 11). The materials are not liquid and VE is performed to ensure liquids are not added to containers during repackaging. Prohibited

quantities of liquids identified during VE are removed and/or immobilized. Waste stream OR-REDC-RH-HET is therefore not corrosive (HWN D002).

The materials in this waste stream do not meet the definition of reactivity as defined in 40 CFR 261.23 (Reference 11). The debris waste materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The waste does not contain reactive cyanide or sulfide compounds. There is no indication that the waste contains explosive materials, and it is not capable of detonation or explosive reaction. As described above, processing solutions containing potentially hazardous chemical reagents in the pure form were prepared outside of the processing area and the resulting process solutions were piped from the process area. Additionally, preventative measures have been taken to prevent potential accidents associated with nitrated ion-exchange resins typically involving the removal of the resins from the column and conversion to the hydroxide form before disposal.

Anion-exchange resins used with nitric acid are flushed from the column, rinsed with ammonium hydroxide to convert the resin to the hydroxide form, air dried, and grouted in metal cans. Spent cation-exchange resins are calcined to an oxysulfate ash, and the ashes are leached with nitric acid and dried prior to assimilation (and fixing) into melted polyethylene waste in a metal bucket. Prohibited quantities of liquids identified during VE are removed and/or immobilized during repacakaging. Waste stream OR-REDC-RH-HET is therefore not reactive (HWN D003) (References P161 and U011).

5.4.2.4 P- and U-Listed Constituents

Review of the AK record did not identify any specific source or incident where the REDC waste was mixed with or contaminated with discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof. No listed chemicals were identified in the container-specific documentation for waste stream OR-REDC-RH-HET. The only specific source identified for beryllium is small foil targets and source plates electroplated with microgram quantities of transplutonium elements. Review of the available container documentation did not identify beryllium as a component of the waste in these containers. Therefore, if present, beryllium will be a minor contaminant, well below one weight percent in any given waste container and far less than 18.14 kilograms (kg) in any payload container. Additionally, since no beryllium powder is present in the debris waste, P015 is not assigned to the waste stream. Hydrofluoric acid is used as a dissolution reagent; however, there is no indication that unused acids or other reagents, or spills of these reagents were disposed of in this waste stream. Therefore, U-and P-listed EPA HWNs, including U134, are not assigned to waste stream OR-REDC-RH-HET (References M005, M100, and P223).

5.4.2.5 K-Listed Constituents

Waste stream OR-REDC-RH-HET does not include any of the manufacturing process wastes from the specific industries or sources listed in 40 CFR 261.32 (Reference 11). Therefore, waste stream OR-REDC-RH-HET is not assigned a K-listed HWN.

5.4.3 CCP Radiological Characterization

The overall approach to the radiological characterization implemented by CCP for waste stream OR-REDC-RH-HET repackaged drums is a dose-to-curie (DTC) approach. The approach is documented in CCP-AK-ORNL-501, *CCP Remote-Handled Transuranic Radiological Characterization Technical Report For Remote-Handled Transuranic Waste From Oak Ridge National Laboratory Radiochemical Engineering Development Center, Waste Stream: OR-REDC-RH-HET* (Reference 17). In this approach, the dose rate is measured for an individual waste container, and the Cs-137 concentration is determined from the dose rate. From the Cs-137 concentration, scaling factors developed from modeling of the contamination deposition on waste materials are used to derive the concentrations of the remainder of the radionuclides that are required to be reported.

The RH waste from the REDC hot cells was generated from April 1972 to February 2007. The waste generated prior to this date has already been disposed of. In the time period after April 1972, there were a total of 66 processing campaigns: 40 HFIR, 10 SETF, and 16 Mark-42 (Reference 17).

In reviewing the radiological information and data collected for these processing campaigns conducted from April 1972 through May 2007, CCP determined that, although the processing equipment and waste-generating activities were essentially the same from campaign to campaign, there were potential differences in the radionuclide distributions on the waste because of the differences in the starting fuel and target materials processed in each campaign. It was concluded that three groupings of the campaigns would be appropriate for the purpose of developing scaling factors that would be used in the characterization of the waste. The three periods are identified as Pre-SETF, SETF, and Mark-42. The bases for groupings are the average inventory ratios of the actinides to Cs-137 and the relative distribution of the actinides. The first grouping includes 22 HFIR campaigns, conducted from April 1972 to November 1978, where curium purification, target fabrication, and transcurium recovery and purification were the principal activities (Reference 17).

The second grouping includes both SETF and HFIR campaigns that were conducted alternately over a 13-year period. This second grouping includes 11 HFIR campaigns, two americium and curium purification campaigns (Campaigns 57 and 58), and 10 SETF campaigns. With the addition of the LWR and Fast Flux Test Facility (FFTF) fuels from the SETF campaigns into the processing cells, significantly larger quantities of Cs-137 were introduced into the hot cells, which would have the affect of altering the scaling factors developed for the HFIR campaigns. In addition, the LWR

and FFTF fuel introduced the uranium isotopes and different distributions and quantities of the plutonium isotopes, both of which would require different scaling factors from those developed for HFIR campaigns only. It is anticipated that waste originating from Campaigns 57 and 58 will have different scaling factors from the rest of the SETF period because these two campaigns were not HFIR processing campaigns, but rather purification campaigns of Am-Cm oxide slugs and Am slugs (Reference 17).
The third grouping included both Mark-42 and HFIR campaigns that were conducted alternately from November 1991 to February 2007. This third grouping includes five HFIR campaigns and 16 Mark-42 campaigns. As with the second grouping, the inclusion of the Mark-42 campaigns introduced even larger quantities of Cs-137 into the hot cells and altered the distributions of the actinides somewhat.

Although waste stream OR-REDC-RH-HET will be segregated into three or more populations for the purposes of implementing the DTC characterization approach, as containers of REDC debris waste are generated during repackaging in the TWPC, the container specific documentation will be reviewed to ensure that each container included in waste stream OR-REDC-RH-HET meets the WIPP-WAP and the WCPIP waste stream definitions (References 1, 2, M100, and U038).

5.4.4 Historical ORNL Radiological Characterization

This section summarizes the approach developed historically by ORNL to characterize RH TRU waste generated at the REDC. This section does not represent the approach implemented by CCP. This section is presented only to provide background information related to data that may be found on historical waste generator records and waste storage records.

5.4.4.1 Radiological Characterization Prior to 1999

Prior to 1999, waste was monitored for beta-gamma radiation and neutron radiation. These dose rate measurements were converted to activity values based on a predetermined conversion factor. This activity was assigned to the dominant nuclide in the package, typically Cm-244 and/or Cf-252 (References M024, M100, and P240). During 2006, the radionuclide inventory for overpacked casks from the trenches was revised to include an average decay correction of generator reported radionuclides (References M024 and M100). This decay correction adjusted the generator reported radionuclides, typically only Cm-244 and/or Cf-252. TRU radionuclides of plutonium and americium are known to be present in the waste, but records prepared by waste generators for waste generated prior to 1999 do not included information to demonstrate whether the TRU concentration was less than or greater than 100 nanocuries per gram (Reference P058).

5.4.4.2 Radiological Characterization of CH Waste Generated After 1999

On April 1, 1999, ORNL finalized and began implementation of the Waste Stream Profile Sheet (WSPS) 7920-HCAL-002 for the radiological characterization of CH waste

generated at Building 7920 Hot Cell and Analytical Laboratories. Although this WSPS is specific to CH waste, the isotopic distribution developed and documented in the WSPS was also utilized to assign isotopic values to RH waste generated after 1999 (refer to section 5.4.4.3). The following information is a summary of the data flow used in development of the isotopic distribution for WSPS 7920-HCAL-002 (Reference U045):

1. Twenty-eight in-cell smears samples were collected and analyzed. The analysis reported 19 radionuclides; however, no beta nuclides were analyzed as part of the original analysis. The average data for the 19 nuclides was used for the development of the WSPS.

2. Two additional smears were taken and analyzed for the beta constituents, as well as selected alpha and gamma emitting nuclides. The Cm-244 values were used to scale the activities for the beta emitters to be included with the data from the 28 smears samples.

3. The Pu-241 content was estimated based on the concentration of Pu-241 in the MK-42 targets which had the highest Pu-241 content. The plutonium isotopic distribution was analyzed on the MK-42 targets by mass spectrometry.

4. Data for the curium and californium isotopic distribution was taken from the Master of Science Thesis, *"Characterization of ORNL Transuranic Waste from the Measurement of Fission and Activation Products"* prepared by L. K. Nguyen, May, 1997 (Reference P093). The curium and californium contributions were calculated using the Cm-244 and the Cf-252 reported in item number one above.

5.4.4.3 Radiological Characterization of RH Waste Generated After 1999

On August 8, 1999, ORNL finalized WSPS 7920-HCAL-005 for the radiological characterization of RH waste in concrete casks generated at Building 7920 Hot Cell and Analytical Laboratories.

Initially, a study was performed to determine the neutron shielding characteristics of the goethite high density concrete cask using both field surveys and MCNP code modeling data. A 102 microgram Cf-252 source was used for the study. The field surveys were taken using a REM 500^{TM} neutron survey instrument manufactured by Far West Technologies Measurements. The measurements were compared to the modeling results from the MCNP code. The study is documented in a Master of Science Report, *"Neutron Shielding Effectiveness of Goethite High Density Concrete"* prepared by Keith Waggoner, July 1999 (Reference U049).

A factor to convert the neutron dose rates at one meter from the wall of the RH TRU waste cask to microgram quantities of Cf-252 was calculated. Two neutron dose rates are taken on opposite sides of the waste cask. The first dose rate at one meter is taken at the highest millirem/hour rate of the cask, and then the second dose rate is taken at a distance of one meter on the opposite side of the waste cask.

The two dose rates are averaged to normalize the Cf-252 to the theoretical center of the waste cask. The average neutron dose rate is used to calculate the amount of Cf-252 inside the waste cask. The remaining radionuclides are calculated using the quantity of Cf-252 in the waste cask and the isotopic distribution documented in WSPS 7920-HCAL-002 (References M024, M100, U045, and U049).

5.4.4.4 Generator Reported Radionuclides for Waste Stream OR-REDC-RH-HET

To determine isotopic ratios for waste stream OR-REDC-RH-HET as a whole, the total gram value for each individual generator reported radionuclide was divided by the total mass of all radioactive constituents in the waste stream and converted to a percentage. This result is listed in Table 5-4, Waste Stream OR-REDC-RH-HET Radiological Characterization, as "Total Nuclide Weight%." To determine the radionuclide weight percent range for individual containers, the radiological mass in each container was summed. The mass of each individual radionuclide in a container was divided by the total radiological mass for that container and converted to a percentage. The minimum and maximum results are listed as "Nuclide Weight% Range for Individual Containers." Since the majority of the radionuclides were reported in only a few containers, the "Nuclide Weight% Range for Individual Containers" includes only those containers where the radionuclide was reported. The same process was applied to determine "Total Nuclide Curie%" and "Nuclide Curie% Range for Individual Containers."

Table 5-4. Waste Stream OR-REDC-RH-HET Radiological Characterization

Nuclide	#[1]	Total Nuclide Weight%[2,7]	Total Nuclide Curie%[3,7]	Nuclide Weight% Range for Individual Containers[4,7]	Nuclide Curie% Range for Individual Containers[5,7]	Expected Present (Yes/No)
WIPP Required Radionuclides						
Am-241	19	2.38%	0.41%	0.13% - 91.8%	0.01% - 20.0%	Yes
Pu-238	17	0.33%	0.28%	0.31% - 2.17%	0.17% - 0.47%	Yes
Pu-239	18	**21.29%**	0.07%	1.94% - 99.9%	0.01% - 86.1%	Yes
Pu-240	13	16.54%	0.19%	25.1% - 54.4%	0.36% - 0.37%	Yes
Pu-242	15	10.55%	0.00%	1.56% - 21.1%	Trace - 0.01%	Yes
U-233	Not Reported					No
U-234	Not Reported					Yes[6]
U-238	Not Reported					Yes
Cs-137	34	0.39%	1.71%	0.30% - 69.9%	0.79% - 49.2%	Yes
Sr-90	29	1.54%	10.53%	1.42% - 36.6%	13.33% - 47.7%	Yes
Additional Radionuclides						
Co-60	14	Trace	0.01%	Trace - Trace	0.02% - 0.02%	Yes
Nb-95	3	Trace	0.04%	Trace - Trace	0.21% - 5.22%	Yes
Zr-95	15	Trace	0.16%	Trace - 0.01%	0.22% - 5.38%	Yes
Ru-103	15	Trace	0.29%	Trace - 0.01%	0.42% - 12.9%	Yes
Ru-106	16	0.01%	1.31%	0.01% - 0.24%	1.88% - 23.6%	Yes
Ag-110m	15	Trace	0.02%	Trace - Trace	0.03% - 0.42%	Yes
Sb-125	14	Trace	0.07%	Trace - Trace	0.11% - 0.11%	Yes
Cs-134	15	Trace	0.11%	Trace - 0.03%	0.16% - 1.25%	Yes
Ce-141	15	Trace	0.60%	Trace - 0.01%	0.89% - 7.95%	Yes
Ce-144	15	Trace	0.21%	Trace - 0.20%	0.29% - 18.6%	Yes
Eu-152	14	Trace	0.04%	Trace - 0.01%	0.06% - 0.06%	Yes
Eu-154	14	0.02%	0.20%	0.01% - 0.02%	0.30% - 0.30%	Yes
Eu-155	15	0.01%	0.16%	0.01% - 0.33%	0.22% - 1.87%	Yes
U-235	Not Reported					Yes[6]
U-236	Not Reported					Yes[6]
Np-239	14	Trace	0.05%	0.00% - Trace	0.08% - 0.08%	Yes
Pu-241	15	0.65%	3.38%	0.14% - 0.90%	0.44% - 5.07%	Yes
Am-243	15	2.68%	0.03%	2.52% - 6.83%	0.04% - 0.04%	Yes
Cm-242	15	Trace	0.21%	Trace - Trace	0.07% - 0.31%	Yes
Cm-244	263	18.40%	74.81%	0.01% - 100%	0.08% - 100%	Yes
Cm-246	15	**20.96%**	0.32%	15.2% - 28.7%	0.14% - 0.49%	Yes
Cm-248	15	4.06%	Trace	2.94% - 5.58%	Trace - Trace	Yes
Cf-249	15	Trace	Trace	Trace - 0.01%	Trace - Trace	Yes
Cf-250	15	Trace	0.02%	Trace - 0.01%	0.03% - 0.03%	Yes
Cf-251	15	Trace	Trace	Trace - Trace	Trace - Trace	Yes
Cf-252	193	0.18%	4.77%	Trace - 100%	Trace - 100%	Yes

1. # is the number of RH containers where the radionuclide was reported. All 272 containers in this waste stream have at least one radionuclide reported.
2. This listing indicates the total weight percent of each radionuclide over the entire waste stream.
3. This listing indicates the total activity (curie) percent of each radionuclide over the entire waste stream.
4. This listing is the weight percent range of each radionuclide on a container-by-container basis. Only containers where the radionuclide was reported are included in the range.
5. This listing is the curie percent range of each radionuclide on a container-by-container basis. Only containers where the radionuclide was reported are included in the range.
6. U-234, U-U235, U-236, and U-238 were not reported in any waste container, but are expected present due to the SETF fuel processing work performed in waste generating areas.
7. "Trace" indicates less than 0.01 weight percent or activity percent for that radionuclide.

5.4.5 Polychlorinated Biphenyls

The final rule banning polychlorinated biphenyls (PCB) manufacturing, processing, distribution in commerce, and use was promulgated in 1979 (Reference 8). As a result of these new regulations, ORNL began an effort to identify and track transformers and other large pieces of equipment containing PCBs (References P1100, P1101, P1102, P1103, P1104, P1105, P1106, P1107, P1108, and P1109). Large high and low voltage capacitors were not included in the inventory of PCB equipment until 1985 (Reference P1109). The only PCB equipment identified in Building 7920 was a 250-gallon non-PCB transformer (less than 50 ppm PCBs) which was first listed in the inventory in 1982 (Reference P1106). A 15-gallon x-ray transformer (less than 50 parts per million [ppm] PCBs) from Building 7920 was added to the inventory in 1991 (Reference P1104). Transformers and capacitors containing greater than 50 ppm PCBs were not identified in Building 7920 (Reference 8).

Based on a review of the AK record, incandescent bulbs, mercury-vapor bulbs, and lighting fixtures (bases) were identified in container documentation, however items potentially containing PCB compounds were not specifically identified (capacitors, ballasts, etc.). No other potential sources for PCBs were identified in the AK record; however, the ORNL waste management practices described in the AK record did not historically identify PCB materials as prohibited items for waste containers (References 5, 15, M005, M110, P240, and P263).

Based on discussions with ORNL personnel, there is the potential for some drums to contain equipment with small PCB capacitors and pumps containing PCB oil. The oil may or may not have been drained from the pumps. Examples of equipment containing small capacitors include fluorescent light ballasts and electric motors such as a vacuum pump motor. These items may be present in waste generated before 1979. There may not have been a concerted effort to inventory pumps or electrical equipment containing small capacitors to determine if they contained PCBs so these items are potentially present in waste generated after 1979 (References C307 and C308). Drums found to contain pumps (with or without oil), small capacitors contained in electric motors and light ballasts, or other potential PCB-containing items during real-time radiography (RTR) or VE will be managed in accordance with the WIPP-WAC (References 15 and 18).

5.4.6 Prohibited Items

According to TRU waste packaging procedures for Building 7920, liquids are removed from the waste or absorbed onto a solid such as vermiculite, and semi-liquid waste forms such as sludges and resins are immobilized (e.g., grouted). Procedures also required the emptying and puncturing of spray cans and indicate pyrophorics and explosives were not used in established glovebox or hot cell operations. These materials have been prohibited by procedure since at least 1988 (References P240 and P263).

Since this waste stream dates back earlier than 1988, it is suspected that un-punctured spray cans may be present in some of the storage containers. It is unlikely that TRU waste from Building 7920 generated prior to 1988 contains process liquids because waste liquids were disposed into the process drain or intermediate level waste drains for treatment or storage. However, small amounts of residual liquids are expected in internal containers (e.g., sample bottles and aerosol cans) (References P161, P279, U011, and P125).

A review of UCN-2109 forms for waste generated since the mid-1990s indicate that prohibited items, including liquids, pyrophorics, explosives, and sealed container greater than four liters are not present (References M005 and M100). However, as described in section 5.5 below, sealed containers greater than four liters will be present in waste generated before this time frame. The following steps are taken to assure that prohibited items are not included in the RH drums during TWPC repackaging operations (Reference U046):

- Residual liquids are removed or immobilized (e.g., vermiculite and Nochar).
- Unpunctured aerosol cans are punctured or removed from the waste stream.
- All internal containers (buckets, cans, and bags) are opened and all layers of confinement breached.

Certified VE is performed to ensure the waste does not contain prohibited items in accordance with the WCPIP and WIPP-WAP (References 1 and 2).

5.5 Waste Packaging

This section describes the packaging configuration for the current inventory of RH waste originating from the REDC. This waste will be repackaged in the TWCP and loaded into unlined, vented 55-gallon, 30-gallon, or 15-gallon drums (no layers of confinement in drums). As containers of REDC debris waste are generated during repackaging in the TWPC, the container-specific documentation will be reviewed to assure that each container included in waste stream OR-REDC-RH-HET meets the WIPP-WAP and the WCPIP waste stream definitions (References 1, 2, M100, and U038).

Occasionally waste initially repackaged in the TWCP as RH waste will have measured surface dose rate less than 200 millirems per hour (mrem/hr), and the waste must be transferred to a 55-gallon drum designated for CH-TRU waste. Waste anticipated to be RH TRU waste is initially repackaged into 55-gallon drums lined with an open top lifting sack fitted with standing lift loops. This polypropylene liner may also include a cardboard form insert. The lifting sack facilitates moving the repackaged waste from the RH drum to a drum designated for CH waste. The open top lifting sack and cardboard insert become part of the waste (Reference M170).

Concrete Casks

As described in section 4.7, most of the waste generated prior to 1978 would have been placed into concrete casks called "floor casks." The majority of the floor casks have 4.5 inch thick side walls because the lower activity materials typically required much less shielding. In addition to the concrete casks with 4.5-inch thick walls, waste from REDC operations have been loaded in casks providing additional shielding with 6- and 12-inch thick concrete walls. The external dimension for all three of these cylindrical casks is approximately 7.5 feet tall by 4.5 feet in diameter. The waste materials loaded into the casks are packaged in a variety of configurations utilizing the following packaging materials (References P125, P161, U011, and U038):

- 1-gallon metal paint cans (some lead-lined)
- Polyethylene bags, liners, bottles, and draw-string bags
- Cardboard ice cream cartons
- 3.4-gallon polyethylene plastic buckets (sealed and unsealed)
- 2-gallon Bain-Marie polyethylene plastic containers
- 5-gallon metal lard cans
- 10-gallon rigid-cardboard fiber drum

In the hot cell cubicles, waste items are typically placed into small containers (e.g., plastic buckets or metal cans). Larger waste items are cut up to fit into the buckets. Larger equipment, such as processing racks, charcoal filter beds, and Hopcalite organic filters traps are directly loaded into the casks. Typically, the racks have been packaged in several layers of polyethylene bags then placed directly into the concrete cask (References M005, M100, C302, P125, and P161).

Concrete casks of TRU waste are loaded in a solid waste loading station located in the LAA. Waste to be loaded into the cask from the transfer area is generally transferred to the loading station in sealed plastic buckets and unsealed plastic bags. Larger equipment is transferred to the loading station via the equipment transfer case for disposal. The incoming empty cask is prepared by placing a polyvinyl chloride plastic bag liner (0.01 inch) into the cask. Plywood expanders are placed inside the bag (a circular disk at the bottom and a circular ring at the top), and the bag is then secured to one of the waste station roof plugs. Two roof plugs are available for loading the waste packages. One is used when the waste is to be transferred using the equipment transfer case, the other is used when plastic buckets are loaded. After the cask is loaded, the plastic bag is collapsed and an electrically-driven turntable inside the waste station rotates the cask, twisting the top of the bag. The bag is then cut and sealed with a hot-knife sealer. The cask lid is then installed, sealed with roofing pitch, and secured using two steel tapes, attached around the outside of the cask. The cask lid may also be attached to the cask body by three anchor bolts aligned with holes drilled in the cask lid. All the concrete casks are overpacked into carbon steel RH cask prior to processing in the TWPC (References C302, U011, and U046).

55-Gallon Drums

Several inner packaging configurations may be present in the stored waste inventory in 55-gallon drums, including plastic bags, small cardboard ice-cream cartons, one-gallon paint cans, metal lard cans, and plastic buckets (References C098, C103, C148, P093, P263, and U046). The one gallon metal cans are slip-lid cans. Tape is wrapped around the sealing surface of the lid, but the lid has a hole in it (References C148, C302, and P240). The plastic bucket lids were heat sealed until the late-1990s; however, a hole was punctured in the lid starting in the mid-1990s. Beginning in the late-1990s, the bucket lids have been snapped in place, not heat-sealed (References C098, P161, and P240). The buckets that are not heat-sealed are placed in plastic bags and sealed with tape (References C148 and P093). Waste placed into plastic bags may be heat-sealed or sealed with tape, but heat-sealing was the preferred method for waste removed from a glovebox (References P240 and P263). The drums are lined with a single poly drum liner bag; rigid liners have not been used. Drum liners may or may not be sealed with tape (References C148 and P263).

B-88 Box

Wooden boxes were typically used to discard unusually shaped waste materials (e.g., gloveboxes, feed tanks, etc.) that could not be packaged directly into waste drums or concrete casks (Reference P125).

6.0 QUALIFICATION OF AK INFORMATION

As stated in CCP-PO-002, (Reference 15), this AK Summary Report provides a description of the characterization of RH waste stream OR-REDC-RH-HET. CCP-AK-ORNL-502, *Central Characterization Program RH TRU Waste Certification Plan for 40 CFR Part 194 Compliance and Confirmation Test Plan for ORNL REDC RH Waste, Waste Stream: OR-REDC-RH-HET.001* (Reference 16), describes how each DQO and QAO is met along with the rationale for selection of the AK qualification methods used. As required by the WCPIP (Reference 1), the description of waste stream OR-REDC-RH-HET is provided in sections 4.0 and 5.0. The description of the characterization approach is presented in CCP-AK-ORNL-502 (Reference 16).

Table 6-1, Waste Stream OR-REDC-RH-HET DQO Determination Summary, lists the DQOs to be addressed using AK associated with waste stream OR-REDC-RH-HET relating to the defense waste, radiological, and physical waste stream determinations.

Table 6-1. Waste Stream OR-REDC-RH-HET DQO Determination Summary

DQO Determinations	Summary of Characterization/Qualification Method	AK References/Sources
Defense, High Level Waste, and Spent Nuclear Fuel	As described in the defense waste justification in Section 4.4, a formal defense determination has been approved by CBFO for TRU waste originating from the operations in the REDC complex (including Building 7930). This determination concluded that the wastes generated by operations in the REDC are irretrievably commingled with materials from atomic energy defense activities associated with naval reactors development; nuclear materials production; nuclear waste and by-products management; and research and development activities. As described in Section 4.5, this waste stream does not contain spent nuclear fuel or high-level waste.	DR009, I022, I023, I044, M023, P258, P281, P569, U038, U039, U647
TRU Waste	As described in the radiological characterization in Section 5.4.3, non-TRU radionuclides Cm-244 and Cf-252 were the only radionuclides reported by the waste generator for the majority waste containers, and no process has been implemented to quantify additional TRU radionuclides known to be present in those waste containers. Additionally, all, or nearly all of the existing inventory of waste currently categorized by the site as RH TRU waste will be extracted from storage containers, visually inspected, and segregated based on the dose rate of incoming waste material at the time of repackaging. The final radiological characterization of resulting repackaged RH waste will be assessed as described in CCP-AK-ORNL-501 (Reference 17). **Characterization/Qualification Method**: Dose to Curie Method described in CCP-AK-ORNL-502 (Reference 16).	M024, M100, P058, P240, U038, U045, U049, U094 CCP-AK-ORNL-501 (Reference 17)
RH Waste	As described in the radiological characterization in Section 5.4.3, waste storage casks were monitored for beta-gamma radiation and neutron radiation, however, these measurement represent the dose rate external to the Goethite high density concrete storage casks and are not relevant to this DQO. Additionally, all, or nearly all of the existing inventory of waste currently categorized by the site as RH TRU waste will be extracted from storage containers, visually inspected, and segregated based on the dose rate of incoming waste materials at the time of repackaging. The final radiological characterization of resulting repackaged RH waste will be assessed as described in CCP-AK-ORNL-501 (Reference 17). **Characterization/Qualification Method**: Dose rate measurement of each container as described in CCP-AK-ORNL-502 (Reference 16).	M024, M100, P058, P240, U038, U045, U049, U094 CCP-AK-ORNL-501 (Reference 17)
Activity	This DQO is specific to payload containers and will not be assessed until the final payload configuration has been established.	Not Assessed

DQO Determinations	Summary of Characterization/Qualification Method	AK References/Sources
WIPP 10 Required Radionuclides	As described in the radiological characterization in Section 5.4.3, Cm-244 and Cf-252 were the only radionuclides reported by the waste generator for the majority waste containers, and no process has been implemented to quantify additional radionuclides known to be present in those waste containers. Additionally, all, or nearly all of the existing inventory of waste currently categorized by the site as RH TRU waste will be extracted from storage containers, visually inspected, and segregated based on the dose rate of incoming waste material at the time of repackaging. The final radiological characterization of resulting repackaged RH waste will be assessed as described in CCP-AK-ORNL-501 (Reference 17). **Characterization/Qualification Method**: Dose-to-Curie Method described in CCP-AK-ORNL-502 (Reference 16).	M024, M100, P058, P240, U038, U045, U049, U094 CCP-AK-ORNL-501 (Reference 17)
Physical Form	As described in Section 5.4.1, waste stream OR-REDC-RH-HET consists primarily of organic and inorganic debris meeting the WCPIP (Reference 1) definition for Summary Category Group S5000. **Characterization/Qualification Method**: 100% VE will be performed during repackaging to verify the physical form of the waste as discussed in CCP-AK-ORNL-502 (Reference 16).	M005, M024, M100, P125, P161, U011 CCP-AK-ORNL-502 (Reference 16)
Liquids	Prohibited quantities of liquids will be immobilized or removed during the packaging of waste stream OR-REDC-RH-HET **Characterization/Qualification Method**: 100% VE will be performed during repackaging to verify the absence of prohibited liquids as discussed in CCP-AK-ORNL-502 (Reference 16).	U046 CCP-AK-ORNL-502 (Reference 16)

7.0 CONTAINER SPECIFIC INFORMATION

In accordance with procedure CCP-TP-005 (Reference 3), a CCP Waste Containers List (Attachment 8 of the procedure) is completed and maintained as a quality record for waste tracking purposes. Information tracked includes container identification number, waste stream number, and the closure date for each container.

8.0 REFERENCE INFORMATION

1. DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*, Carlsbad, New Mexico, U.S. DOE Carlsbad Field Office

2. *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan,* NM4890139088-TSDF, Santa Fe, New Mexico, New Mexico Environment Department

3. CCP-TP-005, *CCP Acceptable Knowledge Documentation*, Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

4. DOE/TRU-13-3425, *Annual Transuranic Waste Inventory Report – 2013,* U.S. Department of Energy, Carlsbad Field Office

5. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

6. Title 40 CFR Part 191, *Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes*, Washington, D.C., U.S. EPA, December 20, 1993

7. Title 40 CFR Part 194, *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations*, Washington, D.C., U.S. EPA, February 9, 1996

8. *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations: Certification Decision*, Washington, D.C., U.S. EPA, May 18, 1998

9. Public Law 102-579, *The Waste Isolation Pilot Plant Land Withdrawal Act*, October 30, 1992 as amended by Public Law 104-201, September 23, 1996

10. 42 U.S.C. 10101, *Nuclear Waste Policy Act of 1982*, U.S. Congress

11. Title 40 CFR Part 261, *Identification and Listing of Hazardous Waste*, Washington, D.C., U.S. EPA, July 1, 2007

12. CCP-AK-ORNL-002, *Central Characterization Program Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Radiochemical Engineering Development Center Contact-Handled Transuranic Waste, Waste Stream OR-REDC-CH-HET,* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

13. DOE/LLW-217, *DOE Waste Treatability Group Guidance*, Idaho Falls, Idaho, INEL-Lockheed Idaho Technologies

14. McCoy and Associates, Inc. 2002. *McCoy's RCRA Unraveled.* Second Edition

15. CCP-PO-002, *CCP Transuranic Waste Certification Plan*, Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

16. CCP-AK-ORNL-502, *Central Characterization Program RH TRU Waste Certification Plan for 40 CFR Part 194 Compliance and Confirmation Test Plan for ORNL REDC RH Waste, Waste Stream: OR-REDC-RH-HET,* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

17. CCP-AK-ORNL-501, *Central Characterization Program Remote-Handled Transuranic Radiological Characterization Technical Report for Remote-Handled Transuranic Waste From Oak Ridge National Laboratory Radiochemical Engineering Development Center, Waste Stream: OR-REDC-RH-HET,* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

18. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant,* Carlsbad, New Mexico, U.S. DOE Carlsbad Field Office

19. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC),* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

9.0 AK SOURCE DOCUMENTS

Document Number	Title
C078	Memo to Bryan Roy transmitting Historical Survey – RCRA Information
C098	Interview with Wayne Evans: Waste management practices at REDC (Buildings 7920 and 7930)
C103	Memo to distribution re: Seal out buckets used at REDC
C148	Interview of REDC Personnel
C302	ORNL Comments on CCP-AK-ORNL-500, Rev. 0, Draft D
C307	Interview of Walt Bond - Subject: Processes and Waste in Building 3508 at ORNL
C308	Interview of Jason Taylor. Subject: PCB Management at ORNL
C600	Interviews with Don Coffey and Wayne Evans re: REDC RH Waste Cask Packaging Clarification and Swipe Sample Collection
DR005	Discrepancy Resolution, Re: EPA Hazardous Waste Number Discrepancies
DR008	Discrepancy Resolution, Re: Follow-up on DR602 for EPA Hazardous Waste Number Discrepancies (REDC Waste)
DR009	Discrepancy Resolution, Re: Waste Incidental to Reprocessing Determination
DR600	Discrepancy Resolution, Re: Packaging Documentation Discrepancies for Cask X10C0601826
DR601	Discrepancy Resolution, Re: Presence of Debris items in Poly Blocks
DR602	Discrepancy Resolution, Re: Follow-up on DR005 for EPA Hazardous Waste Number Discrepancies
I022	DOE Order 435.1, Radioactive Waste Management
I023	U.S. Department of Energy Radioactive Waste Management Manual
I044	Re-Evaluation of the Radiological Data for Legacy CH TRU Waste from REDC Building 7920
M001	Review by Charles Roberts of REDC Maintenance and Operational Log Books
M005	Container Paperwork and UNC-2109 Forms for ORNL Waste Drums for REDC CH Waste
M022	Collection of MSDS for REDC CH and RH Waste
M023	Defense Determination for REDC Heterogeneous Debris
M024	RH EM Waste Database Query
M100	Container Paperwork for containers in Waste Stream OR-REDC-RH-HET (UCN-2109)
M110	EM Waste Database Query

Document Number	Title
M120	ORNL RH Cask Evaluation and Supplemental Packaging Documentation
M121	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET
M170	Drawings and Specifications for Geotextile drum liners with standing lift loops
P014	Inventory of ORNL Remedial Action Sites: 11. Research Laboratories
P016	Solvent Extraction Studies with High-Burnup Fast Flux Test Facility Fuel in the Solvent Extraction Test Facility
P020	Chemical Technology Division Annual Progress Report Period Ending March 31, 1979
P021	Chemical Technology Division Progress Report for the Period April 1, 1981 to March 31, 1983
P030	Chemical Technology Division Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending June 30, 1968
P058	Statistical Analysis of Radiochemical Measurements of TRU Radionuclides in REDC Waste
P093	Characterization of ORNL Transuranic Waste from the Measurement of Fission and Activation Products
P110	Chemical Technology Division Annual Progress Report for Period Ending March 31, 1972
P113	Progress in Nuclear Energy, Series III, Process Chemistry, Volume 4; Section: 7.2 Processing Methods For The Recovery Of Transplutonium Elements
P114	Chemical Technology Division Annual Progress Report for Period Ending March 31, 1971
P125	Remote-Handled Transuranic Solid Waste Characterization Study: Oak Ridge National Laboratory
P136	Chemical Technology Division Annual Progress Report for Period Ending May 31, 1967
P145	Chemical Technology Division Annual Progress Report for Period Ending May 31, 1970
P151	Chemical Technology Division Annual Progress Report for Period Ending May 31, 1973
P160	Chemical Technology Division Annual Progress Report; Period Ending March 31, 1977
P161	Safety Analysis Report Radiochemical Engineering Development Center Building 7920
P173	Solvent Extraction Studies of Coprocessing Flowsheets – Results from Campaigns 3 and 4 of the Solvent Extraction Test Facility (SETF)
P223	Chemical Technology Division Annual Progress Report for Period Ending May 31, 1969
P229	Solvent Extraction Studies of Coprocessing Flowsheets – Results from Campaigns 1 and 2 of the Solvent Extraction Test Facility (SETF)
P240	Certification, Packaging and Disposition of Contact-Handled Transuranic (CH-TRU) Waste At the Radiochemical Engineering Development Center (REDC)
P241	Oak Ridge National Laboratory Contact-Handled Transuranic Waste Certification Program Plan

Document Number	Title
P242	Oak Ridge National Laboratory Contact-Handled Transuranic Waste Certification Program Plan
P256	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis
P258	Production, Distribution, and Applications of Californium-252 Neutron Sources
P263	TRU Operating Manual and Supporting Documentation
P272	Oak Ridge National Laboratory Waste Management Plan
P279	Safety Analysis for the Transuranium Processing Plant, Building 7920
P281	Californium-252: A Remarkable Versatile Radioisotope
P282	Gross Alpha Activity Measurements
P482	Summary of the Campaign During February 1969 to Process Six Irradiated HFIR Targets in the Transuranium Processing Plant
P500	Iodox Process Tests in a Transuranium Element Production Campaign
P569	Implementation Plan for U.S. Department of Energy Order 435.1, U.S. Department of Energy – Oak Ridge Operations, Oak Ridge, Tennessee
P787	Conversion of $NH_4{}^{99}TcO_4$ to $H99TcO_4$ & Synthesis of $(C_2H_5)_4N^{99}TcO_4$
P801	Removal of Chomium by Solvent Extraction
P804	Actinide Product Finishing/Special Projects Procedure: Actinide/Lanthanide Separation by Extraction Chromatography
P819	Actinide Product Finishing/Special Projects Procedure: Actinide/Lanthanide Separation Studies for the Advanced Fuel Cycle Initiative
P820	Actinide Product Finishing/Special Projects Procedure: Preparation of Chemical Reagents
P826	Actinide Product Finishing/Special Projects Procedure: Fission Product Removal by Alcoholic-HCl Ion Exchange
P827	Actinide Product Finishing/Special Projects Procedure: Organic Scrub of the Berkelium (Bk) Product from the Berkex Process
P851	Hot Cell Experimental Procedure
P953	Phased Construction Completion Report for the 22 Trench Waste Retrieval Project at ORNL
P1100	PCB Annual Report for Oak Ridge National Laboratory – 1986
P1101	PCB Annual Report for Oak Ridge National Laboratory – 1987
P1102	PCB Annual Report for ORNL - 1998
P1103	PCB Annual Report for Oak Ridge National Laboratory – January 1, 1989-February 5, 1990
P1104	PCB Annual Report for Oak Ridge National Laboratory – January 1, 1991-December 31, 1991

Document Number	Title
P1105	PCB Annual Report for Oak Ridge National Laboratory – February 6, 1990-December 31, 1990
P1106	PCB Annual Report for Oak Ridge National Laboratory – 1982
P1107	PCB Annual Report for Oak Ridge National Laboratory – 1983
P1108	PCB Annual Report for Oak Ridge National Laboratory – 1984
P1109	PCB Annual Report for Oak Ridge National Laboratory – 1985
U011	Safety Analysis: Transuranium Processing Plant, Building 7920
U038	ORNL TRU Waste Historical Survey; Volumes 1, 2, and 3—Origins and Characteristics of Remote-Handled Transuranic Wastes (Trabalka report) Plus Appendices
U045	Waste Stream Profile Sheet for Building 7920, Hot Cells and Analytical Labs
U046	RH Debris Waste Process Flow Descriptions
U047	Transuranic Waste Processing Center at Oak Ridge National Laboratory Remote Handled Transuranic Waste Container Selection and Transfer Plan
U048	Remote Handled Transuranic Waste Transfer Project Scope and Inventory Assessment
U049	Waste Stream Profile Sheet for 7920-HCAL-005 and Supporting documentation
U094	Status Briefing: Radiological Characterization of REDC RH TRU Waste at ORNL
U124	Contamination Control Plan for Hot Cell (TWPC Hot Cell)
U125	Maintenance Work Control, Attachment C: Maintenance Work Order #CM-10-003
U412	Logbook Reference 6R1 - Cf-252 Electrodeposition Processing - Initial CX, TEVA, and Final CX Purifications (REDC Bldg 7920)
U425	ORNL Technical Notebook No. A-106985-G - Milt Lloyd; Susan North
U429	Unclassified Notebook A-6271: Building 7920, O.K. Tallent
U432	O.K. Tallent Logbook A-106981-G; Transferred to Milt Lloyd, Chem Tech Division Building 7920, Solvent Extraction, Dated 9/14/1994
U435	ORNL Technical Notebook A-106991-G, Milt Lloyd, Building 7920 Chem Tech Division, Solvent Extraction
U436	Unclassified Notebook No. A-6227, Milt Lloyd, Building 7920 Chem Tech Division
U437	ORNL Technical Notebook No. A-106992-G, Milt Lloyd and Susan North Lewis, Building 7920
U453	ORNL Technical Notebook No. A106984-G, Milt Lloyd, Jeff Wade, O.K. Tallent, Chem Technology Division, Bldg 7920, Solvent Extraction
U477	ORNL Technical Notebook No. A-105094; Building 7920; REDC - Curtis Porter
U478	ORNL Technical Notebook No. A-102161; Chemical Technology / Finished Products / J. T. Wiggens

Document Number	Title
U482	TURF Logbook 16L4; Building 7930; M. E. Littleton
U483	ORNL Technical Logbook No. A-9372; C. E. McFarland; Building 3038
U489	Curtis Porter; Building 7920; Chemical Technology Division
U501	Logbook: G. A. West; C. E. Roberts; H. C. Thompson; 1/4/1972; Bldg 7920 Waste Logbook
U505	Lab Notebook No. RE-2 – Charles Alexander, Building 7920.
U506	Research & Technical Notebook No. Te-1 – Chemical Technology Division – Building 7920 – Charles (Chuck) Alexander - A- 107733-G
U507	Research & Technical Notebook No. (SM-1) A- 107736-G – Building 7920, MS 6384 – Charles Alexander
U508	Lab Notebook 21/150/REC – Building 7920 – Charles (Chuck) Alexander
U529	Technical Notebook – Charles Alexander, Building 7920
U531	Logbook - Building 7920 - TRU Maintenance and Waste Disposal - 02/05/1979
U533	Logbook #9 - Building 7920 - 07/1968 thru 01/1969
U537	Log book Building 7920 - 11/1982 thru 08/1984 - Waste Logbook
U543	Logbook – Buildings 7920 and 7930 – 06/1985 thru 09/1986 – Waste Logbook
U545	Logbook – Building 7920 - 11/1967 thru 12/1974 – Building Maintenance
U647	Issue Paper: Does Oak Ridge Have High-Level Waste (HLW)?

Figure 1. Map of Oak Ridge National Laboratory

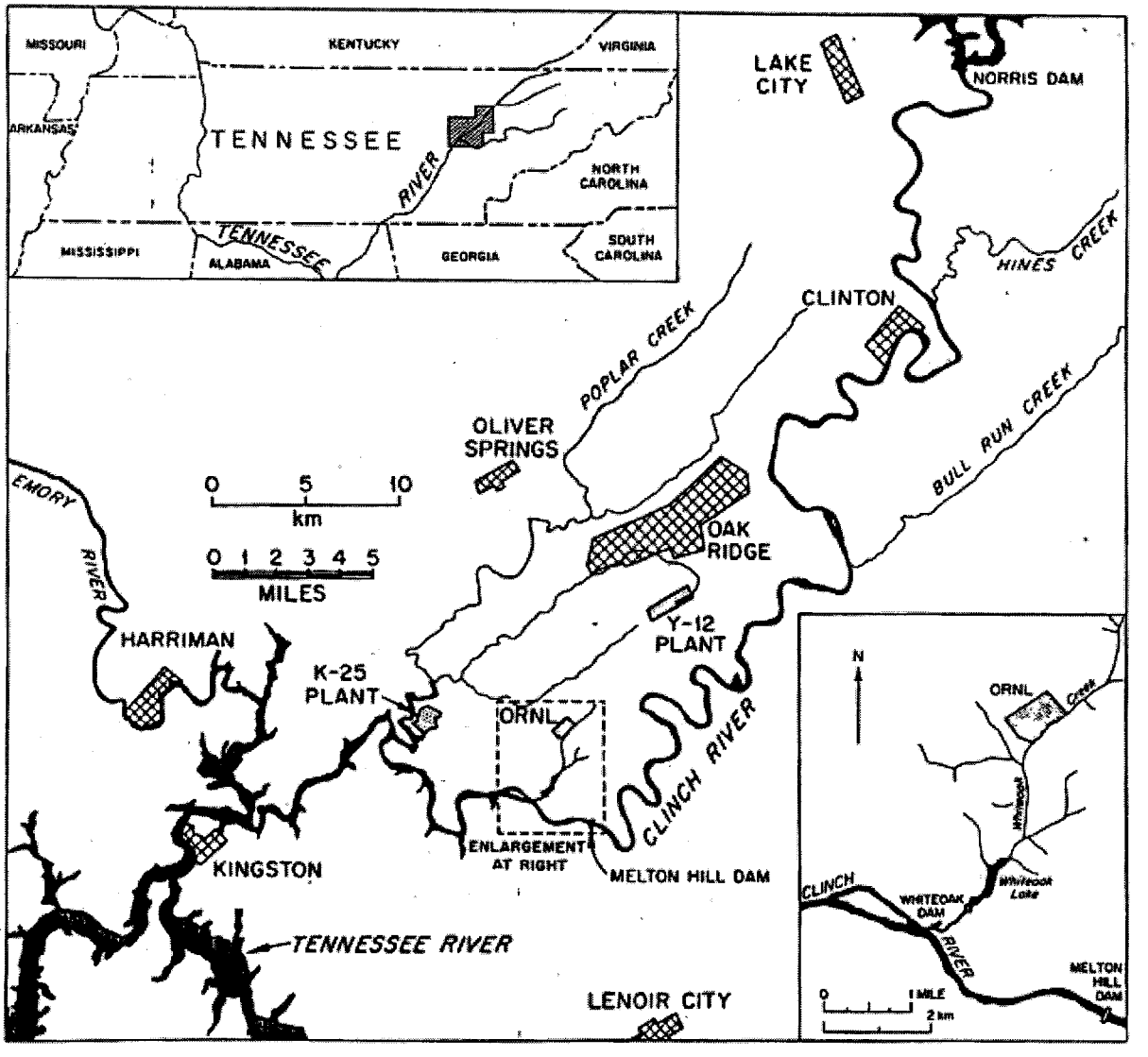


Figure 2. Map of Radiochemical Engineering Development Center, Transuranic Waste Processing Center, and Solid Waste Storage Areas

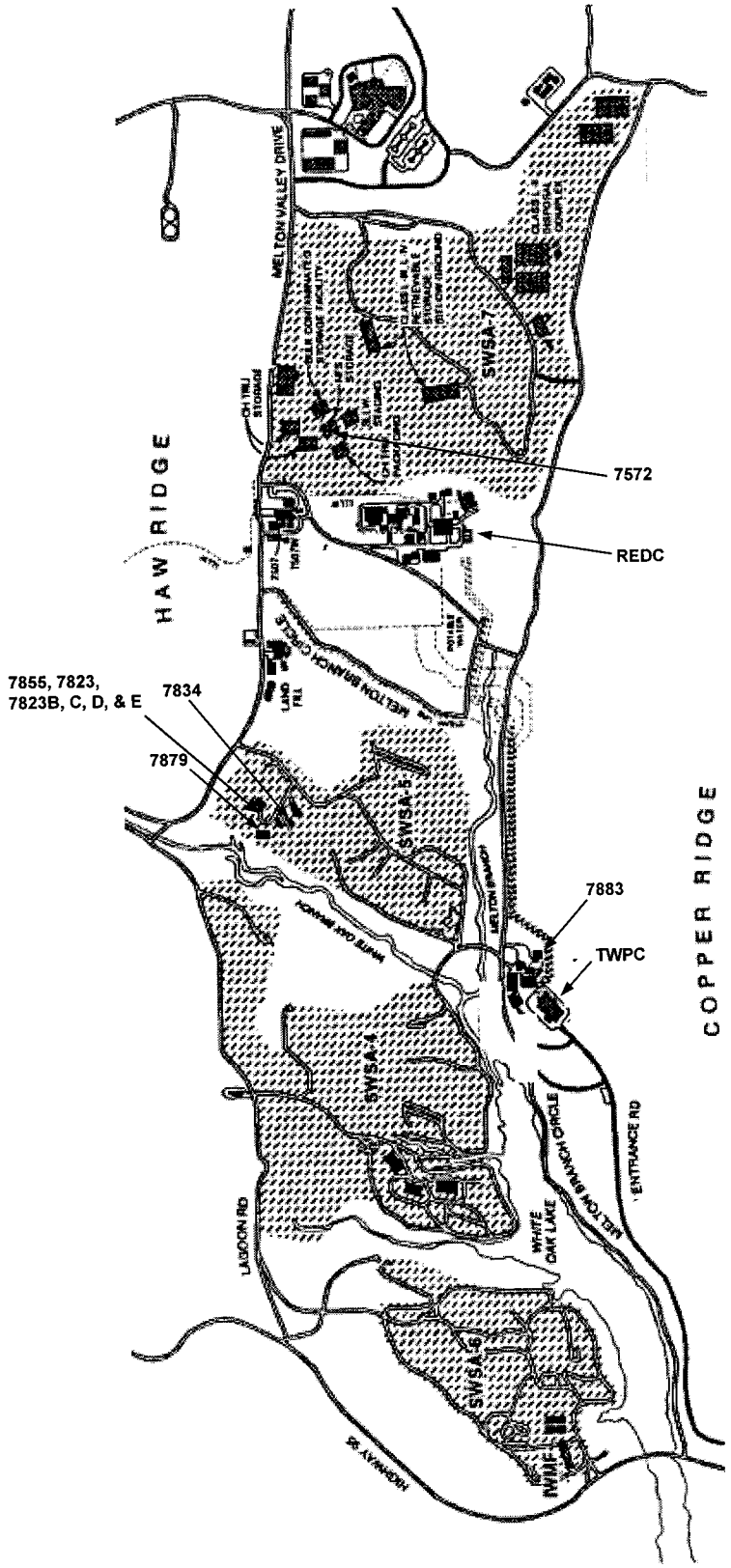


Figure 3. Location of Building 7920

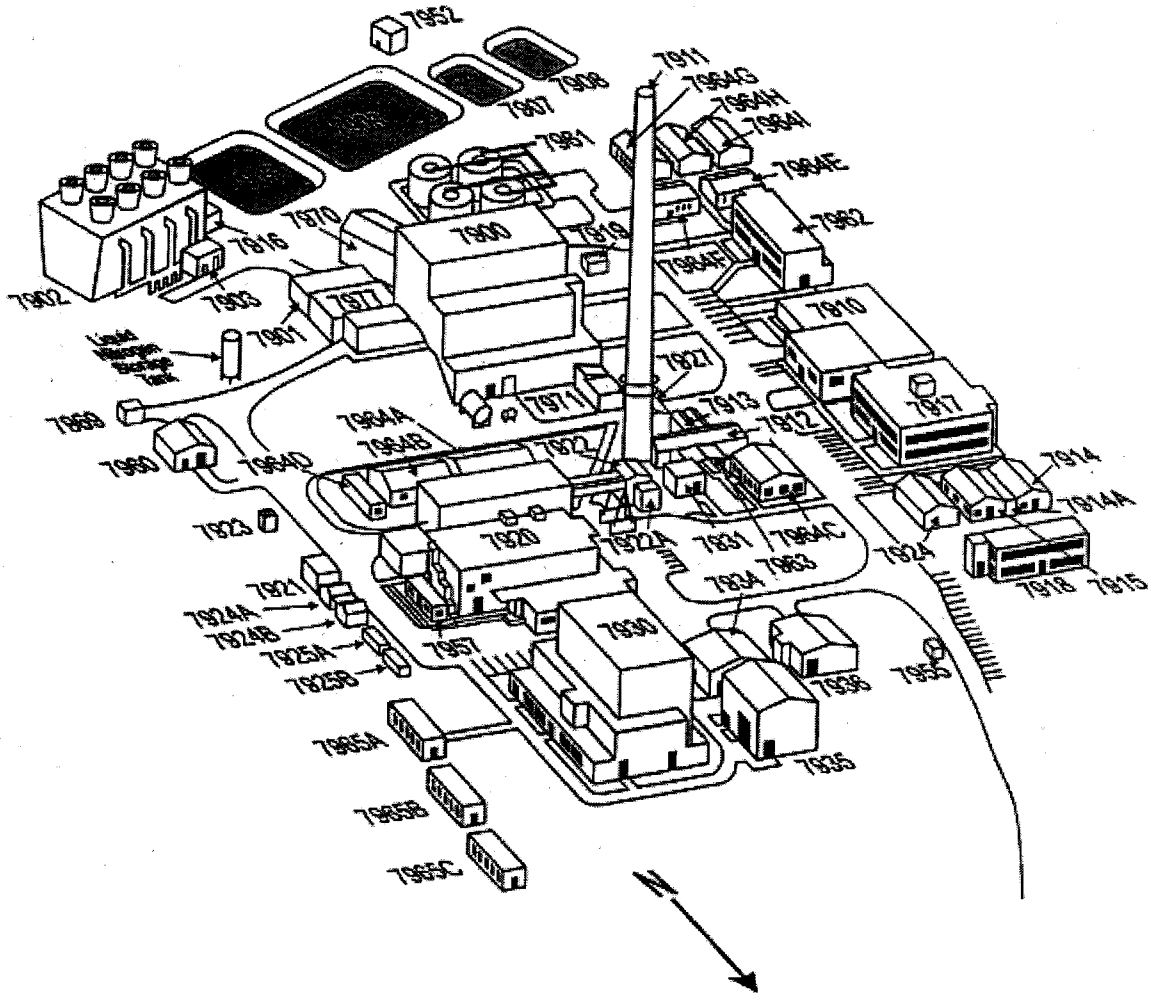


Figure 4. Building 7920 First Floor

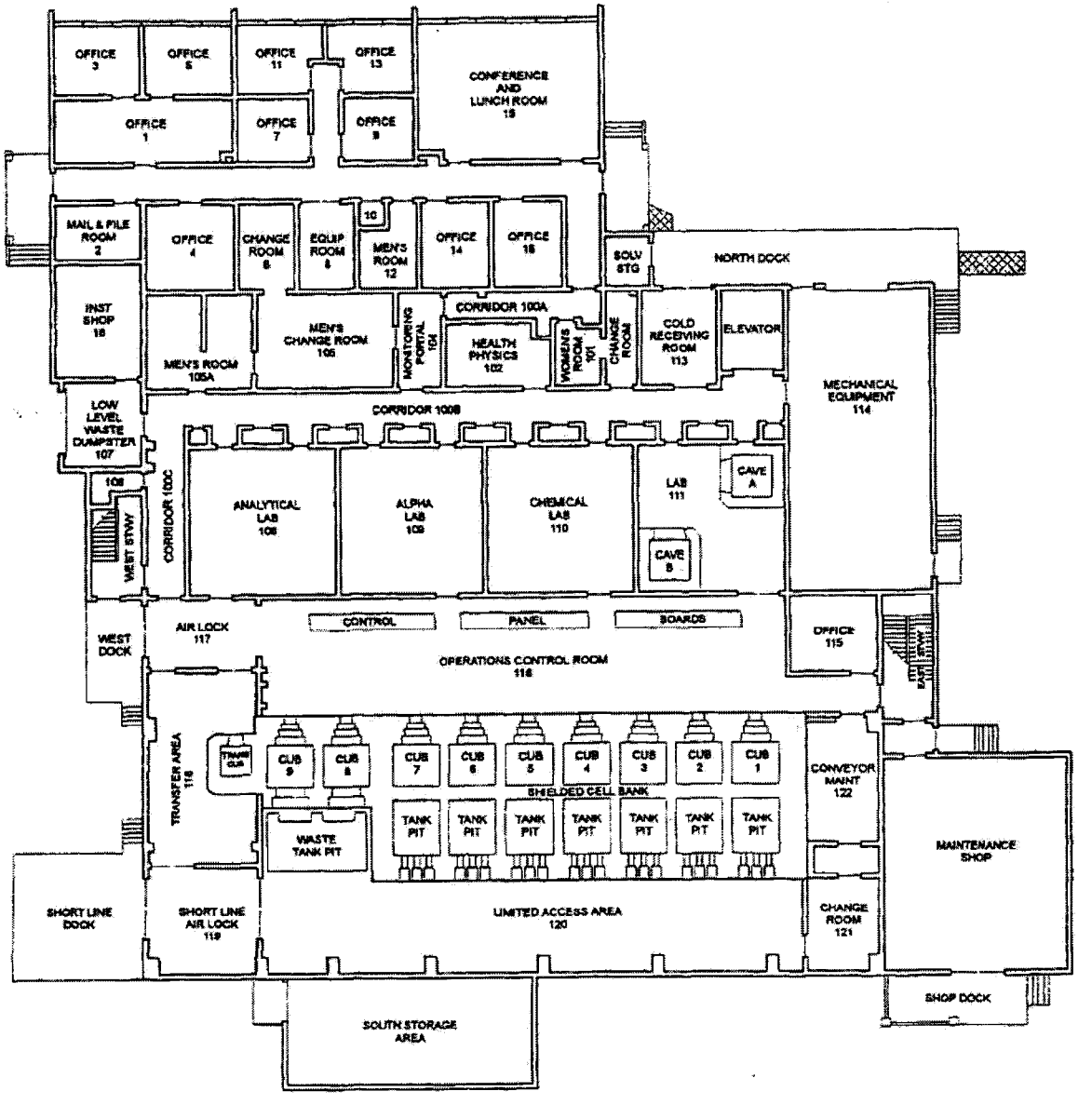


Figure 5. Building 7920 Second Floor

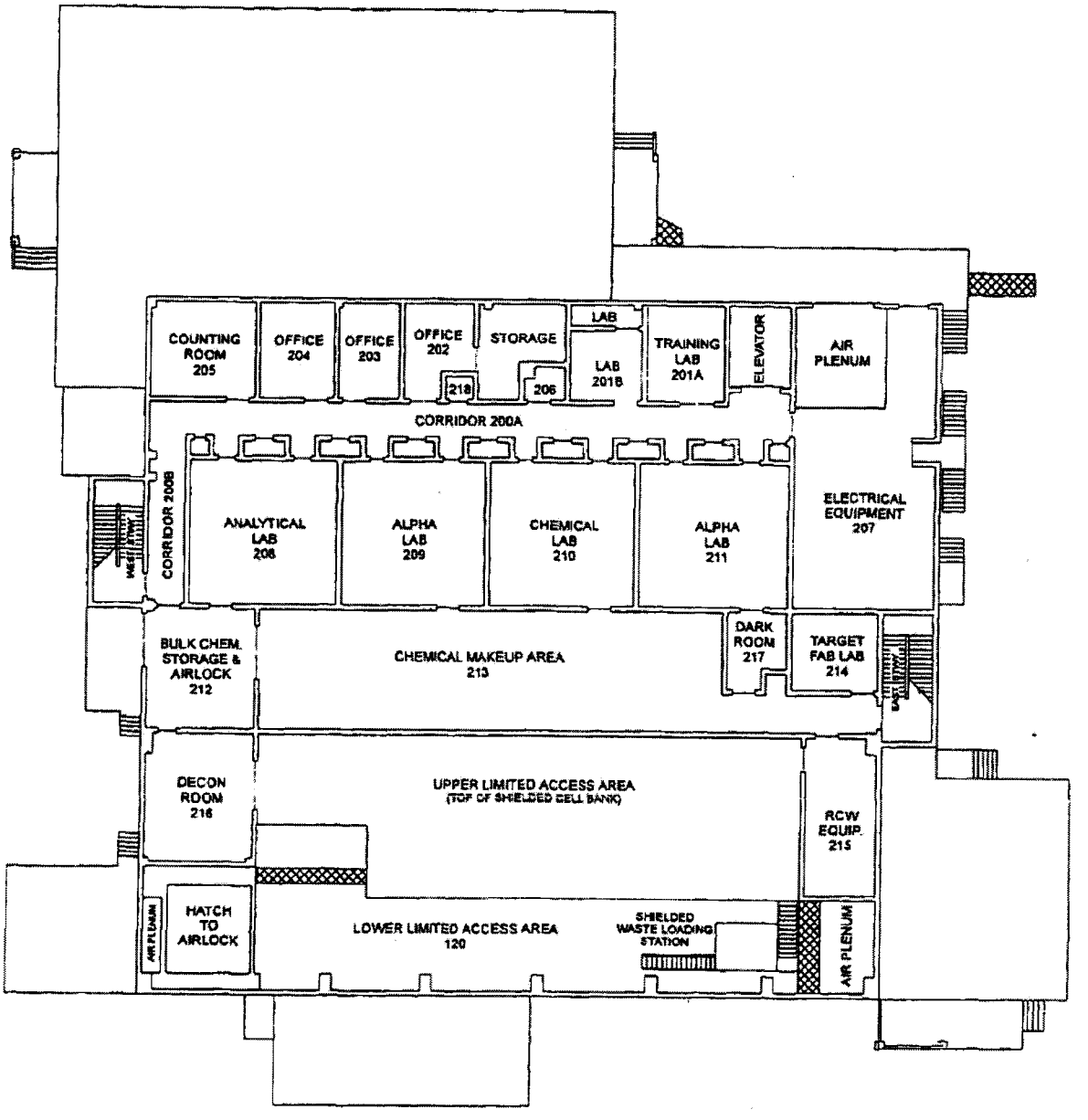


Figure 6. Building 7920 Hot Cell Bank

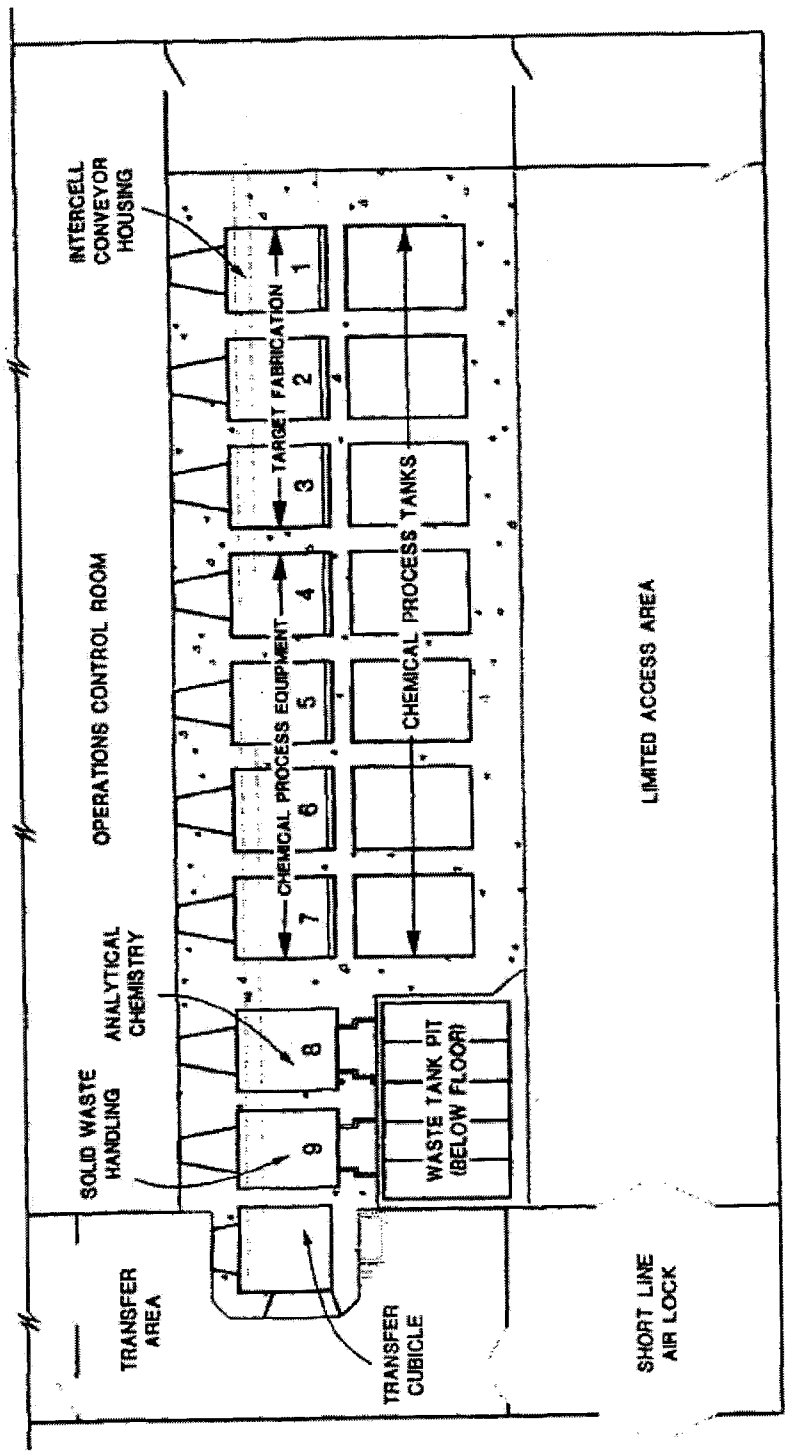


Figure 7. Building 7920 Hot Cell Bank - Cubicle Cross Section

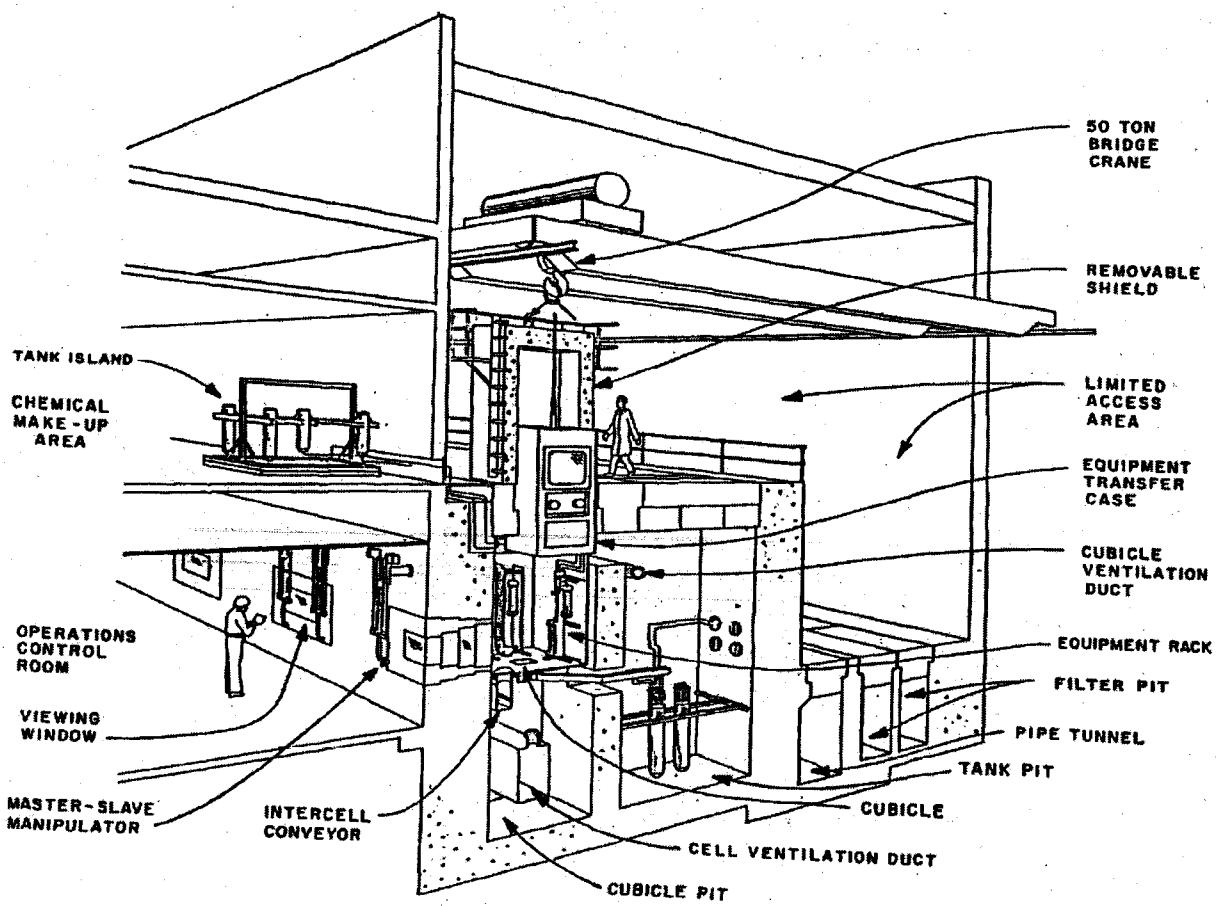


Figure 8. Shielded Transfer Carrier (Mule) and Transfer Area Cubicle

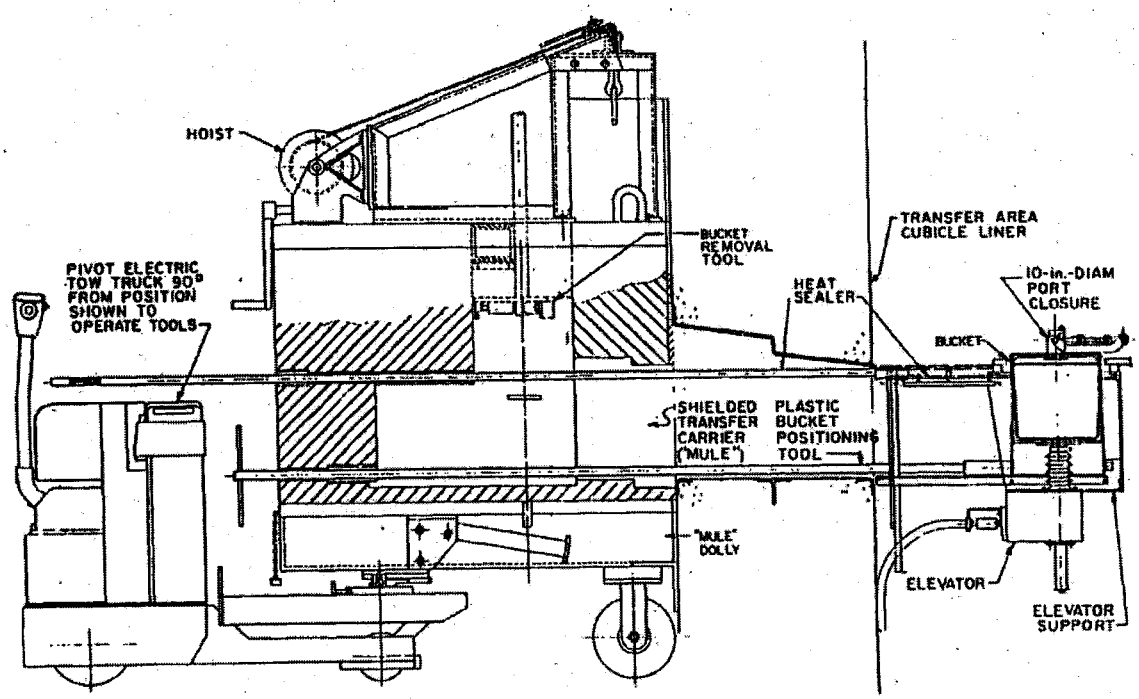


Figure 9. Decontamination Glovebox

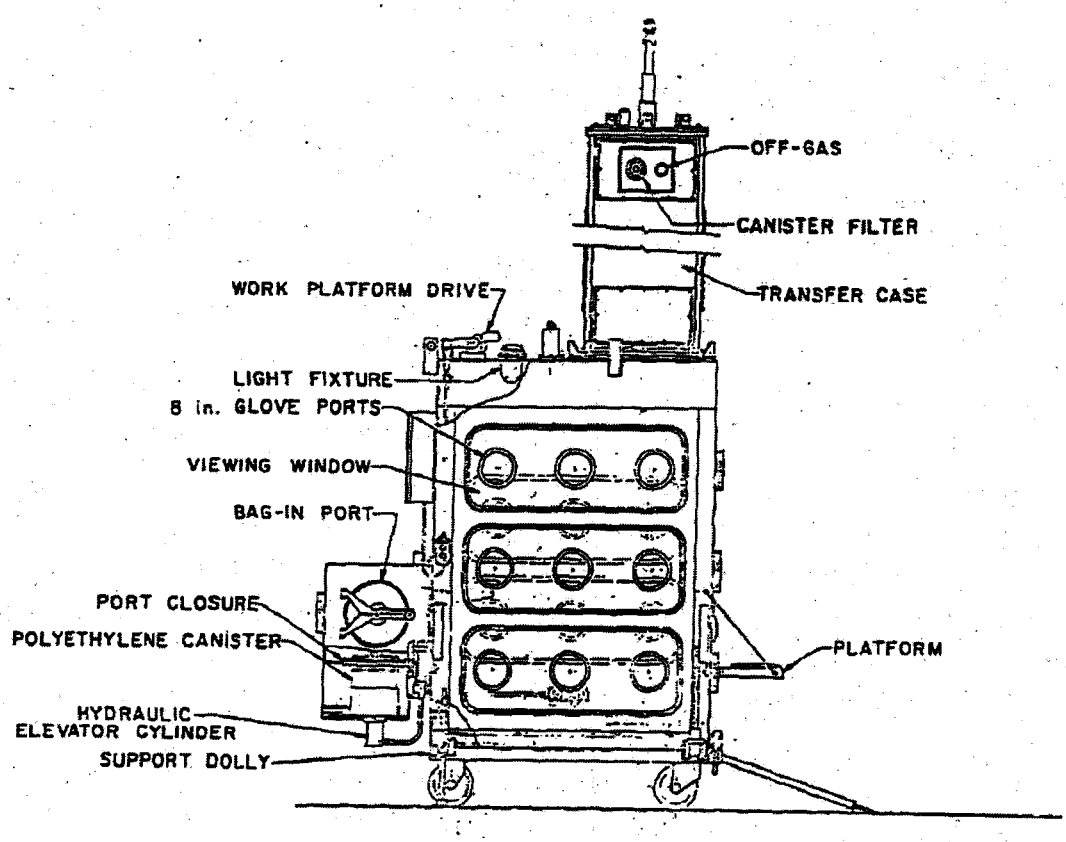


Figure 10. Process Development Laboratory - Room 111 Caves and Transfer Gloveboxes

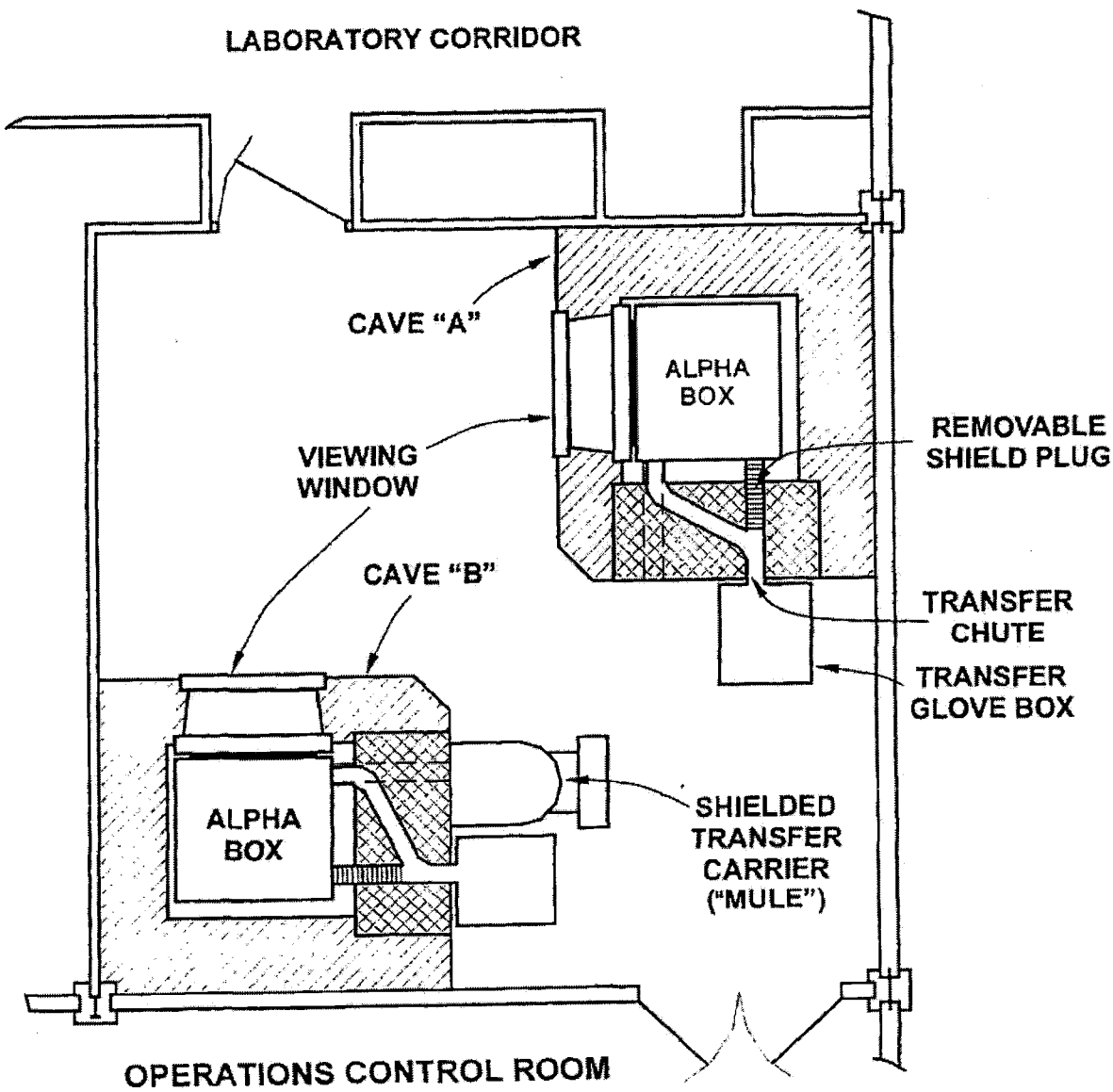


Figure 11. Transuranium Element Target Processing

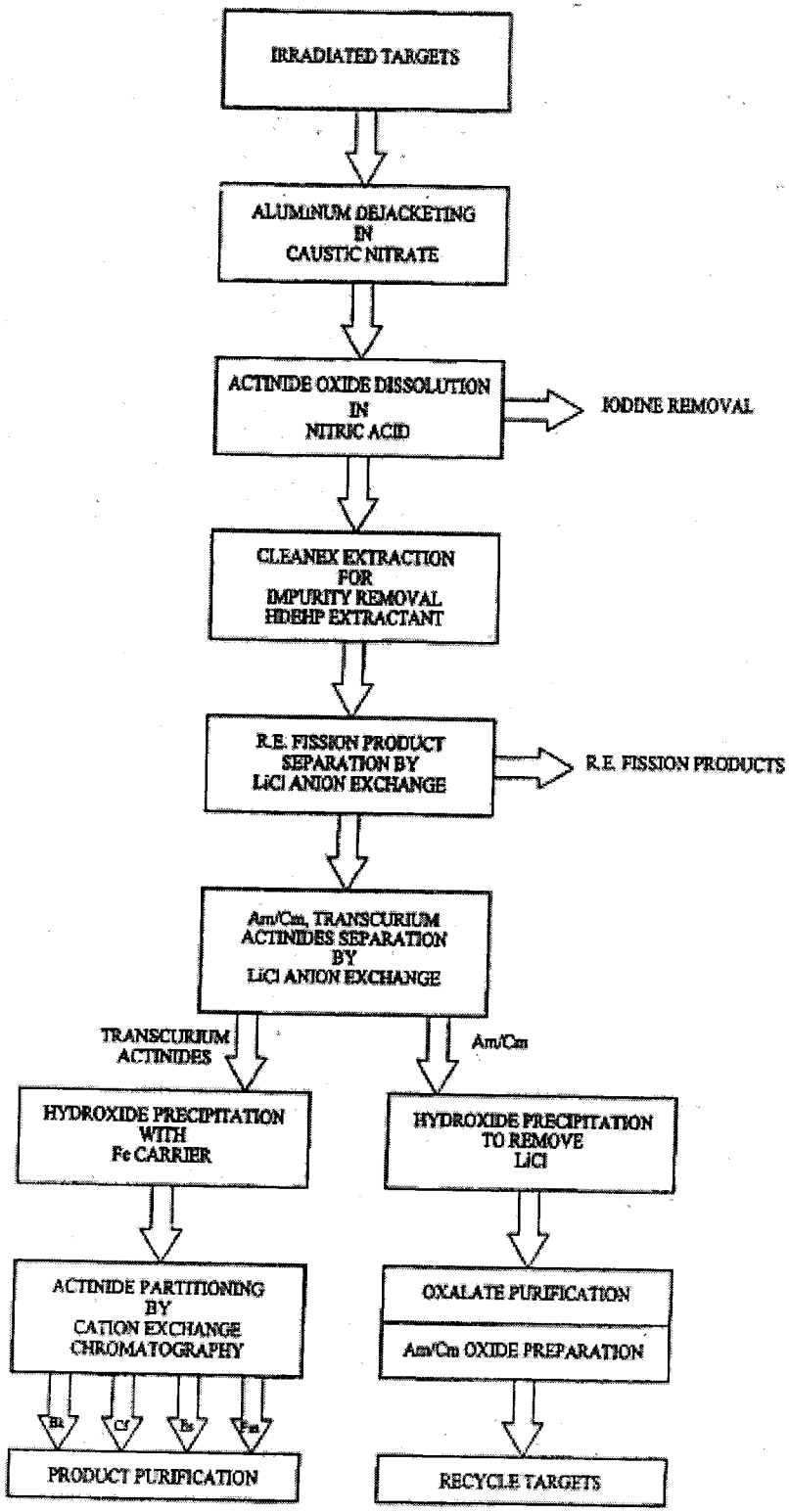


Figure 12. Solvent Extraction Test Facility Operations

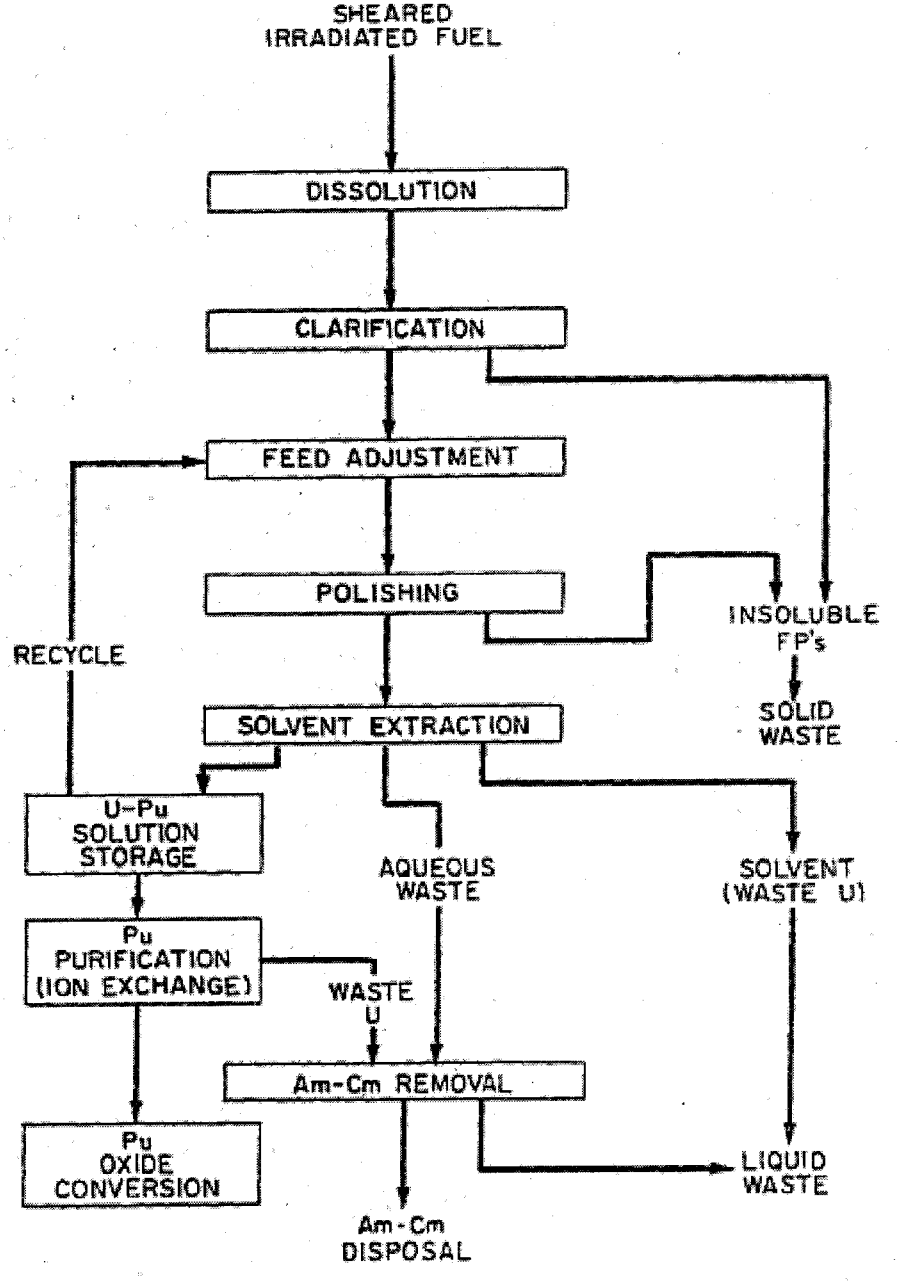


Figure 13. Mark-42 Processing

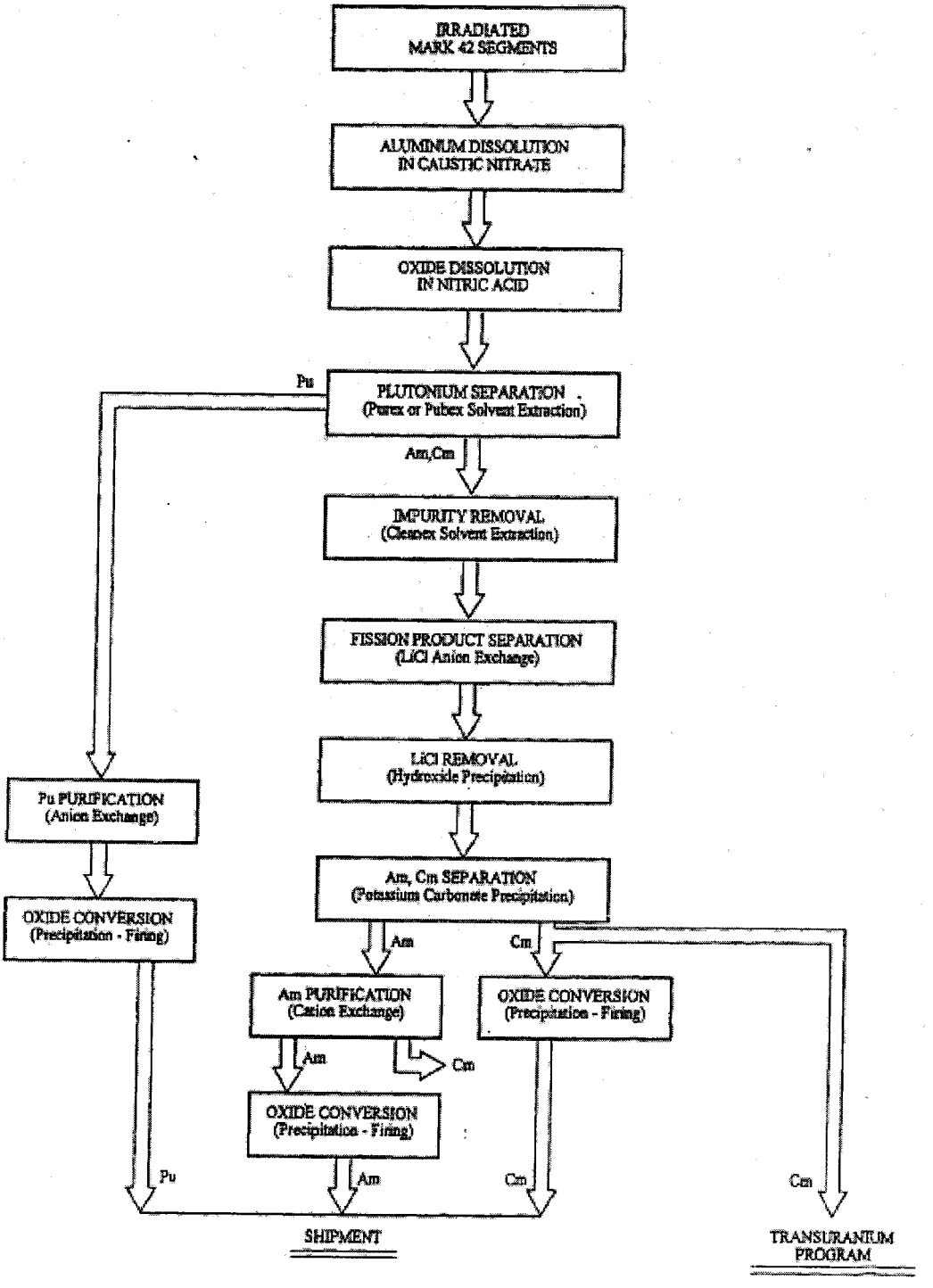


Figure 14. Pellet Fabrication

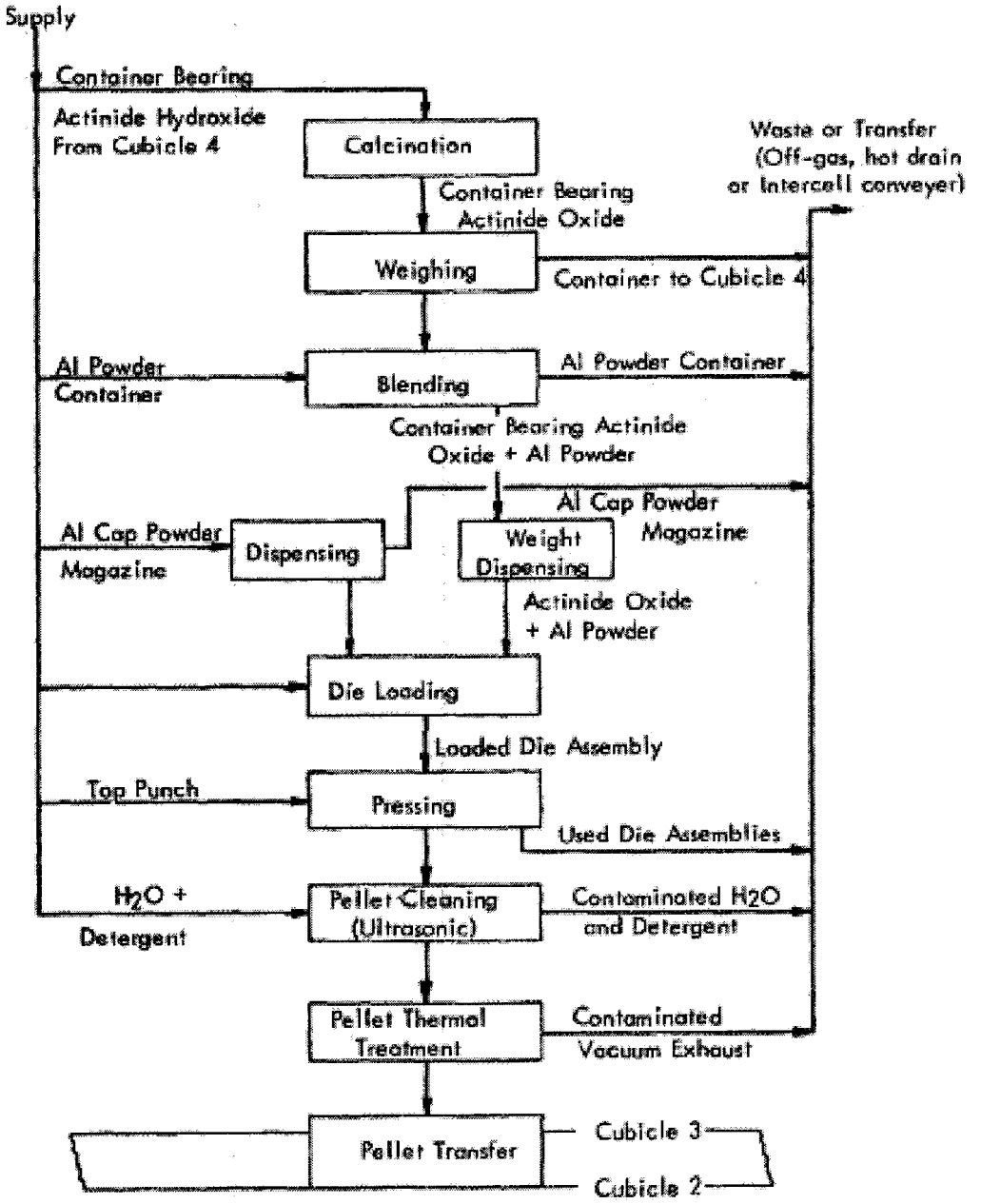


Figure 15. Target Tube Fabrication

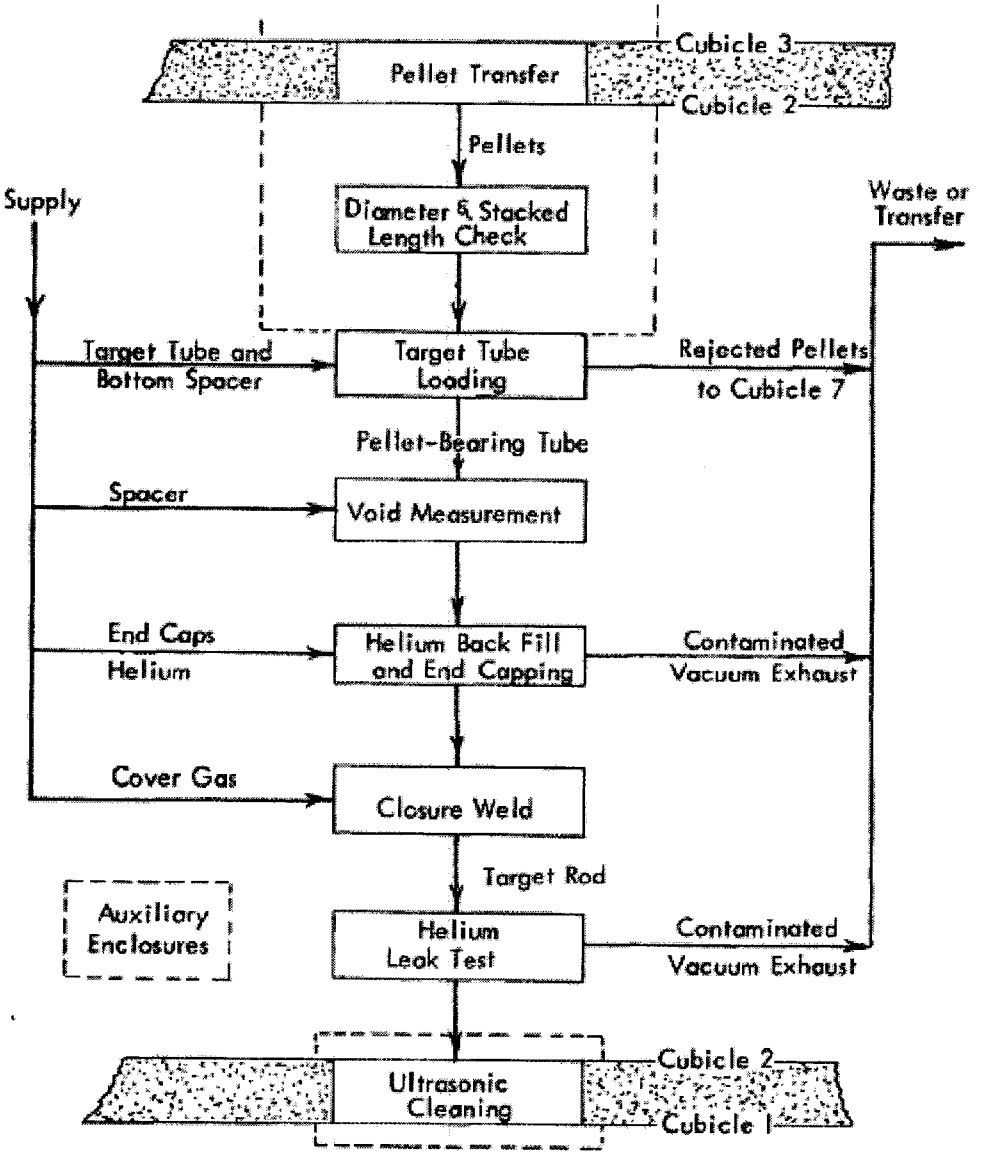
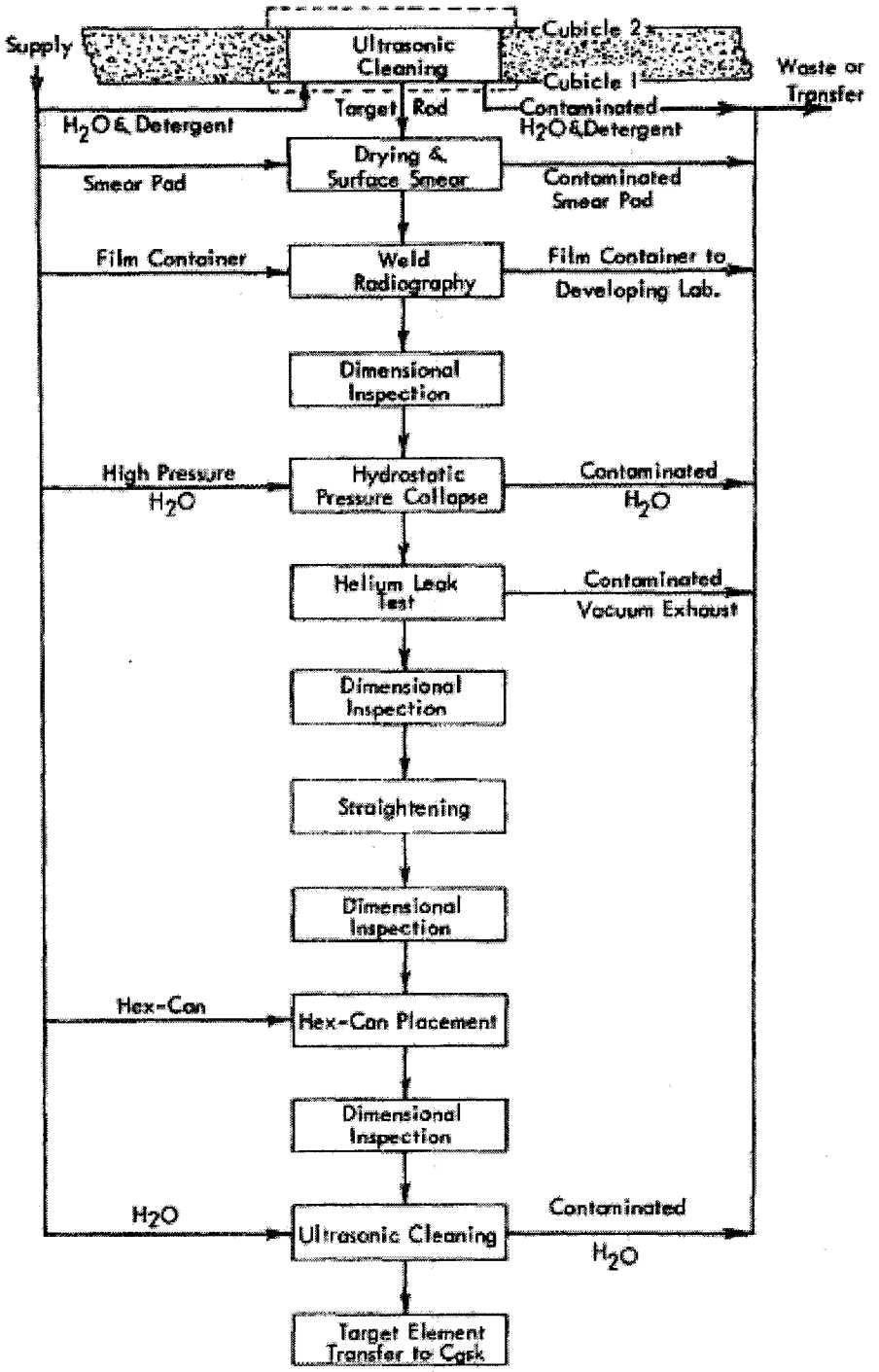


Figure 16. Target Assembly



AK4

URS

CP:11:01531
UFC:5900 00

Washington TRU Solutions LLC

INTER-OFFICE CORRESPONDENCE

DATE: August 4, 2011

FROM: M.F. RAMIREZ MR 3-7-12
~~G. R. Kirkes CRK~~ LOCATION: Certification

TO: MR
CCP Records Custodian GSA-212 LOCATION: Retrieval, Characterization and Transportation

SUBJECT: TRANSMITTAL OF OAK RIDGE NATIONAL LABORATORY SITE WASTE STREAM PROFILE FORM FOR WASTE STREAM OR-ISTP-CH-HET

Please accept the attached Oak Ridge National Laboratory site Waste Stream Profile Form to be placed in Records for Waste Stream #OR-ISTP-CH-HET.

CRK:jmc

Attachment

cc: (without attachment)
M. Pearcy ED
W. Weyerman ED

CCP RECORDS ORIGINAL
DATE REC'D 3/7/12

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: OR-ISTP-CH-HET						
(2) Generator site name: Oak Ridge National Laboratory				(4)Technical contact: Beverly Schrock		
(3) Generator site EPA ID: TN1890090003				(6) Technical contact phone number: (575) 234-7444		
(5) Date of audit report approval by New Mexico Environment Department (NMED): April 24, 2008; April 23, 2009; August 12, 2010, June 17, 2011						
(7) Title, version number, and date of documents used for WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 20, June 16, 2011, CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 26, July 14, 2011 CCP-PO-027 CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document, Revision 3, December 29, 2010 CCP-AK-ORNL-008, Central Characterization Project Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Isotopes Programs Contact-Handled Transuranic Waste, Waste Stream: OR-ISTP-CH-HET, Revision 0, July 06, 2010						
(8) Did your facility generate this waste?	YES	X	NO			
(9) If no, provide the name and EPA ID of the original generator: N/A						
Waste Stream Information[1]						
(10) WIPP ID: OR-ISTP-CH-HET				(11) Summary Category Group: S5000		
(12) Waste Matrix Code Group: Heterogeneous Debris Waste				(13) Waste Stream Name: Heterogeneous Debris Waste From Isotopes Production and Distribution		
(14) Description from the TWBIR: Waste consists of CH-TRU debris from isotopes production at ORNL.						
(15) Defense TRU Waste:	YES	X	NO			
(16) Check One:	CH	X	RH			
(17) Number of SWBs N/A	(18) Number of Drums 598 55-gallon drums			(19) Number of Canisters N/A		
(20) Batch Data Report numbers supporting this waste stream characterization: See Characterization Information Summary for correlation of containers identification numbers to batch data report numbers.						
(21) List applicable EPA Hazardous Waste Numbers:[2] D005, D006, D007, D008, D009, D011, D019, D022, F002, and F005						
(22) Applicable TRUCON Content Numbers: OR 125/225, SQ 154						
(23)**Acceptable Knowledge Information**[1]						
(For the following, enter the supporting documentation used [i.e., references and dates])						
Required Program Information						
(23A) Map of site: CCP-AK-ORNL-008, Revision 0, July 6, 2010, Figures 1, 2, 3 and 4						
(23B) Facility mission description: CCP-AK-ORNL-008, Revision 0, July 6, 2010, Section 4.2						
(23C) Description of operations that generate waste: CCP-AK-ORNL-008, Revision 0, July 6, 2010, Section 4.4						
(23D) Waste identification/categorization schemes: CCP-AK-ORNL-008, Revision 0, July 6, 2010, Section 4.5						
(23E) Types and quantities of waste generated: CCP-AK-ORNL-008, Revision 0, July 6, 2010, Section 4.6.1						
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-ORNL-008, Revision 0, July 6, 2010, Section 4.6.2						
(24) Waste certification procedures: CCP-TP-030, Revision 29, April 26, 2011						
(25)Required Waste Stream Information						
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-ORNL-008, Revision 0, July 6, 2010, Section 5.1						

(25B) Waste stream volume and time period of generation: CCP-AK-ORNL-008, Revision 0, July 6, 2010, Section 5.2			
(25C) Waste generating process description for each building: CCP-AK-ORNL-008, Revision 0, July 6, 2010, Section 5.3			
(25D) Waste Process flow diagrams: CCP-AK-ORNL-008, Revision 0, July 6, 2010, Figure 16 and 17			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-ORNL-008, Revision 0, July 6, 2010, Section 5.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See Table 2 of the Summation of Aspects of AK Summary Report: Waste Stream OR-ISTP-CH-HET			
(26) Which Defense Activity generated the waste[3]: (check one)			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management	X	Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations		
(27)Supplemental Documentation			
(27A) Process design documents: See S1 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27B) Standard operating procedures: See S2 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27C) Safety Analysis Reports: See S3 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27D) Waste packaging logs: See S4 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(28E) Test plans/research project reports: See S5 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27F) Site databases: See S6 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27G) Information from site personnel: See S7 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27H) Standard industry documents: See S8 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27I) Previous analytical data: See S9 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27J) Material safety data sheets: See S10 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27K) Sampling and analysis data from comparable/surrogate Waste: N/A			
(27L) Laboratory notebooks: See S11 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
Confirmation Information[2]			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: CCP-TP-053, Revision 11, July 20, 2011		
(29)	Visual Examination: N/A		

(30) Comments: For a list of the waste characterization procedures used and dates of the respective procedures see the list of procedures on the attached CIS.

Reviewed by AK Expert: YES [X] **Date:** 6-10-2011

Reviewed by STR (if necessary): YES [X] N/A [ ] **Date:** 6-22-2011

Waste Stream Profile Form Certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

(31) BSSchrock	(32) Beverly Schrock	(33) 7-25-2011
Signature of Site Project Manager	Printed Name	Date

NOTE:
(1) Use back of sheet or continuation sheets, if required.
(2) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.
(3) This was also generated from naval reactors development, weapons activities including defense inertial confinement fusion, defense nuclear waste and materials by products management, defense nuclear waste and materials security and safeguards and security investigations and defense research and development

CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-ISTP-CH-HET

Lot 1

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CCP Characterization Information Summary Cover Page

Waste Stream # OR-ISTP-CH-HET Lot #: 1

AK Expert Review: N/A Date: N/A

SPM Review: Richard Kantrowitz Date: 7/14/2011

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Radiography (RTR/NDE):

CCP-TP-053	Rev. 10	03/04/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	06/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 7	10/21/09	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Non Destructive Assay (NDA):

CCP-TP-048	Rev. 15	03/24/11	CCP Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 14	03/08/10	CCP Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 13	10/12/09	CCP Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-166	Rev. 3	02/26/10	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 2	12/05/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-168	Rev. 3	11/17/09	CCP Drum Waste Assay System Imaging Passive/Active Neutron/Segmented Gamma Scanner Data Generation Level Validation
CCP-TP-169	Rev. 2	11/18/09	CCP Operating the Mobile Segmented Gamma Scanner

Headspace Gas Sampling and Analysis (HSG):

CCP-TP-093	Rev. 15	03/10/11	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 14	12/29/10	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 13	03/19/07	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 7	12/29/10	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-106	Rev. 6	07/12/07	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-173	Rev. 1	09/30/09	CCP Analysis of Gas Samples for VOCs by GC/FID
CCP-TP-175	Rev. 2	12/29/10	CCP Analysis of Gas Samples for VOCs by GC/MS
CCP-TP-175	Rev. 1	03/29/10	CCP Analysis of Gas Samples for VOCs by GC/MS

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	08/09/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	06/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	08/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 18	12/29/10	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 29	04/26/11	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 28	05/12/10	CCP CH TRU Waste Certification and WWIS/WDS Data Entry

WAP Certification:

CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan
CCP-PO-027	Rev. 3	12/29/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 2	04/22/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document

CI500L

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET

Lot # 1

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
X10C0501590	OR-IQ3-0110	OR-RTR6-0339	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C9311302A	OR-IQ3-0136	OR-RTR6-0355	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311511A	OR-IQ3-0135	OR-RTR6-0356	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311680B	OR-IQ3-0130	OR-RTR6-0349	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C9311915A	OR-IQ3-0136	OR-RTR6-0356	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312272A	OR-IQ3-0135	OR-RTR6-0356	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312553A	OR-IQ3-0135	OR-RTR6-0354	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312721A	OR-IQ3-0141	OR-RTR6-0356	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312822A	OR-IQ3-0130	OR-RTR6-0351	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312857A	OR-IQ3-0136	OR-RTR6-0355	N/A	N/A	N/A		N/A	N/A	N/A
**The eight containers below were randomly selected for headspace gas sampling and analysis and are included to resolve EPA hazardous waste number assignment only. NDE and NDA BDR numbers are included for information purposes only.									
X10C0501530A	OR-IQ3-0109	OR-RTR6-0338	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C0501536	OR-IQ3-0152	OR-RTR6-0342	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C0501541	OR-IQ3-0109	OR-RTR6-0339	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C0501599	OR-IQ3-0152	OR-RTR6-0353	N/A	N/A	N/A		ORHSGS100013	ECL10043M	ECL10043G
X10C0501741	OR-IQ3-0177	OR-RTR6-0360	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C9309168A	OR-IQ3-0136	OR-RTR6-0356	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C9312154A	OR-IQ3-0178	OR-RTR6-0360	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C9400066A	OR-IQ3-0119	OR-RTR6-0342	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

7/14/2011
Date

CL503

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-ISTP-CH-HET

Waste Stream Headspace Gas Lot Number 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Hazardous Waste Number
Benzene	Log	3	10	-1.27	-3.18	0.81	-2.82	10	2.30		
Bromoform	Log	0	10	-4.61	-4.83	0.11	-4.78	10	2.30		
Carbon Tetrachloride	Log	0	10	-4.23	-4.41	0.10	-4.37	10	2.30		
Chlorobenzene	Log	0	10	-3.77	-3.97	0.10	-3.93	10	2.30		
Chloroform	Log	0	10	-3.49	-3.69	0.10	-3.64	10	2.30		
Cyclohexane[a]	Log	0	10	-3.27	-3.47	0.10	-3.42	10	2.30		
1,1-Dichloroethane	Log	0	10	-3.94	-4.14	0.10	-4.10	10	2.30		
1,2-Dichloroethane	Log	0	10	-3.31	-3.52	0.11	-3.47	10	2.30		
1,1-Dichloroethylene	Log	0	10	-3.94	-4.15	0.11	-4.10	10	2.30		
cis-1,2-Dichloroethylene[e]	SQRT	0	10	0.20	0.18	0.01	0.18	10	3.16		
trans 1,2-Dichloroethylene	Log	0	10	-3.40	-3.60	0.10	-3.55	10	2.30		
Ethyl benzene	No	2	10	0.15	0.04	0.05	0.06	10	N/A		
Ethyl Ether	No	0	10	0.02	0.02	0.00	0.02	10	N/A		
Methylene chloride	No	1	10	0.15	0.04	0.04	0.06	10	N/A		
1,1,2,2-Tetrachloroethane	Log	0	10	-4.23	-4.44	0.10	-4.39	10	2.30		
Tetrachloroethylene	Log	0	10	-3.86	-4.07	0.10	-4.02	10	2.30		
Toluene	Log	9	10	2.26	-0.86	1.76	-0.08	10	2.30		
1,1,1-Trichloroethane	No	0	10	0.02	0.01	0.00	0.01	10	N/A		
Trichloroethylene	Log	0	10	-3.94	-4.15	0.11	-4.10	10	2.30		
Trichlorofluoromethane[e]	Log	0	10	-3.38	-3.59	0.11	-3.54	10	2.30		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	0	10	-4.07	-4.27	0.11	-4.23	10	2.30		
1,2,4-Trimethylbenzene[a]	No	1	10	0.37	0.06	0.11	0.10	10	N/A		
1,3,5-Trimethylbenzene[a]	No	1	10	0.11	0.03	0.03	0.04	10	N/A		
m,p-Xylenes[b]	No	1	10	0.14	0.04	0.04	0.05	10	N/A		
o-Xylene	No	2	10	0.07	0.04	0.02	0.04	100	N/A		
Acetone	No	8	10	4.50	2.13	1.62	2.83	100	N/A		
Butanol	Log	3	10	0.00	-2.50	1.08	-2.03	100	4.61		
Methanol	No	7	10	220.00	98.75	71.82	130.16	100	N/A	Yes	(2)
Methyl ethyl ketone	Log	8	10	1.10	-1.82	1.64	-1.11	100	4.61		

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-ISTP-CH-HET **Waste Stream Headspace Gas Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Hazardous Waste Number
Methyl isobutyl ketone	Log	4	10	-3.02	-3.64	0.39	-3.47	10	2.30		
Chloromethane[e]	No	3	10	6.20	0.66	1.95	1.51	10	N/A		
Carbon Disulfide[e]	Log	8	10	-0.54	-2.04	1.12	-1.55	10	2.30		
1,2-Dichloropropane[e]	Log	0	10	-3.75	-3.96	0.11	-3.91	10	2.30		
Formaldehyde[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hydrazine[d]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[a] These compounds are from CCP-PO-003, CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC) and are flammable VOCs that do not appear in CCP-PO-001. These are not part of the target analyte list, but samples may be analyzed for these compounds.

[b] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

[c] Required only for homogenous solids and soil/gravel waste from Savannah River Site.

[d] Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

[e] These compounds are reported by the Laboratory and are included for completeness.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section C4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) EPA HWN F003 is not assigned to this waste stream for Methanol because the waste is not liquid and is therefore not ignitable. This is consistent with acceptable knowledge.

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

7/14/2011
Date

C1500

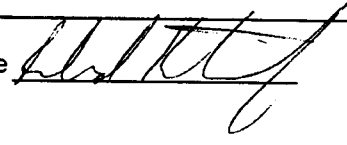
CCP Headspace Gas Summary Data

Waste Stream Number OR-ISTP-CH-HET Lot Number (s) 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
2-Methyl-1-propanol	1.00	1	10.00%

Data Supports EPA Hazardous Waste Numbers Assigned by AK? ☑ Yes ☐ No

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature  Date 7/14/2011

CDS006

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-ISTP-CH-HET Lot(s)#: 1

Container Number	RTR Prohibited Items [a,b]	Visual Examination Prohibited Items [a,b]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	None of the containers in this lot had prohibited items identified during RTR.	VE was not performed on any of the containers in this Lot.

a. See Batch Data Reports

b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Justification for the selection of RTR: RTR was selected as the characterization method for the containers because the waste was previously packaged and RTR meets all the Data Quality Objectives for NDE for waste stream OR-ISTP-CH-HET.

Site Project Manager Signature | Richard Kantrowitz (Printed Name) | 7/14/2011 (Date)

CI5007

CCP Reconciliation with Data Quality Objectives

WS# OR-ISTP-CH-HET Lot # 1

Sampling Completeness

RTR/VE:

Number of Valid Samples: 10 Number of Total Samples Analyzed: 10

Percent Complete: 100 (QAO is 100%)

NDA

Number of Valid Samples: 10 Number of Total Samples Analyzed: 10

Percent Complete: 100 (QAO is 100%)

HSG

Number of Valid Samples: 10 Number of Total Samples Collected: 10

Percent Complete: 100 (QAO is ≥90%)

Number of Valid Samples: 10 Number of Total Samples Analyzed: 10

Percent Complete: 100 (QAO is ≥90%)

Total VOC

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total SVOC

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total Metals

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

CIS008

CCP Reconciliation with Data Quality Objectives

WS# OR-ISTP-CH-HET Lot # 1

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	Y	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP-TP-003 Attachment 3, and additional U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	NA	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003, Attachment 4, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7b	NA	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003, Attachment 5, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7c	NA	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 6, and additional EPA HWNs were assigned as required. Samples were randomly collected.

 025007

CCP Reconciliation with Data Quality Objectives

WS# OR-ISTP-CH-HET Lot # 1

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	Y	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section C3-1 of the QAPjP.
13	Y	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections C3-2 through C3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	NA	NA	NA
Headspace Gas Analysis	Y	Y	Y
Solids Sampling	NA	NA	NA
Solids VOCs	NA	NA	NA
Solids SVOCs	NA	NA	NA
Solids Metals	NA	NA	NA

Comments: NONE

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

7/14/2011
Date

 CIS010

SUMMATION OF ASPECTS OF ACCEPTABLE KNOWLEDGE SUMMARY REPORT: WASTE STREAM OR-ISTP-CH-HET

Overview

Waste stream OR-ISTP-CH-HET is contact-handled (CH) transuranic (TRU) heterogeneous debris waste generated in several Isotopes Programs facilities. Specifically, the waste was generated in Buildings 3028, 3029, 3030, 3031, 3032, 3033-A, 3038, and 3047 at the Oak Ridge National Laboratory (ORNL) and Building 9204-3 at the Y-12 National Security Complex (Y-12) in Oak Ridge, Tennessee. The primary missions of these facilities were production and distribution of isotopes used in nuclear medicine, radiation processing, industrial controls, and other applications as well as research and development (R&D) in every scientific and engineering discipline. As it specifically related to the generation of TRU waste, these facilities produced and distributed "Other Special Materials" or OSM, which are radioactive isotopes with atomic numbers 84 (Polonium) and above, sometimes referred to as "heavy elements."

There are several atomic energy defense activities that apply to this waste stream, including naval reactors development, weapons activities including defense inertial confinement fusion, defense nuclear materials production, defense nuclear waste and materials byproducts management, defense nuclear materials security and safeguards and security investigations, and defense R&D. The one defense activity that is probably the best representation of the waste stream as a whole is "defense nuclear materials production" because the primary waste generating activity was isotopes production and distribution.

This Summation of Aspects of the Acceptable Knowledge (AK) Summary Report includes information to support Waste Stream Profile Form number OR-ISTP-CH-HET for CH TRU heterogeneous debris. The primary source of information for this summation is CCP-AK-ORNL-008, *Central Characterization Project Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Isotopes Programs Contact-Handled Transuranic Waste, Waste Stream: OR-ISTP-CH-HET*, Revision 0, July 6, 2010. CCP-AK-ORNL-008 includes information obtained from various sources, including safety analysis reports, research project reports, waste packaging and shipping forms, site databases, and correspondence.

Waste Stream Identification Summary

Waste Stream Name:	Heterogeneous Debris Waste from Isotopes Production and Distribution
Waste Stream Number:	OR-ISTP-CH-HET
Site Where TRU Waste Was Generated:	ORNL and Y-12
Facility Where TRU Waste Was Generated:	Buildings 3028, 3029, 3030, 3031, 3032, 3033-A, 3038, and 3047 at ORNL and Building 9204-3 at Y-12
Site Where TRU Waste Is Currently Stored:	Oak Ridge National Laboratory
Waste Stream Volume – Current:	543 55-gallon drums
Waste Stream Volume – Projected:	55 55-gallon drum
Dates of Waste Generation:	1970 – 2004
TRUPACT-II Content (TRUCON) Codes:	OR 125, OR 225, SQ 154

Summary Category Group	S5000- Debris Waste
Waste Matrix Code:	S5400, Heterogeneous Debris
Waste Matrix Code Group	Heterogeneous Debris Waste
Annual Transuranic Waste Inventory Report Identification Number:	OR-ISTP-CH-HET
Environmental Protection Agency (EPA) Hazardous Waste Numbers (HWNs):	D005, D006, D007, D008, D009, D011, D019, D022, F002, and F005

Waste Stream Description and Physical Form

Waste stream OR-ISTP-CH-HET is comprised primarily of organic and inorganic debris waste items and generally consists of cellulosics, plastic, rubber, glass, ceramic, graphite and metal. Examples of waste items include:

- Iron-based metal items including alkaline batteries, banding, cables, capped pipe nipples, caps, conduit, containers (e.g., buckets, cans, cylinders, drums), discs, drain traps, dust pans, electrical boxes, fittings, flanges, gauges, glovebox floor sweepings, hand tools (e.g., caulk gun, channel locks, files, hack saws, hammers, hole punches, knives, pipe cutters, pliers, scissors, screwdrivers, tape measure, vices, wire brushes, wrenches), hardware (e.g., bolts, clamps, clips, connectors, nails, nuts, screws, washers), labware (e.g., beakers, funnels, ring stands, scalpels, spoons, stirrers, tongs, tweezers), lids, light fixtures, needles, pans, pins, piping, planchets, portal covers, rebar, rods, saw blades, scrap metal (e.g., angle iron, blocks, plate, tank pieces), sealed (stainless steel cladding) radiation sources (e.g., Am-241/Beryllium, Pu-239/Beryllium, Cf-252, Ra-226), sleeves, strapping, tool bits, tubing, valves, weights, welding fixtures, wire mesh, and wire,

- Aluminum metal items such as cages, cans, foil, glove portal inserts, pans, piping, respirator cartridges, rods, scrap, and screen,

- Other metals such as beryllium pieces, brass (e.g., brackets, fittings, pipe, valves), copper (e.g., cables, fittings, foil, plate, scrap, tubing, wire), lead (e.g., blankets, bricks, cylinders, pigs, scrap, sheeting, shielding, solder, tape), tantalum shielding, plutonium metal, and uranium metal (e.g., discs),

- Other inorganic materials including actinide oxide powder, absorbent (e.g., kitty litter, vermiculite), asbestos (e.g., insulation), ceramics (e.g., bowls, dowels, firebrick, pipe, porcelain), concrete, filter media, glassware and broken glass (e.g., beakers, bottles, funnels, jars, jugs, light bulbs, mirrors, tubes, vials), graphite (e.g., block, calutron collector pockets, die bodies, rings), mortar/pestle, and paint chips,

- Cellulosic items such as absorbent pads, brooms, brushes, cardboard, cloth (e.g., cheesecloth, cotton glove liners, coveralls, gloves, mops, rags), containers (e.g., ice cream cartons), cork, cotton swabs, fiberboard, gauze, leather gloves, masking tape, paper (e.g., filters, sandpaper, smears, suits, tissue, towels, wipes), sponges, and wood (e.g., handles, rulers, shavings),

- Plastic items including bags, caps, containers (e.g., bottles, buckets, jugs), electrical cord, fittings, foam (e.g., ear plugs), Herculite® (industrial fabric), hose, ion-exchange resin (may be grouted), labware (e.g., funnels), Lexan®, liner remnants, nylon rope, plexiglass, pipe, sheeting, sleeves, styrofoam, suits, syringes, tape (e.g., Teflon®, vinyl), tie straps, tubing, and Velcro®,

- Rubber items such as aspirators, belts, gasket material, gloves, grommets, hoods, hose, manipulator boots, o-rings, respirators, shoe covers, stoppers, and suits,
- Electrical devices and equipment (e.g., ball mill rollers, calutron source units, circuit boards, compressors, cutting tools, evaporators, furnaces, heat exchangers, hot plates, motors, paint sprayers, power supply, presses, probes, pumps, scales, smoke detectors, vacuum cleaners),
- Metal-framed and wood-framed High Efficiency Particulate Air filters with inorganic filter media, and
- Small amounts of homogenous materials such as grease, grouted resin, and absorbed liquids (absorbents may include Absorbal, Nochar, Solid-a-sorb, vermiculite). Examples of liquids absorbed include ammonium hydroxide, sodium hydroxide, hydrochloric acid, and nitric acid.

The waste materials that comprise waste stream OR-ISTP-CH-HET have common physical form, contain similar hazardous constituents, and were generated from a single process or activity and is therefore a single waste stream. This waste stream was generated in several different facilities; however, the activity in each of these facilities the generated TRU waste was isotopes production and distribution, and ancillary operations that supported this activity (R&D, facility maintenance, and facility deactivation).

Point of Generation

Location

Waste stream OR-ISTP-CH-HET was generated at the ORNL and Y-12 which are located on the Department of Energy (DOE) Oak Ridge Reservation. The waste was generated in Buildings 3028, 3029, 3030, 3031, 3032, 3033-A, 3038, and 3047 at ORNL and in Building 9204-3 at Y-12. The waste is currently stored at ORNL.

Area and/or Buildings of Generation

Building 3028, located on the northwest corner of Isotope Circle in the ORNL Isotopes Area, was divided into three separate facilities: the Short-Lived Fission Products Facility on the west side of the facility, the Curium Source Fabrication Facility (CSFF) on the east side of the facility, and the Target Fabrication Facility (TFF) located on the three upper floors of the building. The Short-Lived Fission Products Facility did not generate TRU waste. The CSFF consisted of six hot cells, and the TFF operations were performed in vacuum-inert-gas type gloveboxes or plexiglass enclosures.

Building 3029, located on the northwest corner of the central portion of Isotope Circle, was divided into an operating area consisting mainly of four manipulator cells and a cell access area. The hot cell operations did not generate TRU waste. Building 3029 also included an Alpha Handling Facility (AHF) that consisted of two gloveboxes located in the northeast corner of the building that supported curium source fabrication or Isotope Sales activities in Building 3028.

Building 3030, located on the west end of the central portion of Isotope circle, contained one manipulator-type hot cell which did not generate TRU waste. There were not processes in Building 3030 that generated TRU waste, and there are no TRU waste drums exclusively from Building 3030. The only TRU waste from Building 3030 consists of several Am-241/Beryllium neutron sources that were taken to Building 3038 and disposed.

Building 3031, located second from the west end of the central portion of Isotope Circle immediately to the north of Building 3038, had one manipulator cell and three laboratory hoods. These operations

did not generate TRU waste. However, Building 3031 contained a glovebox during the 1970s that was used for operations with Am-241.

Building 3032, located near the middle of the central portion of Isotope circle immediately east of Building 3031, did not have a hot cell but had a series of five hoods utilized for radiochemical analysis. Operations in these hoods did not generate TRU waste; however, Building 3032 had previously housed gloveboxes used for operations with Am-241.

The Building 3033 Annex (3033-A), located in the central portion of Isotope Circle, contained three portable gloveboxes and a radiochemical hood. The gloveboxes were equipped to operate under an argon atmosphere.

Building 3038, located on the southwest corner of Isotope Circle, was divided into four separate facilities: the AHF in the western portion of the building (3038-W), the Isotopes Shipping Facility (ISF) in the middle portion of the building (3038-M), and the Isotope Research Materials Laboratory (IRML) in the eastern portion of the building (3038-E). The middle portion of the building also housed the Isotope Technology Laboratories which did not generate TRU waste. The AHF consisted of three gloveboxes and five hot cells. There were seven gloveboxes in the adjacent room, the AHF Annex, equipped with argon atmosphere capability. The ISF consisted of a barricade for storage of isotope products, pipetting station, and canning and packaging station. The IRML consisted of a water-shielded hot cell, gloveboxes, hoods, and radioactivity-counting equipment. Several of the IRML gloveboxes were equipped with argon atmosphere capability or Dri-Train purification systems for achieving an inert atmosphere.

Building 3047, located in the north east corner of Isotopes Circle, housed five hot cells, four laboratories, and three alpha-handling laboratories. Four of the hot cells and three of the laboratories were in one of the two containment zones of the building. The three alpha-handling laboratories (Rooms 110, 211, and 212) were in the other containment zone and contained one alpha hot cell (Room 110).

Building 9204-3, located in the south central portion of the Y-12 complex, was devoted mostly to stable isotopes production. In about 1962, an area at the east end of the building was modified for the purposes of separating actinide isotopes. This area became known as the Actinide Processing Area (APA) and included a 24-inch radius calutron separation unit that was used to separate isotopes, and a series of glovebox operations that included a components wash area and actinide chemical processing area.

Historical Waste Management

Waste stream OR-ISTP-CH-HET has been historically managed in accordance with ORNL waste management practices in compliance with the requirements imposed by the Tennessee Department of Environment and Conservation. Approximately 90 percent of this waste stream was generated prior to ORNL implementing a Resource Conservation and Recovery Act (RCRA) program. This waste has subsequently been characterized by ORNL as RCRA-regulated. About 10 percent of the waste stream was generated since ORNL implemented a RCRA program. Several of these containers were assigned EPA HWNs by the generator; however, many were characterized by ORNL as nonhazardous waste. The AK program at the Transuranic Waste Processing Center (TWPC) subsequently characterized this entire waste stream as RCRA-regulated.

Generating Processes

Description of Waste Generating Processes

The waste was generated in several Isotopes Programs facilities whose primary mission was production and distribution of isotopes used in nuclear medicine, radiation processing, industrial controls, and other applications as well as R&D in every scientific and engineering discipline. As it is specifically related to the generation of TRU waste, these facilities produced and distributed OSM, which are radioactive isotopes with atomic numbers 85 (polonium) and above, sometimes referred to as "heavy elements." The Isotopes Programs consisted of four main elements:

- Radioisotopes services – Production and technical services not available from private industry, R&D support to DOE and outside customers, packaging of all ORNL radioisotope products for shipment, and shipping and receiving of all radioactive materials for ORNL.
- Isotope enrichment – Production of high-purity stable and radioactive isotopes for research, industrial, medical, and governmental uses via the electromagnetic isotope separation and processing facilities and management of the ORNL isotope inventory referred to as the Research Materials Collection (RMC).
- IRML – Target fabrication, preparation of isotope research materials, fabrication of neutron dosimeters, and wide array of isotope R&D activities.
- Isotope Distribution (Sales) Office – Work-side distribution of isotopes and related isotopic materials, coordination of procurement of isotopes and services both from and for other DOE facilities, and management of the ORNL Sales Pool of radioisotopes.

Building 3028, Curium Source Fabrication and Target Fabrication Facilities

The TFF was used to prepare target films, foils, and other shapes. The activities involved in the production of targets included:

- Evaporating actinide oxides using an electron-bombardment heat source,
- Converting the oxide to metal by simultaneous reduction-distillation, and
- Rolling, punching, and welding of the metals.

The CSFF was used to fabricate heat sources of Cm-242 and Cm-244 and to conduct tests and experiments involving these radioisotopes. The preparation of the materials processed in the facility required a variety of operations consisting of:

- Precipitating the curium solution and filtering the solids,
- Calcining the solids to an oxide,
- Blending of the oxide for pressing into pellets,
- Encapsulating the pellets by inert gas welding, and
- Helium leak testing and ultrasonic decontamination of the heat source

Decontamination of the CSFF in 1981 and 1982 prior to its new use as the Alpha Powder Facility was a significant TRU waste generation activity. The primary objective of this decontamination effort was to reduce the radioactivity in the cells and in the operating areas to an acceptable level for refurbishing the facility for a new program. The project objectives were to:

- Remove curium sesquioxide powder remaining in the cells,
- Remove obsolete contaminated equipment from the cells, and

- Decontaminate the cells to acceptable levels for personnel entry.

The Alpha Powder Facility was designed to package and distribute gram quantities of alpha materials. Oxides of Am-241, Am-243, Cm-244, Np-237, and Pu-238 were packaged and shipped upon customer request. Operations included:

- Weighing oxide powder and loading into an inner container,
- Wiping of the inner container to remove contamination,
- Placing the inner container in an outer stainless steel capsule,
- Inert gas welding of the outer capsule, and
- Vacuum leak testing and cleaning of the capsule.

Building 3029, Source Development Laboratory

The AHF in Building 3029 consisted of two gloveboxes used to encapsulate (weld) and test small amounts of alpha-emitting isotopes (Pu-238, Cm-242, Cm-244) in support of curium source fabrication or Isotope Sales activities in Building 3028. These welding capabilities were relocated to the Building 3038 AHF Annex in 1972, and the gloveboxes were decontaminated.

Building 3031, Radioisotope Production Laboratory D

Building 3031 contained a glovebox which was devoted to production of small Am-241 sources for the Isotopes Sales organization during the early-1970s. See Building 3038 below for additional details on sealed source fabrication.

Building 3032, Radioisotope Production Laboratory E

Building 3032 contained gloveboxes for preparation of Am-241 for the Isotopes Sales Office during the early-1970s for use in production of Am-241/Beryllium neutron sources. See Building 3038 below for additional details on sealed source fabrication.

Building 3033-A, Actinide Fabrication Laboratory

The Actinide Fabrication Laboratory (AFL) was used for the preparation of research materials by personnel of the IRML. Sources of radioisotopes at ORNL included the RMC of actinide isotopes maintained in Building 9204-3. Activities in the AFL included the following:

Fabrication of Neutron Dosimeters

Neutron dosimeters were fabricated for placement in reactors and activated by neutrons to determine integral reaction rates from which fission characteristics at a particular location within the reactor could be computed.

- Milligram quantities of actinide oxides in the form of powders or ceramic oxide wires were weighed on a microbalance.
- The actinide materials were loaded into the vanadium capsules which were sealed by inert gas welding and decontaminated ultrasonically.

Fabrication of Ceramic Oxide Wire

- Actinide oxide powders were mixed with wax, and the mixture was extruded through a small orifice and wound on a collecting spool.

- The actinide oxide wire product was cut into small lengths and loaded into magnesium oxide tubes which were placed in aluminum oxide tubes.
- The aluminum oxide tubes were heated in a furnace to remove the wax binder, and the wires were cut into the appropriate lengths.

Packaging of Actinide Materials

Milligram to gram quantities of actinide materials were prepared for use by experimentalists in various areas of research. This work involved:

- Encapsulating actinide materials in standard metal powder cans,
- Inserting top plugs into the cans and sealing by inert gas welding, or
- Placing inside another metal can and then sealing by welding, and
- Ultrasonically decontaminating the metal containers.

Building 3038, Alpha Handling Facility, Isotopes Shipping Facility, and Isotope Research Materials Laboratory

Building 3038 was used for the study of transuranium elements, fabrication of alpha- and neutron-emitting targets and sources, shipment of radioisotopes, and the study of chemical processes involving tracer level activities. These processes were performed in various areas of the building as described in the following paragraphs.

The AHF was utilized primarily for studying the physical and chemical characteristics of transuranium elements, fabrication of alpha- and neutron-emitting targets and sources, and fabrication of beta and low-energy gamma sources. Examples of AHF activities are outlined below:

- Evaporated targets were produced by sweeping a small pellet of target feed material with an electron beam. The electron beam evaporated the target feed material which condensed evenly on a substrate.
- U-234 was obtained by separation from its Pu-238 parent isotope. This was accomplished by a series of steps involving dissolution, precipitation, filtration, calcination, evaporation, ion-exchange, and reduction.
- Fabrication and destructive testing of Plutonium/Beryllium neutron sources. Sources were fabricated by combining plutonium oxide and beryllium powder in a metal capsule and sealed by inert gas welding.

A separate room in the southwest corner of Building 3038, referred to as the AHF Annex, began glovebox operations in 1972. This facility performed the following activities:

- Weighing and dispensing of milligram to gram quantities of oxide powders such as Am-241, Pu-238, and U-234.
- The actinide powders were encased in stainless steel capsules using inert gas welding and leak tested prior to shipment.

The eastern portion of the building was converted to R&D and production facilities for the IRML in 1977. Gloveboxes in this facility were used for the fabrication of radioactive targets and the examination of materials by destructive and non-destructive means. The northern portion of the IRML was dedicated to target production, and the southern portion was dedicated to R&D activities.

Target production involved:

- Evaporation,
- Hot pressing,
- Metal rolling,
- Sputtering (target over-coating), and
- Welding.

R&D activities included:

- X-ray fluorescence,
- X-ray diffraction,
- Scanning electron microscopy,
- Microprobe analysis,
- Low geometry counting,
- Fabrication and examination of uranium and plutonium alloys, and
- Pm-147-doped crystal development

The ISF dispensed, canned, boxed, and labeled isotope containers prior to shipping. The ISF was comprised of the following three areas:

- Barricade Storage Area – Heavy density concrete behind which were two "Lazy Susan" lead-shielded storage racks.
- Pipetting Station – Equipment for remote work with product bottles, including sampling, examining, solution transferring, and bottle capping.
- Canning and Packaging Station – Equipment for the shielding and sealing of containers prior to being boxed for shipment.

Building 3047, Radioisotope Development Laboratory

The Building 3047 Radioisotope Development Laboratory performed R&D and produced radioisotopic materials. The majority of the waste was from the Rooms 110, 211, and 212 alpha handling laboratories. Since Building 3047 was an R&D facility, there was no standardized routine chemical processing. Operations generally consisted of solvent extraction, ion exchange, precipitation, volatilization, condensation, distillation, dissolution, shearing, grinding, crystallization, heating, and cooling. A wide variety of activities were carried out on an experimental basis, such as:

- Fabrication of Cf-244 and Cf-252 targets,
- Fabrication of various actinide metals and alloys by arc melting,
- High-temperature experiments with encapsulated Cm-244,
- Mechanical testing of sources,
- Packaging of Pu-238 oxide,
- Purification of Np-237, and
- Welding of target fuel pins.

Building 9204-3, Electromagnetic Isotope Separation Facility

The APA in Building 9204-3 separated actinide isotopes for research purposes using electromagnetic separation using eight 24-inch radius calutron units (two plutonium separators and six separators for other transuranium elements). The APA also contained several glovebox lines designed for recovery and recycle of products, components washing and servicing, and preparation of shipments of enriched actinide isotopes from the RMC.

Heavy element isotope separation was accomplished by ionizing a suitable charge material in a vacuum tank, passing the ionized beam through a magnetic field which spread the various masses apart, and collecting the separated beams in receiver pockets. After the mass separation had been accomplished, the unresolved material was recycled and the separated isotope products were recovered from the receiver pockets. Only 10 to 20 percent of the starting material was collected in the product pockets, and 80 to 90 percent of the charge was volatilized onto the liner, source, and receiver parts, and was recycled and reused as charge material.

Isotopes Facilities Deactivation Project (IFDP)

Implementation of the IFDP began in 1991 and was completed in June 2004. The goal of the project was to place the Isotopes Programs facilities in a radiologically and industrially safe and stable condition for an extended period of minimum surveillance and maintenance prior to eventual decontamination and decommissioning. Facilities that generated TRU waste since 1991 included Buildings 3028, 3038, 3033-A, and 3047. Deactivation activities included:

- Nuclear material inventory was packaged and transferred to storage or disposal.
- Waste and loose equipment from hot cells was removed and size-reduced.
- Hot cells were wiped down.
- Hot cell manipulator boots were replaced and in-cell filters removed.
- Piping services to hot cells and gloveboxes were drained and plugged.
- Gloveboxes were wiped down and painted to fix contamination.
- Gloves from glovebox ports were removed and the ports sealed.
- Gloveboxes were packaged for disposal.

Transuranic Waste Processing Center

Drums containing CH-TRU waste in storage are moved individually to the TWPC (Building 7880) glovebox airlock. Once inside the glovebox airlock, the drum is moved to the drum tipper where the lid is removed and the drum contents are emptied into sorting trays. The waste articles are manually sorted and segregated via glove ports to remove prohibited items and repackaged at one of the four load-out stations along the glovebox. Boxes containing CH-TRU waste are moved into the box breakdown area (BBA) via airlocks. Within the BBA, the box lid is removed. The waste is inspected, removed, size reduced, and sorted manually within the BBA, and either packaged into new drums directly from the BBA or processed through the glovebox as described above. Prohibited items identified during repackaging of drums and boxes are removed from the waste stream or are remediated. Glovebox internal walls are periodically wiped down using damp rags. Secondary wastes created during waste processing, such as rubber glovebox gloves and tools, are placed into TRU waste drums that are included in this waste stream.

Table 1 identifies the toxicity characteristic and F-listed constituents in waste stream OR-ISTP-CH-HET.

Table 1 –Toxicity Characteristic and F-Listed Constituents Waste Stream OR-ISTP-CH-HET

Constituent	CAS #	EPA HWNs
Barium	7440-39-3	D005
Cadmium	7440-43-9	D006
Chromium	7440-47-3	D007
Lead	7439-92-1	D008
Mercury	7439-97-6	D009
Silver	7440-22-4	D011
Carbon tetrachloride	56-23-5	D019
Chloroform	67-66-3	D022
Trichloroethylene	79-01-6	F002
Benzene	71-43-2	F005
Toluene	108-88-3	F005

RCRA Determinations

Ignitability, Corrosivity, Reactivity

Waste generated in this waste stream does not qualify for any of the exclusions outlined in 40 Code of Federal Regulations (CFR) 260 or 261. Real Time Radiography (RTR) or visual examination (VE) is used to verify that the waste stream is not a liquid waste and does not contain explosives, non-radioactive pyrophoric materials, compressed gases or reactive waste. Therefore, this waste stream does not exhibit the characteristic for ignitability (D001), corrosivity (D002), or reactivity (D003).

Ignitability

The waste does not exhibit the characteristic of ignitability as identified in 40 CFR 261.21. The materials are not liquid, compressed gases, or oxidizers, and are not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. The materials are not liquid, and RTR and/or VE are performed to ensure the absence of prohibited liquids.

Solid waste handling procedures stated that liquids were disposed in the appropriate liquid disposal system and not intermixed with solid waste. Procedures also indicated that equipment was washed and drained before removal (References P568, P1085). Since ORNL first implemented the Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC) (WIPP-WAC), free liquid, pyrophoric material, and compressed gases were verified to be absent in TRU waste in accordance with the ORNL Health Physics Manual (References P241, P244, P566, P917, P956). The Isotopes Programs facilities established their own procedure for handling and packaging CH-TRU waste. The procedure stated that pyrophoric materials were not to exceed one percent of the waste weight, and free liquids, compressed gases, and explosives were prohibited (References P829, P863, P865, P875, P876).

Ignitable liquids used in the Isotopes Programs facilities included acetone, benzene, diethylbenzene, dodecane, isopropyl alcohol, methanol, toluene, xylene, and several commercial products. These facilities understood the hazards associated with flammable and pyrophoric materials and have always taken measures to prevent fire or explosion (e.g., prohibiting or limiting the amount of material

that could be used in a glovebox or hot cell and the use of fire sensors and water detectors in gloveboxes). Solutions containing oxidizing compounds were also used in the Isotopes Programs facilities, including aluminum nitrate, ammonium peroxysulfate, ammonium nitrate, hydrogen peroxide, hydroxylamine nitrate, mercury nitrate, potassium permanganate, and sodium nitrite. Waste management practices in these facilities required liquids to be collected separately from solid waste. Liquids were released to the liquid waste system drains (References P294, P398, P400, P528, P529, P1085, P1272, P1292, U007).

To ensure the waste does not exhibit the characteristic of ignitability, liquid in excess of Treatment, Storage, and Disposal Facility (TSDF)-WAC limits is removed or immobilized, and compressed gases (e.g., aerosol cans) are removed or vented prior to WIPP disposal. Therefore, this waste does not exhibit the characteristic of ignitability (D001).

Corrosivity

This waste does not exhibit the characteristic of corrosivity as defined in 40 CFR 261.22. The materials are not liquid, and RTR and/or VE are performed to ensure the absence of prohibited liquids.

Solid waste handling procedures stated that liquids were disposed in the appropriate liquid disposal system and not intermixed with solid waste. Procedures also indicated that equipment was washed and drained before removal (References P568, P1085). Since ORNL first implemented the WIPP-WAC, free liquids were verified to be absent in TRU waste in accordance with the ORNL Health Physics Manual (References P241, P244, P566, P917, P956). The Isotopes Programs facilities established their own procedure for handling and packaging CH-TRU waste. This procedure stated that free liquids were prohibited (References P829, P863, P865, P875, P876).

Corrosive liquids used in the Isotopes Programs facilities included acids (e.g., acetic, formic, hydrochloric, hydrofluoric, nitric, oxalic, sulfuric, sulfurous, and trichloroacetic) and caustics (e.g., ammonium hydroxide, sodium hydroxide). Waste management practices in these facilities required liquids to be collected separately from solid waste. Liquids were released to the liquid waste system drains (References P294, P398, P400, P528, P529, P1085, P1272, P1292, U007).

To ensure the waste does not exhibit the characteristic of corrosivity, liquid in excess of TSDF-WAC limits is removed or immobilized prior to WIPP disposal. Therefore, this waste does not exhibit the characteristic of corrosivity (D002).

Reactivity

This waste stream does not exhibit the characteristic of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water.

Solid waste handling procedures stated that liquids were disposed in the appropriate liquid disposal system and not intermixed with solid waste. Procedures also indicated that equipment was washed and drained before removal (References P568, P1085). Since ORNL first implemented the WIPP-WAC, free liquid and compressed gases were verified to be absent in TRU waste in accordance with the ORNL Health Physics Manual (References P241, P244, P566, P917, P956). The Isotopes Programs facilities established their own procedure for handling and packaging CH-TRU waste. This procedure stated that free liquids, compressed gases, and explosives were prohibited (References P829, P863, P865, P875, P876).

Reactive compounds used in the Isotopes Programs facilities included alkyl chlorates, aluminum nitrate, ammonium nitrate, calcium metal, cellulose nitrate, hydrogen peroxide, hydroxylamine hydrochloride, and hydroxylamine nitrate. Reactive cyanide or sulfide compounds have not been identified in the process that generated this waste stream. These facilities understood the hazards associated with reactive materials and have always taken measures to prevent fire or explosion (e.g., prohibiting or limiting the amount of material that could be used in a glovebox or hot cell and the use of fire sensors and water detectors in gloveboxes). Compounds that could decompose explosively, such as alkali chlorates and ammonium nitrate, were used in the hot cells only in small quantities unless they were in solutions known to be safe and to have no chance of being concentrated to dryness. Waste management practices in these facilities also required liquids to be collected separately from solid waste. Liquids were released to the liquid waste system drains (References P294, P398, P400, P528, P529, P1085, P1272, P1292, U007).

To ensure the waste does not exhibit the characteristic of reactivity, liquid in excess of TSDF-WAC limits is removed or immobilized, and compressed gases (e.g., aerosol cans) are removed or vented prior to WIPP disposal. Therefore this waste stream does not exhibit the characteristic of reactivity (D003).

Toxicity

This waste stream exhibits the characteristic of toxicity per 40 CFR 261.24. The toxicity characteristic contaminants fall into two categories; metals and organics. Where a constituent has been identified and there is no quantitative data available to demonstrate that the concentration is below regulatory threshold, the applicable EPA HWN is applied to the waste stream.

Several uses and sources have been identified for barium (D005), cadmium (D006), chromium (D007), lead (D008), mercury (D009), and silver (D011). Barium carbonate was used as a precipitation agent to remove the Th-234 daughter from depleted uranium (Reference P526). Cadmium was used as a coating for plutonium and uranium isotopes, was used as shielding, and is contained in small batteries in electronic equipment (References M187, M191, U038). Chromium was used in the study of uranium-chromium alloys by the Solid State Division and the Operations Division (References P225, P1363, U472). The Isotope Separations Section of the Chemical Technology Division conducted waste fixation studies on concrete specimens containing Cm-244, and chromium oxide was one of the components of the simulated waste solids solidified in concrete (Reference P1361). Lead is most commonly found in the form of shielding such as bricks, foil, pigs, sheet, rubber glove lining, and leaded glass windows (References P092, P101, P175, P227, P289, P291, P294, P327, P335, P346, P348, P453, P455, P526, P528, P876, U038). Mercury vapor lamps were used for lighting during hot cell operations (References P289, P291). Alkaline batteries also contain mercury (References M187, M191, U038). Silver is present in solder in electrical equipment (References M187, M191, U038).

Uses have also been identified for carbon tetrachloride (D019) and chloroform (D022). Carbon tetrachloride was used as a chlorination agent and to charge material (References P098, P348, P399, P526, P941, P1357). Chloroform was used as an extraction agent and as an organic solvent (Reference P1312).

Since analytical data are not available to demonstrate the concentrations of these metal and organic compounds in this debris waste stream are less than the regulatory threshold, EPA HWNs D005, D006, D007, D008, D009, D011, D019, and D022 are assigned to waste stream OR-ISTP-CH-HET.

Since the more specific F-listed EPA HWNs have been assigned for benzene and trichloroethylene, the corresponding toxicity characteristic HWNs D018 and D040 are not applied.

Listed Waste

F-Listed Waste

Waste stream OR-ISTP-CH-HET was mixed with or derived from F-listed hazardous wastes from non-specific sources as listed in 40 CFR 261.31. F002 and F005 listed solvents were used in the Isotopes Programs facilities. The following F-listed constituents were used and contaminate the waste (Reference DR024):

- Trichloroethylene was identified in a logbook for Building 3047. This solvent was used to clean samples prior to acid etching. It is unclear whether the sample was an actinide material (Reference U580). Therefore, EPA HWN F002 is assigned.
- Benzene was identified in a Building 3038 plutonium processing procedure. A solution of thenoyltrifluoroacetone and benzene was used for plutonium extraction (Reference P762). Benzene was also identified as a major laboratory solvent used in Building 3047 although its specific use was not stated (Reference P1312). Additionally, an Isotopes Program facilities assessment report identified benzene as an example of a hazardous chemical used, but the specific building and use were not provided (Reference P175). Since plutonium extraction is a solvent use, EPA HWN F005 is assigned.
- Toluene was identified in a safety analysis report for Building 3047. This solvent was utilized only infrequently for maintenance activities such as hot cell window cleaning (Reference (P1316). Therefore, EPA HWN F005 is assigned.

Although F001-listed solvents were identified in the AK record (i.e., carbon tetrachloride and trichloroethylene), these listed solvents were not used in a "large-scale" degreasing operation such as cold cleaning or vapor degreasing. The Isotopes Programs facilities did not conduct large-scale degreasing operations, and therefore, EPA HWN F001 is not assigned to this waste stream.

The F003-listed solvents acetone, methanol, and xylene were identified as potentially present in this waste stream as contaminants of the debris waste. However, F003-listed waste is listed solely for ignitability, and this waste stream does not exhibit the characteristic of ignitability because the solvents are not in liquid form. Therefore, this waste stream is not an F003-listed hazardous waste.

The following F-listed constituents contaminate the waste and are applied:

F002 – Trichloroethylene

F005 – Benzene and toluene

U, K and P-Listed Wastes

Waste stream OR-ISTP-CH-HET was not mixed with a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33). Based on the AK documentation reviewed, there is no evidence that unused commercial products were disposed of in TRU waste drums.

Hydrofluoric acid was used for cleaning, as a dissolution agent, and as an eluant (References P348, P458, P526, P874, P941). The hydrofluoric acid was used for its intended purpose and would not have been disposed of as an unused commercial product. Therefore, TRU waste contaminated with residual hydrofluoric acid does not meet the definition of a U134-listed waste.

One of the operations conducted by the Isotopes Programs facilities was the fabrication of neutron radiation sources using beryllium powder and Am-241, Pu-238, or Pu-239 oxide (References P753,

P1147, P1351, P1357, U468). This process used commercial beryllium powder; however, the beryllium was used for its intended purpose and would not have been disposed of as an unused material. Therefore, TRU waste generated as a result of this operation does not meet the definition of a P015-listed waste. Some of these neutron sources were disposed as TRU waste, and there was a program for destructive testing of Plutonium/Beryllium neutron sources (References M191, P1351, U038). This waste also does not meet the definition of a P015-listed waste.

Waste stream OR-ISTP-CH-HET does not include any of the manufacturing process wastes from the specific industries or sources listed in 40 CFR 261.32. Therefore, Waste Stream OR-ISTP-CH-HET is not assigned any U-, K-, or P-Listed EPA HWNs.

Headspace Gas/Volatile Organic Compound Information

Headspace gas analysis was performed on 10 randomly selected containers in Lot 1 of this waste stream. Only the 90 percent upper confidence limit for Methanol exceeded the Program Required Quantitation Limit. Methanol should require an F003 hazardous waste number, however, as F003 is only assigned on the basis of ignitability and this waste stream is not ignitable, F003 was not assigned. A single tentatively identified compound (TIC), 2-methly-1-propanol was found in one container. Since the TIC was found in less than 25 percent of the containers, no action was taken.

No new EPA hazardous waste numbers were added as a consequence of headspace gas sampling and analysis. The specifics of this information are included in the attached Characterization Information Summary report.

Conclusion

The EPA HWNs that apply to the waste stream are D005, D006, D007, D008, D009, D011, D019, D022, F002, and F005.

Polychlorinated Biphenyls (PCBs)

This waste stream contains PCBs, and therefore is regulated as Toxic Substances Control Act waste under 40 CFR 761.

Based on discussions with ORNL personnel, some drums in this waste stream may contain equipment with small PCB capacitors and pumps that contained PCB oil. The oil was drained from the pumps and was not placed into TRU waste. Examples of equipment containing small capacitors include fluorescent light ballasts and electric motors such as a vacuum pump motor. ORNL did not make a concerted effort to inventory pumps or electrical equipment containing small capacitors to determine if they contained PCBs so these items are potentially present in this waste stream (Reference C308).

Containers with PCB waste identified during RTR and/or VE are managed in accordance with the PCB disposal requirements in the WIPP-WAC.

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and characterization activities. RTR or VE is performed on each container to verify the absence of prohibited items. The following items have been determined as not present in the waste:

- Liquid waste,
- Non-radioactive pyrophoric materials,
- Hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous waste),
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, or other wastes,
- Explosives or compressed gases,
- Waste with PCBs not authorized under an EPA PCB waste disposal authorization,
- Waste exhibiting the characteristics of ignitability, corrosivity, or reactivity, and
- Waste that has ever been managed as high-level waste and waste from tanks specified in Table C-8 of the WIPP Hazardous Waste Facility Permit, unless specifically approved through a Class 3 permit modification.

Each container of waste is certified and shipped only after RTR or VE either:

- Did not identify any prohibited items in the waste container, or
- All prohibited items found in a waste container by RTR or VE are identified and corrected (i.e., eliminated or removed) through the site non-conformance reporting system.

Justification for the Selection of RTR and/or VE

RTR was selected as the characterization method for this lot because the waste was previously packaged and RTR meets all the Data Quality Objectives for waste stream OR-ISTP-CH-HET.

Method for Determining Waste Material Parameter Weights per Unit of Waste

The waste material parameter weight estimates for waste stream OR-ISTP-CH-HET were derived from limited VE (36 drums) performed at the TWPC. The average weight percent and weight percent range for each waste material parameter are presented in Table 2. This evaluation is documented in a memorandum at required by CCP-TP- 005, *CCP Acceptable Knowledge Documentation.*

Table 2. Waste Stream OR-ISTP-CH-HET Waste Material Parameter Estimates

Waste Material Parameter	Average Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	32.4%	0% – 89.2%
Aluminum-based Metals/Alloys	1.7%	0% – 18.1%
Other Metals	9.3%	0% – 80.0%
Other Inorganic Materials	2.0%	0% – 25.6%
Cellulosics	16.2%	0% – 73.2%
Plastics (waste materials)	29.3%	0% – 90.0%
Rubber	8.9%	0% – 90.0%
Organic Matrix	<0.1%	0% – 2.4%
Inorganic Matrix	0.3%	0% – 6.3%
Soils/Gravel	0%	0% – 0%

List of Any AK Sufficiency Determinations Requested for the Waste Stream

No AK Sufficiency Determinations were requested for this waste stream.

Transportation

This waste stream and its chemical constituents have been reviewed for consistency with the listed TRUCON Codes and they are consistent.

Beryllium

Beryllium will not be present in amounts greater than one percent by weight of the waste in each drum.

Radionuclide Information

The two most prevalent radionuclides, by mass, in this waste stream are Th-232 and U-238. The isotopes expected to be present in this waste stream are listed in Table 3.

Table 3 – Summary of Waste Stream OR-ISTP-CH-HET Radionuclides

WIPP Tracked	Other Radionuclides Present		
Am-241	Co-60	Th-230	Am-243
Pu-238	Pm-147	Th-232	Cm-242
Pu-239	Sm-151	Pa-231	Cm-243
Pu-240	Eu-152	U-232	Cm-244
Pu-242	Bi-211	U-235	Cm-245
U-233	Ra-223	U-236	Cm-246
U-234	Ra-226	Np-237	Bk-249
U-238	Th-227	Np-239	Cf-249
Cs-137	Th-228	Pu-241	Cf-252
Sr-90	Th-229	Pu-244	

Payload management will not be implemented for this waste stream.

Attachment 1 - AK SOURCE DOCUMENTS, SUPPLEMENTAL DOCUMENTATION

Source Document Number	AK #	Title	Document Number	Revision	Date
C031	S7	Letter to J. E. Ratledge, Isotope Sales, ORNL re: Addendum to Letter Dated February 1, 1980	NA	NA	06/16/1980
C034	S7	Memo to file re: Documentation of Defense-Related Activities Conducted in the Isotopes Research Materials Laboratory (IRML) at Oak Ridge National Laboratory (ORNL)	NA	NA	07/16/1999
C082	S7	Interview with Bob Eversole: Historical operations and waste management at Building 3028	NA	NA	05/10/2005
C085	S7	Interview with David Drake: Historical operations and waste management at Building 3028	NA	NA	05/10/2005
C087	S7	Interview with Jack Collins: Historical operations and waste management at Building 9204-3 at Y-12	NA	NA	05/18/2005
C089	S7	Interview with Joe Devore: Historical operations and waste management at Building 3028	NA	NA	05/10/2005
C096	S7	Interview with Tom Miner: Historical operations and waste management at Building 3028	NA	NA	05/18/2005
C097	S7	Interview with Tom Miner: Historical operations and waste management at Building 3038	NA	NA	05/18/2005
C153	S7	Email Releasing ORNL Container Paperwork. Subject: The Release of Generator Disposal Forms (2822 and 2109) Forms.	NA	NA	04/2008-05/2008
C308	S7	Interview of Jason Taylor, ORNL-PCB Coordinator from 1997 - 2004 re: PCB Management at ORNL	NA	NA	04/08/2008
DR024	N/A	Discrepancy Resolution – Waste Stream OR-ISTP-CH-HET EPA Hazardous Waste Number Assignment	NA	NA	06/29/2010
I015	S7	Memo to File regarding Utilization of Glove Boxes on the Second Floor of Building 3047 by staff of the Isotopes Research Materials Laboratory (IRML) at ORNL	NA	NA	07/26/1999
M171	S5	ORNL EM Waste Database Query	DR-10-000450	NA	11/9/2009
M187	N/A	EnergX Repack Forms for Waste Stream OR-ISTP-CH-HET	NA	NA	Various
M189	S9	EnergX RTR Data for Waste Stream OR-ISTP-CH-HET	NA	NA	Various
M190	S9	EnergX VE Data for Waste Stream OR-ISTP-CH-HET	NA	NA	04/27/2006-04/25/2007
M191	N/A	UCN-2109 and UCN-2822 Forms and Associated Container Paperwork for Waste Stream OR-ISTP-CH-HET	NA	NA	Various
M194	S10	MSDS Collection for Waste Stream OR-ISTP-CH-HET	NA	NA	Various
M196	S9	WEAF RTR Tapes (M126) Review	NA	NA	06/07/2010

Source Document Number	AK #	Title	Document Number	Revision	Date
P022	S5	Site Descriptions of Environmental Restoration Units at Oak Ridge National Laboratory, Oak Ridge, Tennessee	ORNL/ER-391	NA	02/1997
P087	S9	History of Disposal of Radioactive Wastes into the Ground at Oak Ridge National Laboratory	ORNL/TM-10269	NA	10/1986
P089	S5	The Preparation of Multi-gram Quantities of Curium-242 for SNAP-11	NA	NA	06/1969
P092	S5	Preparation of Actinide Specimens for the US/UK Joint Experiment in the Dounreay Prototype Fast Reactor	ORNL-5858	NA	05/1982
P098	S5, S9	Chemical Technology Division Annual Progress Report, for the Period April 1, 1979 to March 31, 1971	ORNL-5757	NA	11/1981
P101	S1	Isotopes White Paper, Volume II: Appendices	NA	NA	01/1988
P164	S5	Chemical Technology Division Annual Progress Report; Period Ending March 31, 1976	ORNL-5172	NA	09/1976
P175	N/A	Isotopes White Paper: Volume 1: Assessments of Selected Isotopes Circle Facilities, Evaluation of Isotope Processing Alternatives, and Funding Justification for LLW-CAT System for Isotopes Area	NA	NA	12/1987
P225	N/A	Solid State Division Annual Progress Report Period Ending December 31, 1975	ORNL-5135	NA	05/1976
P227	N/A	Solid State Division Annual Progress Report Period Ending April 30, 1977	ORNL-5328	NA	10/1977
P241	S2	Oak Ridge National Laboratory Contact-Handled Transuranic Waste Certification Program Plan	ORNL/TM-10322	1, 2, 3	06/1992
P244	S2	Certification Document for Newly Generated Contact-Handled Transuranic Waste	ORNL-5985	1	05/1984
P251	S2	Box Breakdown Area Operations	CH-P-OP-003	7, 9, 12, 15, 18	03/13/2007-09/03/2009
P252	S2	Glove Box Operations	CH-P-OP-004	8, 10, 14, 17, 18	03/13/2007-07/008/2009
P253	S2	Drum Bag In/Bag Out and Glove Ports	CH-P-OP-011	10, 12, 13, 14, 18	05/02/2007-08/21/2009
P254	S2	Contact Handled Waste Repackaging	CH-P-OP-013	6, 7, 8, 9	04/30/2007-03/23/2009
P256	S3	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis	T-CM-FW-R-AD-001	13	03/01/2007
P289	N/A	Radioisotope Development Laboratory Building 3047 Hazards Report	ORNL-TM-946	0	03/1971
P291	S2	Radioisotope Development Laboratory Building 3047 Hazards Report	ORNL-TM-946	2	05/24/1974
P293	S5	Radioisotope Distribution Program Progress Report for February 1975	ORNL-TM-4893	NA	04/1975
P294	S3	Radioisotope Development Laboratory Building 3047 Safety Analysis	ORNL-TM-946	3	03/1978
P295	S5	Radioisotope Department Progress Report for December 1979	ORNL/TM-7252	NA	02/1980
P297	S5	Final Report on Cermet High-level Waste Forms	ORNL-5760	NA	08/1981

Source Document Number	AK #	Title	Document Number	Revision	Date
P299	S5	Isotope Program (5000) Progress Report for Quarter Ending March 31, 1971	ORNL-TM-3406	NA	05/1971
P327	N/A	ORNL Isotopes Facilities Shutdown Program Plan	ORNL/TM-11689	NA	10/01/1990
P335	N/A	Final Deactivation Report on the Radioactive Gas Processing Facility, Building 3033, and the Actinide Fabrication Facility, Building 3033A, at ORNL	ORNL/ER-419	NA	09/24/1997
P337	S5	Radioisotope Program (8000) Progress Report for December 1972	ORNL-TM-4090	NA	01/01/1973
P338	S5	Isotopes Development Center Progress Report Reactor-and Cyclotron-Produced Isotopes, November - December 1962	ORNL-TM-530	NA	08/28/1963
P340	S5	Isotopes Development Center Progress Report Radioisotope Applications / July - September 1962	ORNL-TM-437	NA	02/06/1963
P341	S8	Project Management Plan for the Isotopes Facilities Deactivation Project at ORNL	ORNL/ER-376	NA	08/01/1996
P343	S5	Radioisotope Program (8000) Progress Report For December 1971	ORNL-TM-3677	NA	01/01/1972
P346	N/A	Work Plan for the Isotopes Facilities Deactivation Project at ORNL	ORNL/ER-249	1	05/01/1995
P347	S2, S8	ORNL Isotopes Facilities Shutdown Program Management Plan	ORNL/TM-11829	NA	05/01/1992
P348	S2	Radiation Safety and Control for The Electromagnetic Isotope Separation of the Heavy Metals in Building 9204-3, Y-12 Plant, Including Operational Procedures and Facility Layouts	ORNL-TM-4013	NA	03/01/1973
P398	S2, S3	Safety Analysis of Isotopes Alpha Handling Facility including Appendix C: Isotopes Division Solid Waste Handling Procedure	ORNL-TM-2845	0	03/19/1970
P399	S5	Isotope Program (5000) Progress Report For Quarter Ending December 31, 1969	ORNL-TM-2889	0	03/10/1970
P400	N/A	Safety Analysis of Building 3028	ORNL-TM-3192	0	12/14/1970
P407	S5	ORNL Isotopes Facilities Shutdown Program Plan	ORNL/TM-11689	NA	01/22/1991
P432	S3	TRU Waste Processing Center Document Safety Analysis	CM-R-AD-001	15, 16, 17, 18	10/31/2007-06/23/2009
P453	S3	Basis for Interim Operation for the Isotopes Development Laboratory, Building 3038	BIO/3038/F/RT-15	0B	02/10/1997
P455	S3	Phase 1 Safety Analysis Report Update Program (SARUP) Hazard Screening for the Radioisotope Laboratory A, Building 3028	HS/3028/F/RT-05	0,1	02/05/1992, 12/20/1994
P457	S3	Operational Safety Requirements for the Isotopes Development Laboratory, Building 3038	OSR/3038/F/RT-15	2B	02/10/1997
P458	S3	Final Safety Analysis Report for Building 3038	NA	NA	04/03/1984
P526	S2	The Chemical Processing Procedures of Radioactive Isotopes in the Special Separations Program	NA	0	05/1983
P528	S3	Safety Analysis Review - Building 3028	NA	NA	04/27/1984

Source Document Number	AK #	Title	Document Number	Revision	Date
P529	S3	Safety Analysis of the Source Development Laboratory - Building 3029	ORNL/CF-78/97	0	04/05/1978
P539	S2	Radioisotope Development Laboratory Building 3047 Hazards Report (Isotopes Development Center)	ORNL-TM-946	0	10/5/1964
P550	S3	Final Safety Analysis for the Source Development Laboratory, Building 3029	ORNL/CF-85/294	NA	08/30/1985
P566	N/A	ORNL Health Physics Manual	ORNL/M-804; RP-4.1; RP-4.2; RP-5.1	NA	11/02/1994
P568	S2	Isotopes Division Solid Waste handling Procedure	CF-73-8-40	NA	08/29/1973
P753	S2, S5	Problem Safety Summary: Bldg 3038 (Alpha Handling Facility Cells 4 & 5): Texas Nuclear Pu-239-Be Neutron Source Fabrication. Two Sources	CD-130	NA	04/18/1989
P762	S2	Internal Procedures / Radioisotope Development and Technology: Building 3038	IP-201 - IP-215	0	12/12/1985-03/30/1988
P763	S2	Internal Procedure Building 3032 / Isotope Production Department Helium Leak Test	IP-202; 223; 227; 227A; 242	0	03/28/1988
P829	N/A	Operations Division, Isotope Production Department, Operating Procedure: CH-TRU Waste	IP-001	0, 1, 3	09/01/1987; 03/17/1989; 01/03/1986
P834	S2	Glove Box Operation (Building 3038, ALPA Handling Facility Annex)	IP-1006	1	04/29/1994
P837	S3	Operational Safety Requirements for Building 3038	NA	1	04/15/1991
P847	S2	Manipulator Removal, Repair, and Replacement - Building 3038	IP-1610	1	06/24/1994
P860	S2, S5	Problem Safety Summary for Building 3038 Manipulator Cell Laboratory - Separation of Y-90 from Sr-90	CDS No. 123	NA	04/25/1990
P862	S3, S5	Problem Safety Summary for Building 3047, Isotope Circle - Decontamination of Cell D	CD-120	1	02/10/1989
P863	S2	Transuranic Waste Handling (Contact-Handled)	RPD-002	1	04/19/1993
P865	S2, S10	Solid Low Level Waste Handling (Bldg 3028, 3029, 3038, 3517)	RPD-001	0	12/21/1992
P867	S6	Isotopes Facilities Shutdown Program, ORNL, Buildings 3026-C, 3028, 3029, 3031, 3033 Annex, 3038, 3047, 3118, 3517, 7025, 9204-3	NA	NA	1990
P872	S2	Procedure for Yttrium-90/Strontium-90 Waste Removal from Building 3038 Hot Cell	RDT-600	5	01/16/1990
P873	S2	Procedure for Yttrium-90 Product Transfer, Building 3038 Hot Lab	RDT-601	2	01/25/1989
P874	S2, S5	Procedure for Separation & Purification of U-234 from Pu-238 in Building 3038, Alpha Handling Facility	RDT-608	1	08/30/1989
P875	S2, S5	Procedure for Solid Low Level Waste Handling for Buildings 3019 Complex, 3026-C, 3028, 3029, 3030, 3031, 3032, 3033, 3033 Annex, 3036, 3038, 3047, 3118, 3503, 3517, and 7025	RTS-024	0	11/02/1993

Source Document Number	AK #	Title	Document Number	Revision	Date
P876	S2, S5	Procedure for Transuranic Waste Handling in Buildings 3019 Complex, 3028, 3033 Annex, and 3047	RTS-025	0	11/02/1993
P899	S2	Isotopes Program Review - Compliance Issues / Vulnerability and Risk Report Oak Ridge National Laboratory: Safety Analysis Report Update	NA	NA	10/17/1988
P905	S2	Health Physics Procedure - Handling and Transfer of Radioactive Materials within the Laboratory and Guide for the Transfer of Materials Between Contaminated Enclosure Systems and Non-Contaminated Areas	Procedure 4.1	NA	01/01/1976
P906	S2	Chemical Technology Division Isotope Preparation Department Operating Procedure: Management of Contaminated Lead	IP-004	2	06/20/1989
P907	S3	Operational Safety Requirements for Building 3038 (ORNL Operations Division)	NA	NA	04/03/1984
P917	S2	Procedure 5.1 - Segregation and Management of solid Radioactive Waste Materials and supporting Solid Waste Management Documentation	Procedure 5.1	NA	12/15/1983, 12/15/1985
P941	N/A	Electromagnetic Isotope Separations - Special Separations Program	NA	NA	09/1969-1980
P956	N/A	Segregation and Management of Solid Radioactive Materials	NA	NA	11/27/1985, 05/15/1986
P1082	N/A	Lockheed Martin Energy Research Corporation, ORNL, Environmental Protection Procedure: Disposal of PCB (Polychlorinated Biphenyl) Oils	EPM-3.1	0A	05/01/1993
P1083	N/A	Environmental Protection Procedure: Polychlorinated Biphenyls (PCBs)	EPM-4.0	NA	11/20/1989; 01/15/1987
P1085	S2, S3	Safety Analysis of the Source Development Laboratory and Isotopes Division Solid Waste Handling Procedure	ORNL-TM-2568	NA	05/28/1969, 04/01/1968
P1100	N/A	PCB Annual Report for Oak Ridge National Laboratory - 1986	ORNL/TM-10495	NA	07/1987
P1101	N/A	PCB Annual Report for Oak Ridge National Laboratory - 1987	ORNL/TM-10858	NA	10/1988
P1102	N/A	PCB Annual Report for Oak Ridge National Laboratory - 1988	ORNL/TM-11247	NA	06/1989
P1103	N/A	PCB Annual Report for Oak Ridge National Laboratory - January 1, 1989 - February 5, 1990	ORNL/TM-11665	NA	07/01/1990
P1104	N/A	PCB Annual Report for Oak Ridge National Laboratory - January 1, 1991 - December 31, 1991	ORNL/TM-12132	NA	07/01/1992
P1105	N/A	PCB Annual Report for Oak Ridge National Laboratory - February 6, 1990 - December 31, 1990	ORNL/TM-11883	1	10/15/1991
P1106	N/A	PCB Annual Report for Oak Ridge National Laboratory - 1982	ORNL/TM-9035	NA	07/1984
P1108	N/A	PCB Annual Report for Oak Ridge National Laboratory - 1984	ORNL/TM-9701	NA	09/1986

Source Document Number	AK #	Title	Document Number	Revision	Date
P1109	N/A	PCB Annual Report for Oak Ridge National Laboratory - 1985	ORNL/TM-10121	NA	08/10/1986
P1112	N/A	Radioactive Solid Waste Operations Manual	ORNL/CF-85/205	1, 2	07/1985 – 01/29/1986
P1147	N/A	Chemical Technology Division Progress Report for the Period July 1, 1988 to September 30, 1989	ORNL-6596	NA	03/1990
P1271	S5	The neptunium-iron phase diagram	0022-3115(94)00305-8	NA	04/18/1994
P1272	S3	Phase I Safety Analysis Report Update Program (SARUP) Hazard Screening; The Isotope Development Laboratory; Building 3038	HS/3038/F/RT-15	0	02/14/1992
P1286	S3	Basis for Interim Operation for the Isotopes Development Laboratory Bldg 3038	BIO/3038/F/RT-15/R-0b	0b	02/10/1997
P1287	S3	Basis for Interim Operation for the Radioisotope Development Laboratory Bldg 3047	BIO/3047/F/RT-16	1	04/07/1997
P1289	S3	Final Safety Analysis for the Source Development Laboratory, Bldg 3029	ORNL/CF-85/294	NA	08/30/1985
P1290	S3	Operational Safety Requirements for Bldg 3029	NA	NA	07/28/1986
P1291	S3	Operational Safety Requirements for Bldg 3033 Annex	NA	Draft	03/12/1984
P1292	S3	Safety Analysis Report for Bldg 3033 Annex	NA	Draft	03/12/1984
P1294	S3	Operational Safety Requirements for Bldg 3038	NA	NA	06/29/1988
P1295	S3	Operational Safety Requirements for Bldg 3047	NA	NA	Undated
P1310	S3	Phase I Safety Analysis Report Update program (SARUP) hazard Screening - Building 3028	HS/3028/F/RT-05/Rev 0	0	02/05/1992
P1312	S3	Phase I Safety Documentation The Radioisotope Development Laboratory - Building 3047	HS/3047/F/RT-16	1	08/07/1995
P1316	S3	Safety Analysis Report for The Radioisotope Development Laboratory Building 3047	ORNL/CTD/SAR/3047/F/RT-16	0	~1999
P1321	S3	Final Safety Analysis for the Source Development Laboratory, Building 3029	ORNL/CF-85/295	NA	08/27/1985
P1324	S3	Draft Safety Assessment of Building 3031	CF-86/281	NA	09/1986
P1332	S2	Isotopes Division: Zoning Procedures	CF-73-9-13	NA	09/15/1973
P1351	N/A	Radioactive Operations Committee Reviews of Isotopes Facilities, Buildings 3028, 3029, 3030, 3031, 3032, 3033A, 3038, 3047, and 9204-3	Multiple	NA	1962-1988
P1357	N/A	Isotopes Separations Progress Report for 1976	Multiple	NA	07/1976-12/1976
P1360	S5	Isotope Separations Progress Reports for 1979	Multiple	NA	04/1979-12/1979
P1361	N/A	Isotope Separations Progress Reports for 1980	Multiple	NA	01/1980-12/1980
P1363	N/A	Isotopes Section Progress Reports for 1982	Multiple	NA	01/1982-12/1982
P1376	S5	Review of Isotopes Target Program, January 1965 – December 1967	ORNL-4308	NA	10/1968
P1377	S5	Review of Isotopes Target Program, October 1963-December 1964	ORNL-3829	NA	09/1965

Source Document Number	AK #	Title	Document Number	Revision	Date
U007	N/A	Safety Analysis of Building 3028	ORNL/CF-78/84	NA	06/26/1978
U038	S5, S9	ORNL TRU Waste Historical Survey	BJC/OR-395-V/1,2,3	Draft	09/2001
U044	S2, S9	Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations	AK-ORNL-001	3A, 4	05/24/2006; 06/19/2006
U124	S2	Contamination Control Plan for Hot Cell (TWPC Hot Cell)	NA	NA	Draft
U427	S11	Unclassified Notebook, R. E. Kerry, Health Physics Division, Building 3047	A-6042	NA	06/07/1971-06/30/1971
U451	S11	ORNL Technical Notebook, D. D. Drake, Operations Division, Isotope Production (Bldg 3028)	Logbook No. A-103091	NA	10/05/1988-08/03/1995
U458	S11	RTS Facility Logbook JMD : Buildings 3038; 3038E; 3033A; 7025; 3047	Misc/1984/0001	0	01/3/1984-07/25/1986
U459	S2, S4, S11	RTS Facility Logbook; Buildings 3038 AHF; 3038E; 7025; 3047; 3033A – JM Daily Logbook – Isotopes	Misc/1982/0001	0	01/11/1982-2/22/1985
U466	S11	RTS Facility Logbook; Buildings 7025; 3038E; 3038; 3033A; 3047	Misc/1979/0001	0	11/05/1979-02/25/1980
U467	S11	RTS Facility Logbook; Buildings 3938, 3038E, 3033A, 7025, 3047	Misc/1978/0001	NA	1978-1979
U468	S11	RTC Facility Logbook; Buildings 7025; 3038E; 3038; 3033A; 3047 – J. M. Dailey (Isotopes)	Misc/1988/0001	NA	01/4/1988-12/18/1989
U469	S11	RTS Facility Logbook; Buildings 3038, 3038E, 3033A, 7025, 3047	Misc/1986/0002	0	07/28/1986-12/31/1987
U471	S11	RTS Facility Logbook: MISC/1980/0001; Buildings 3038, 3038E, 3033A, 7025, 3047; 03/1980-12/1985	Misc/1980/0001	NA	01/2/1980 - 12/28/1981
U472	S11	RTS Facility Logbook; Buildings 3038, 3038E, 3033A, 7025, 3047	Misc/1974/0001	NA	05/08/1974-07/02/1980
U473	S11	RTS Facility Logbook; Buildings 3038, 3038E, 3033A, 7025, 3047	Misc/1986/0001	0	10/7/1987-04/29/1987
U474	S11	RTS Facility Logbook; Building 3033A; 7025; 3038E; 3038; 3047	Misc/1977/0001	0	01/3/1977-12/21/1977
U475	S7, S11	RTS Facility Logbook; Buildings 3038; 3038E; 3033A; 7025; 3047	Misc/1970/0001	NA	3/26/1970-08/27/1979
U483	S11	ORNL Technical Logbook; C. E. McFarland; Building 3038	Logbook A-9372	NA	02/20/1980-12/30/1980
U569	S11	Logbook, Building 3047. P.R. Kuehn, Isotopes Facilities	NA	NA	02/13/1976-01/26/1977
U575	S11	Logbook, Building 3047. P.R. Kuehn, Isotopes Facilities	NA	NA	09/27/1965-11/12/1969
U577	S11	RTS Facility Logbook	3047/1971/0004	NA	11/1971-07/1972
U579	S11	Logbook, Building 3047, P. R. Kuehn. CmO2 Targets	NA	NA	1/15/1971-12/19/1973
U580	S11	Logbook, Building 3047. P.R. Kuehn, Isotopes Facilities	NA	NA	05/28/1975-09/03/1976

Source Document Number	AK #	Title	Document Number	Revision	Date
U582	S11	RTS Facility Logbook; Building 3033A, 3038E, 3038, 3047, 7025	Misc/1981/0001	NA	08/1981-08/1982
U586	S11	Logbook – FTR-O Rejects – RTS Facility – Buildings 3038E, 3038AHF, 3033A, 7025, 3047	Misc/1983/0002	NA	1983
U587	S11	Logbook – RTS Facility Buildings 3038, 3038E, 3033A, 7025, 3047	Misc/1975/0001	NA	09/23/1975-11/11/1977
U588	S11	Logbook Misc/1980/0001 - RTS Facility Buildings 3038, 3038E, 3033A, 7025, 3041, - 1/1980 thru 6/1981	Logbook Misc/1980/0001/RTS	NA	01/1980 - 06/1981
U589	S11	Logbook – RTS Facility – Buildings 3033A, 3038E, 3038, 3047, 7025	Misc/1967/0001	NA	06/12/1967-12/15/1975
U590	S11	Logbook – Lovegrove – Buildings 3038, 3038E, 3033A, 7025, 3047	Misc/1977/0002	NA	11/03/1977-12/10/1979
U591	S11	Logbook – Buildings 3033A, 3047, 7025 – S. D. Brandel	Misc/1986/0003	NA	03/03/1986-02/09/1988
U592	S11	Logbook – Buildings 3038, 3047, 3038E, 7025, 3033A – J. R. Gibson	Misc/1987/0001	NA	10/09/1987-12/21/1989
U593	S11	Logbook MISC/1967/0001 - RTS Facility Buildings 3033A, 3038E, 3038, 3047, 7025 - 6/1967 thru 12/1975	Logbook MISC 1967/0001	NA	06/12/1967 - 12/15/1975
U594	S11	Logbook – RTS Facility Buildings 7025, 3038E, 3038, 3033A, 3047 – Joni Lovegrove	Misc/1980/0001	NA	01/01/1980-06/08/1981
U680	S11	RTS Facility Logbook; W.S. Aaron; Buildings 3038, 3038E, 3033A, 7025, 3047	A-8783	NA	11/17/1976-03/09/1984

Alphanumeric Designations

C Correspondence
DR Discrepancy Resolution
I Internal Procedures and Notes
M Miscellaneous
P Published Documents
U Unpublished Documents

AK Numbers

S1	Process Design Documents
S2	Standard Operating Procedure
S3	Safety Analysis Reports
S4	Waste Packaging Logs
S5	Test plans/research project reports
S6	Site databases
S7	Information from site personnel
S8	Standard industry documents
S9	Previous analytical data
S10	Material safety data sheets
S11	Laboratory Notebooks
S12	Comparable or surrogate sampling and analysis data
NA	Not applicable

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: OR-NFS-CH-HOM-A							
(2) Generator site name: Oak Ridge National Laboratory					(3) Generator site EPA ID: TN1890090003		
(4) Technical contact: Beverly Schrock					(5) Technical contact phone number: 575-234-7444		
(6) Date of audit report approval by New Mexico Environment Department (NMED): July 8, 2013							
(7) Title, version number, and date of documents used for WIPP-WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 21, May 31, 2013; CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 27, May 31, 2013; CCP-PO-027, CCP/TRU Waste Processing Center/Oak Ridge National Laboratory Interface Document, Revision 5, October 2, 2013							
(8) Did your facility generate this waste? YES			NO	X			
(9) If no, provide the name and EPA ID of the original generator: Nuclear Fuel Services, Inc; TND003095635							
Waste Stream Information							
(10) WIPP ID: OR-NFS-CH-HOM					(11) Summary Category Group: S3000		
(12) Waste Matrix Code Group: Solidified Organics and Inorganics					(13) Waste Stream Name: Immobilized Liquids and Fines from NFS		
(14) Description from the ATWIR: Waste consists of homogeneous waste from NFS.							
(15) Defense TRU Waste:	YES	X	NO				
(16) Check One:	CH	X	RH				
(17) Number of SWBs NA (17a) Number of SLB2 NA	(18) Number of Drums Current - 38 55-gallon drums Projected – 7 55-gallon drums[1]				(19) Number of Canisters NA		
(20) Batch Data Report numbers supporting this waste stream characterization: See Characterization Information Summary for correlation of containers identification numbers to batch data report numbers							
(21) List applicable EPA Hazardous Waste Numbers: D006 and D009							
(22) Applicable TRUCON Content Numbers: OR127/OR227, SQ154							
(23)**Acceptable Knowledge Information**							
(For the following, enter the supporting documentation used [i.e., references and dates])							
Required Program Information							
(23A) Map of site: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Figures 1, 2 3, 6 and 7							
(23B) Facility mission description: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 4.2							
(23C) Description of operations that generate waste: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 4.4							
(23D) Waste identification/categorization schemes: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 4.5							
(23E) Types and quantities of waste generated: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 4.6.1							
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 4.6.2							
(24) Waste certification procedures: CCP-TP-030, Revision 33, November 19, 2013							
(25) Required Waste Stream Information							
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 7.1							
(25B) Waste stream volume and time period of generation: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 7.2							

(25C) Waste generating process description for each building: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 7.3			
(25D) Waste Process flow diagrams: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Figures 9			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-ORNL-001, Revision 8, December 12, 2013, Section 7.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste See table entitled "Waste Material Parameter Estimates for OR-NFS-CH-HOM-A" in Summation of Aspects of AK Summary Report: OR-NFS-CH-HOM-A			
(26) Which Defense Activity generated the waste:			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management	X	Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations		
(27) Supplemental Documentation:			
(27A) Process design documents: NA			
(27B) Standard operating procedures: See C119, C120, C121, C122, C125, C126, C127, C129, C130, I056, I058, I059, I061, I067, I068, M210, P1370, P1371, P1372, P1401, P1403, P1407, P248, P251, P252, P254, P267, P273, P300, P303, P304, P306, P315, P320, P582 and U044 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27C) Safety Analysis Reports: in the Summary Report: See P248, P256 and P432 in OR-NFS-CH-HOM-A, AK Source Documents			
(27D) Waste packaging logs: See M003 and M052 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27E) Test plans/research project reports: See C122, P1372, P1404, P212, U038 and U043 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27F) Site databases: See M012, M013, M198 and M217 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27G) Information from site personnel: See C100, C206, C210, C227, C309 and C321 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27H) Standard industry documents: See C146, C147, M011 and M210 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27I) Previous analytical data: See C122, C205, I052, I053, M013, M017, M019, M020, M061, M062, M063, M064, M065, M068, M198, M211, M217, M235, P1374, P1375, P1402, P1404, U038, U043, U044 and U597 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27J) Material safety data sheets: See C200, C301, M011 and M210 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27K) Sampling and analysis data from comparable/surrogate Waste: See I052 and P1402 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
(27L) Laboratory notebooks: See M052 and U016 in the Summary Report: OR-NFS-CH-HOM-A, AK Source Documents			
Confirmation Information			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: CCP Standard Real-Time Radiography (RTR) Inspection Procedure, CCP-TP-053, Revision 14, September 25, 2013		
	Visual Examination:		

(29) Comments: For a list of the waste characterization procedures used and date of respective procedures see the list of procedures on the attached CIS.

Reviewed by AK Expert: YES ☐ Date:_____

Reviewed by STR (if necessary): YES ☐ N/A ☐ Date:_____

Waste Stream Profile Form Certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Draft	Draft	Draft
Signature of Site Project Manager	Printed Name	Date

NOTE: (1) Projected containers due only to repackaging.

CHARACTERIZATION INFORMATION SUMMARY

WSPF# OR-NFS-CH-HOM-A Rev. 0 (CCP-AK-ORNL-001)

Lot 1

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CCP Characterization Information Summary Cover Page

Waste Stream # OR-NFS-CH-HOM-A Lot #: 1

AK Expert Review: N/A Date: N/A

SPM Review: Roger Whiteaker Date: 01/08/2014

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Non Destructive Assay (NDA):

CCP-TP-048	Rev. 16	11/01/2013 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 15	03/24/2011 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 14	03/08/2010 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 13	10/12/2009 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 12	09/09/2009 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 11	02/19/2008 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 10	11/16/2006 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 9	11/03/2005 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 8	09/21/2005 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 7	03/14/2005 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 6	10/18/2004 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 5	06/08/2004 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 4	12/04/2003 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 3	09/03/2003 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 2	04/25/2003 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 1	03/21/2003 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 0	02/05/2003 Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 21	06/06/2013 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 20	09/27/2012 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 19	12/29/2010 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	08/09/2010 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 17	09/24/2007 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 16	04/26/2007 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 15	11/22/2006 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 14	11/16/2006 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 13	07/21/2006 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 12	05/25/2006 CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 11	03/23/2005 CCP Project Level Data Validation and Verification

CCP-TP-002	Rev. 26	06/19/2013 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 25	02/11/2013 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 24	12/28/2011 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 23	12/29/2010 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	08/30/2010 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	08/04/2009 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 20	08/18/2008 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 19	12/22/2006 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 18	11/16/2006 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 17	10/10/2006 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 16	06/06/2006 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 15	08/18/2005 CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 14	03/29/2005 CCP Reconciliation of DQOs and Reporting Characterization Data

CCP-TP-005	Rev. 26	08/12/2013 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 25	06/19/2013 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 24	11/28/2011 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 23	06/30/2011 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/2011 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/2010 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/2010 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/2010 CCP Acceptable Knowledge Documentation

CCP-TP-005	Rev. 18	11/16/2006 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 17	06/05/2006 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 16	02/27/2006 CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 15	03/31/2005 CCP Acceptable Knowledge Documentation

CCP-TP-030	Rev. 33	11/19/2013 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 32	06/20/2013 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 31	11/19/2012 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 30	05/21/2012 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 29	04/26/2011 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 28	05/12/2010 CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 27	12/14/2009 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 26	05/27/2009 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 25	01/22/2009 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 24	08/20/2008 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/2008 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/2007 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 21	05/21/2007 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 20	02/07/2007 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 19	11/16/2006 CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 18	05/01/2006 CCP TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 17	12/29/2005 CCP TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 16	04/22/2005 CCP TRU Waste Certification and WWIS Data Entry

Radiography (RTR/NDE):

CCP-TP-053	Rev. 14	09/25/2013 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 13	05/14/2013 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 12	08/22/2012 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 11	07/20/2011 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 10	03/04/2011 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/2010 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	06/30/2010 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 7	10/21/2009 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 6	03/04/2008 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 5	11/16/2006 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 4	12/22/2005 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 3	03/21/2005 CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 2	07/14/2004 CCP Standard Real-Time Radiography (RTR) Inspection Procedure

WAP Certification:

CCP-PO-001	Rev. 21	05/31/2013 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 20	06/16/2011 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/2010 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	08/30/2010 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/2009 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 16	10/31/2007 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 15	08/10/2007 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 14	03/28/2007 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 13	11/16/2006 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 12	03/22/2006 CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 11	03/10/2005 CCP Transuranic Waste Characterization Quality Assurance Project Plan

CCP-PO-002	Rev. 27	05/31/2013 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 26	07/14/2011 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/2010 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/2010 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/2010 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 22	01/12/2010 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 21	01/26/2009 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 20	11/02/2007 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 19	05/22/2007 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 16	11/16/2006 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 17	11/16/2006 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 18	11/16/2006 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 15	03/22/2006 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 14	12/29/2005 CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 13	05/09/2005 CCP Transuranic Waste Certification Plan

CCP-PO-003	Rev. 13	07/31/2013	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 12	12/29/2010	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 11	06/04/2009	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 10	11/16/2006	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 9	12/12/2005	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 8	01/25/2005	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 7	11/22/2004	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 6	06/08/2004	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 5	09/19/2003	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 4	02/11/2003	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 3	05/31/2002	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-NFS-CH-HOM-A

Lot # 1

Container ID Number	Historical Container ID	NDA BDR	RTR BDR	VE BDR	Load/Manage Overpack Yes	Transportation Headspace Gas	
						FGA	GGT
NFS0478A	N/A	OR-IQ3-0224	OR-RTR6-0437	N/A	No	OR13FG4003	N/A
NFS0865A	N/A	OR-IQ3-0224	OR-RTR6-0437	N/A	No	OR13FG4003	N/A

Signature of Site Project Manager | Roger Whiteaker (Printed Name) | 01/08/2014 (Date)

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-NFS-CH-HOM-A Lot #: 1

Container Number	RTR Prohibited Items [a,b]	Visual Examination Prohibited Items [a,b]	Does the Physical Form of the Waste Match the Waste Stream Description as Determined by AK
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	None of the containers in this lot had prohibited items identified during RTR.	VE was not used to certify any containers in this Lot.	The physical form of the waste match the waste stream description as determined by AK.
a. See Batch Data Reports			
b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).			
Justification for the selection of RTR and/or VE: RTR was selected as the characterization method for this lot because the waste was previously packaged and RTR meets all the Data Quality Objectives for NDE for the waste.			

Site Project Manager Signature	Roger Whiteaker Printed Name	01/08/2014 Date

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-HOM-A Rev. 0 Lot # 1

Sampling Completeness

RTR/VE:

Number of Valid Samples: 2 Number of Total Samples Analyzed: 2
Percent Complete: 100 (QAO is 100%)

NDA:

Number of Valid Samples: 2 Number of Total Samples Analyzed: 2
Percent Complete: 100 (QAO is 100%)

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
4	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
5	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
6	N	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
7	Y	Waste stream can be classified as hazardous or nonhazardous.
8	Y	The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections C3-2 through C3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

		Completeness	Comparability	Representativeness
	Radiography	Y	Y	Y
	VE	NA	NA	NA

Comments: None

Roger Whiteaker 01/08/2014

Signature of Site Project Manager Printed Name Date

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: OR-NFS-CH-HOM-A

Overview

Waste stream OR-NFS-CH-HOM-A is contact-handled (CH) mixed immobilized liquids and fines generated at Nuclear Fuel Services, Inc. (NFS) in Erwin, Tennessee and stored at the Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee. Waste stream OR-NFS-CH-HOM-A was generated in Buildings 110 and 234 at NFS. Building 234 contained a plutonium/uranium mixed oxide (MOX) fuel fabrication facility that performed fuel fabrication work under subcontracts to two U.S. Government contracts administered by the U.S. Atomic Energy Commission (AEC), and two smaller commercial contracts. The largest of the two government sponsored orders was to manufacture fuel rods for the Southwest Experimental Fast Oxide Reactor (SEFOR) in Arkansas. The other government sponsored order was from the U.S. Department of Energy (DOE) Savannah River Site (SRS). The majority of the plutonium processed by NFS resulted from the two U.S. Government contracts. The other plutonium processed at NFS supported commercial contracts for the Halden reactor and Consumers Power Company. Building 110 housed wet chemistry and spectrographic laboratories that provided analytical support to Building 234. The Building 234 MOX facility operated from 1965 to 1973. It remained inactive from the time production operations ceased in 1973 until the initial phase of decommissioning started in the early 1990's. Waste stream OR-NFS-CH-HOM-A is from decommissioning operations, not production operations.

The two larger contracts were placed pursuant to prime contracts with the AEC and were both national defense rated orders which were designated DO-E2 certified for national defense use under Defense Material System (DMS) Regulation 1. The established defense and commercial activities utilized the same process equipment so the source of contamination is indistinguishable. Therefore, waste stream OR-NFS-CH-HOM-A is linked primarily to defense nuclear materials production.

This Summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) number OR-NFS-CH-HOM-A for mixed immobilized liquids and fines. The primary source of information for this Summation is CCP-AK-ORNL-001, *Central Characterization Program Acceptable Knowledge Summary Report For Nuclear Fuel Services Contact-Handled Transuranic Waste Stored at Oak Ridge National Laboratory, Waste Streams OR-NFS-CH-HET-A, OR-NFS-CH-SOIL, OR-NFS-CH-HOM-A, OR-NFS-CH-HOM-B,* Revision 8, December 12, 2013.

Waste Stream Identification Summary

Waste Stream Name:	Immobilized Liquids and Fines from NFS
Waste Stream Number:	OR-NFS-CH-HOM-A
Dates of Waste Generation:	July 1993 to March 1994
Waste Stream Volume – Current:	38 55-gallon drums
Waste Stream Volume – Projected:	7 55-gallon drums (due only to repackaging)
Summary Category Group:	S3000 – Homogeneous Solids

Waste Matrix Code Group:	Solidified Organics and Inorganics
Waste Matrix Code:	S3900
TRUCON Content Numbers:	OR 127 / OR 227, SQ 154
Annual Transuranic Waste Inventory Report Identification Number:	OR-NFS-CH-HOM

Waste Stream Description and Physical Form

Waste stream OR-NFS-CH-HOM-A is comprised of immobilized liquids, fines, and other high activity residual materials. Respirable fines were immobilized with Portland cement and water in 2-liter high-density polyethylene (HDPE) bottles, and dry absorbent was added to the top of the cured waste. Aqueous liquids were immobilized with RADSORB (sodium polyacrylate polymer absorbent) in 2-liter HDPE bottles. Miscellaneous metals (e.g., sweepings, hardware) are contained throughout the RADSORB absorbent matrix. In addition, there are a couple of HDPE bottles containing very small quantities of scrap metal such as nuts and bolts with no absorbent (References C210, M003, M126, M202, P218, P274, P317).

Waste stream OR-NFS-CH-HOM-A meets the Waste Isolation Pilot Plant (WIPP) Waste Analysis Plan (WAP) waste stream definition. The waste stream consists of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. This waste stream consists of TRU-mixed absorbed/solidified waste generated during facility decommissioning operations at NFS.

Point of Generation

Location

Waste stream OR-NFS-CH-HOM-A was generated at NFS in Erwin, Tennessee which is less than 10 miles from the western North Carolina border (References C099, P218, P248, P283, U038, U054).

Area and/or Buildings of Generation

Waste stream OR-NFS-CH-HOM-A was generated in the Building 234 MOX fuel fabrication facility and the Building 110 wet chemistry and spectrographic laboratories at NFS (References C099, M003, M052, M054, P273).

Generating Processes

Production Operations at NFS

Pellet Production

Solutions containing a mixture of plutonium nitrate and uranyl nitrate hexahydrate were transferred from the master mix tank to precipitation units. Plutonium and uranium were precipitated as ammonium diuranate and plutonium hydroxide, and ammonium hydroxide was used as a precipitant. During the Consumer Powers project, the feed solution contained

plutonium nitrate only, and the plutonium was precipitated using oxalic acid, nitric acid, and hydrogen peroxide (References C145, P273).

Supernate was decanted from the ammonium diuranate or oxalate slurry and the remaining precipitate was filtered to remove liquids. Supernate/filtrate from the ammonium diuranate or oxalate slurry was polished and stored in two glass columns. Filtrate from the column box was evaporated producing ammonium nitrate concentrate and ammonium hydroxide condensate. During SEFOR production, ammonium hydroxide condensate was used to wash ammonium diuranate cake. Wet ammonium diuranate or oxalate cake was dried in a furnace and then loaded in another furnace and heated in a nitrogen and hydrogen gas atmosphere. The resultant oxide solids (MOX or plutonium oxide) from the conversion furnace were passed through a twin shell blender. Sub-blended oxide was ball-milled, screened, and weighed. After weighing, oxide was packaged in two liter bottles and placed into storage (References C145, P273).

One cross-blend was performed per five days during SEFOR production; each cross-blend was comprised of five sub-blends. During the Consumer Powers project, plutonium oxide cross-blending was followed by the addition of uranium oxide solids. The mixture of plutonium oxide and uranium oxide was sub-blended and cross-blended. Blended oxide was granulated using an oscillating device and stainless-steel screen. Binder was added to cross-blends during granulation. Granulated oxide was transferred to a pellet press. Pellets were measured for density then loaded into the sintering furnace and heated in an atmosphere of hydrogen gas, nitrogen gas, carbon dioxide, and argon. The sintered pellets were then allowed to off-gas (References C145, P273).

Sintered pellets were machined to finished size using grinders. Recycled water from the pellet wash was used as coolant. Grinder sludge and damaged pellets were sent to scrap recovery. Machined pellets were cleaned with isopropyl alcohol or in an ultrasonic wash using distilled water and then air dried. Pellets were visually inspected and diametrically gauged. A percentage of pellets were sampled for destructive analyses and measured for density and dimensional attributes. Reject pellets and sample residues were sent to scrap recovery. Finished pellets were weighed and loaded in tubes that were capped and sent to rod assembly and fabrication stations (References C145, M008, P273).

Scrap Dissolution and Recovery

Oxide scrap was ball-milled to reduce particle size. Ball-milled oxide scrap was transferred to the dissolution station and heated with nitric acid in one of two dissolvers. Nitrate solutions were pumped from the dissolver to the evaporator (References C145, P273).

Non-combustible items containing recoverable material (e.g., bottles, plastics, screens, gloves, etc.) were unloaded from drums and passed to the scrap preparation station for manual cutting and shredding. Shredded materials were leached in a nitric acid bath to recover plutonium. Leachate was pumped to the evaporator and solids were bagged-out and packaged for disposal (References C145, P273).

Plutonium nitrate solutions were transferred from the evaporator to glass storage columns. Solutions were circulated, sampled, and pumped to the adjacent load-out station. Plastic cylinders were placed in a holding rack and filled with solutions from the columns. Loaded cylinders were packaged for shipment (References C145, P273).

Segregation and Immobilization of Liquids, Fines, and Residual Materials at NFS

Waste stream OR-NFS-CH-HOM-A was generated from the immobilization of liquids, fines, and other high activity residual materials collected and segregated during the decommissioning of Buildings 110 and 234. In the early-1990s when this waste was transferred from NFS to ORNL for storage, the ORNL Waste Acceptance Criteria (WAC) and WIPP WAC required immobilization of respirable fines (References M007, P268, P269). The immobilization process described below was performed in Building 234 (Reference P274).

Gloveboxes, equipment, exhaust systems, and utility and process lines and systems from Buildings 110 and 234 were decontaminated as necessary prior to processing in the Decontamination and Volume Reduction Facility (DVRF) in Building 234 (References P303, P319, P1371). Loose materials were removed from gloveboxes and process equipment and accumulated in polyethylene bottles. The materials included dry powder sweepings, sludge, paint chips, metal chips and shavings, pellets, rust, wet cheesecloth used to wipe down contaminated surfaces, highly contaminated items such as gasket or paper filter media, or other contaminated debris easily gathered into a small container. These bottles were used to concentrate the contamination removed from gloveboxes and equipment so the bulk of the waste could be packaged at lower activity concentrations (no more than 15 Pu-239 fissile gram equivalent [FGE] as described below). Therefore, these bottles contained relatively large amounts of activity (References C206, P218, P274, P317).

If the bottles did not contain MOX pellets or recoverable powder, the particulate waste was processed to remove respirable fines which were defined as those wastes which contain particulates with greater than one weight percent (wt%) of the material less than 10 microns in diameter, or greater than 15 wt% of the material less than 200 microns in diameter. The bottles of material were bagged into the segregation and immobilization station glovebox located in Building 234 Area C. If moisture was present, the contents of the bottles were emptied onto a screen to filter out large pieces. The particulate material that passed through the screen was dried on a hot plate until respirable fines were liberated. This material was emptied onto a 212 micron sieve screen over a collection pan. The sieve was covered and vibrated for about three minutes. The respirable fines that passed through the 212 micron sieve were emptied into 2-liter HDPE bottles. No more than 500 milliliters of fines were collected in a single bottle (References P218, P274, P300).

The bottles of respirable fines were bagged out of the glovebox and assayed. If the assay value was greater than 80 Pu-239 FGE, the contents of the bottles were separated into two bottles. Water and Portland cement were added to the 2-liter bottles of respirable fines and stirred to achieve a homogeneous mixture. The sieving described above was done for most of the bottles but was discontinued near the end of the project and the residual materials collected in bottles were cemented. The bottles were tamped on the glovebox floor to help settle the cement and eliminate void space. The contents were allowed to cure (uncapped) for at least 24 hours. The immobilized waste was visually inspected for signs of residual liquid and set-up. According to procedure, about a half inch of absorbent was placed on top of the cement to absorb any liquid that could evolve and condense due to thermal cycling. However, previous RTR identified several inches of absorbent on top in some cases. The bottles were capped and bagged out of the glovebox in two un-vented plastic bags which were heat-sealed. The immobilized fines are included in waste stream OR-NFS-CH-HOM-A (References C200, C210, M003, M202, P218, P274).

With the loose materials having been removed, gloveboxes, process equipment, piping, and ventilation duct were introduced into the DVRF where an initial assay determined whether further decontamination was needed. If decontamination was required, items were disassembled or sectioned in the decontamination cell. Focusing on areas identified by the initial assay, manual cleaning methods (e.g., wiping with Radiacwash [contains citric acid and tetrasodium ethylenediamine triacetate]) were employed to decontaminate the items to the extent possible. If additional cleaning was needed, a high-pressure water jet was used to remove the etched in and fixed contamination. The decontaminated items were loaded into the shear/baler where they were cut and compacted. The compacted bales were packaged into 40-gallon drums and sent to Scientific Ecology Group, Inc. (SEG) for further compaction (The compacted waste is not included in waste stream OR-NFS-CH-HOM-A)(References C210, P218, P300, P1371).

Water from the high-pressure water jet would not have been disposed of as TRU waste because it was recirculated through a series of filters and ion-exchange columns. However, Radiacwash decontamination solution generated during manual cleaning of gloveboxes and process equipment was solidified with Portland cement or other solidification media, such as RADSORB, which was a common solidification media used by NFS. Liquid waste was packaged in sufficient absorbent material to absorb twice the volume of the liquid. The immobilized decontamination solution is included in waste stream OR-NFS-CH-HOM-A (References C210, M011, P273, P317).

In order to ensure a consistent and uniform geometry that was conducive to assay, 2-liter HDPE bottles of immobilized liquids or fines that exceeded 50 Pu-239 FGE were packaged into a centering sleeve in the middle of a 55-gallon drum. These drums contained only two or three bottles of waste. Bottles containing lower levels of activity were accumulated and packaged directly into a 55-gallon drum without the centering sleeve with less than 50 Pu-239 FGE (References C209, P218). These drums contained between 8 and 28 bottles of immobilized fines (References C203, M003, M051).

The residual materials that did not pass through the initial screening or the sieve described above, and that were sufficiently low in activity, were accumulated in 2-liter HDPE bottles and packaged in 40-gallon drums for subsequent compaction at SEG (the compacted waste is not included in waste stream OR-NFS-CH-HOM-A). Each 40-gallon drum contained no more than 15 Pu-239 FGE. The remainder of the residual materials with more significant radionuclide loading were packaged in separate 55-gallon drums. NFS anticipated only minimal drums of this concentrated material would be generated (References P218, P300). An examination of the NFS inventory at ORNL from the initial phase of decommissioning did not identify any 55-gallon drums containing only bottles of residual material (Reference M198). RTR conducted in the early-1990s at the Waste Examination and Assay Facility (WEAF) at ORNL shows a couple of bottles of residual materials were packaged into 55-gallon drums along with bottles of immobilized fines or absorbent. However, the WEAF RTR identifies many of the 2-liter HDPE bottles in this waste stream contain what appears to be miscellaneous metal (e.g., sweepings, hardware, tools) mixed throughout a transparent resin matrix. The consistency and density of the resin matrix observed in the WEAF RTR is consistent with an organic polymer absorbent, such as RADSORB, which was a common absorbent used by NFS (References M126, M202). Although not specifically identified in NFS procedures, it is believed that RADSORB absorbent was mixed with the high activity residual materials (References P274, P317).

Waste Stream Material and Chemical Inputs

The following table identifies the Resource Conservation and Recovery Act (RCRA) toxicity characteristic constituents identified in this waste stream. This waste stream is not a listed waste. The use/source of these constituents is provided below.

Constituent	EPA Hazardous Waste Number
Cadmium	D006
Mercury	D009

RCRA Determinations

Historical Waste Management

EPA hazardous waste numbers were assigned to waste stream OR-NFS-CH-HOM-A in accordance with RCRA based on a review of available AK documentation identifying chemical usage and potentially hazardous materials that may have been introduced into the waste stream through waste generating operations, MSDS information compiled for commercial products used during decommissioning, and sampling and analysis of glovebox sweeping material by NFS. This waste stream has been historically managed in accordance with ORNL waste management practices in compliance with the requirements imposed by the Tennessee Department of Environment and Conservation (TDEC). Analytical data from process line samples of sweepings material indicate a few samples above the regulatory level for some RCRA-hazardous metals; however, NFS characterized the immobilized liquids and fines waste as nonhazardous waste with the exception of one drum containing cadmium and mercury. The EPA hazardous waste number assignments have been applied on a waste stream basis; individual containers may not contain all of the hazardous materials listed for the waste stream as a whole.

Hazardous Waste Determinations

Ignitability, Corrosivity, Reactivity

The waste material in waste stream OR-NFS-CH-HOM-A does not meet the definition of ignitability as defined in 40 Code of Federal (CFR) 261.21. The waste is not an oxidizer, and it is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. Respirable fines were immobilized with cement and water, and liquids were immobilized with RADSORB, so the possibility exists that liquids have formed in some drums while in storage. Prior to WIPP disposal, prohibited quantities of liquids will be removed or immobilized. TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Efforts were made to prevent the formation of liquids in bottles of immobilized fines by the addition of absorbent to the top of the cement (References C200, M003, P267, P268, P273, P274, P317). This waste will not be pyrophoric, and pyrophorics and compressed gases have not been identified in this waste stream (References M003, M065, P268, P273, P317). The materials in this waste stream are, therefore, not ignitable D001 wastes.

The waste material in waste stream OR-NFS-CH-HOM-A is not liquid and does not contain unreactive corrosive chemicals; therefore, it does not meet the definition of corrosivity as defined in 40 CFR 261.22. Respirable fines were immobilized with cement and water, and

liquids were immobilized with RADSORB, so the possibility exists that liquids have formed in some drums while in storage. Prior to WIPP disposal, prohibited quantities of liquids will be removed or immobilized. TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Efforts were made to prevent the formation of liquids in bottles of immobilized fines by the addition of absorbent to the top of the cement (References C200, M003, P267, P268, P273, P317). The materials in this waste stream are, therefore, not corrosive D002 wastes.

The waste material in waste stream OR-NFS-CH-HOM-A does not meet the definition of reactivity as defined in 40 CFR 261.23. The waste is stable, will not undergo violent chemical change, and will not detonate. The waste will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. There is no indication that the waste contains explosive materials, and it is not capable of detonation or explosive reaction. The waste does not contain reactive cyanide or sulfide compounds. TRU waste generated at NFS was packaged in accordance with waste certification plans to meet ORNL-WAC developed specifically for NFS TRU waste. Explosives, reactive metals, reactive cyanides, or reactive sulfides were not identified in the AK documentation reviewed for either Building 234 or Building 110 (References M003, P267, P268, P273, P317). *NFS Radwaste Package Certification Records* indicate that the waste is not readily capable of detonation, explosive decomposition, reaction at normal pressures and temperatures, or an explosive reaction with water (Reference M003). The materials in this waste stream are, therefore, not reactive D003 wastes.

The containers in the waste stream will be evaluated in accordance with the WIPP-WAP using RTR and/or VE prior to shipment to ensure the waste is not ignitable, reactive, or corrosive.

Toxicity Characteristic

Based on review of AK relative to chemicals used or present in the facility and operations potentially contaminating the waste, waste stream OR-NFS-CH-HOM-A may be contaminated with toxicity characteristic compounds as defined in 40 CFR 261.24, as summarized in the Chemical Identification and Use Summary table above.

Toxicity characteristic metals constituents were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic metals constituents (Reference M011). Analytical data from six process line samples of sweepings material identified a few samples above the regulatory level for arsenic, barium, and cadmium. Other sources for cadmium and mercury were also identified.

- Arsenic was detected in five of six samples at concentrations of 0.13, 0.51, 0.62, 4.4, and 5.7 mg/L. Only one of these results is above the regulatory level of 5.0 mg/L, and the UCL90 of these six samples is below the regulatory level (References C205, M064, M235, P273, U043).

- Barium was detected in all six samples at 0.57, 1.4, 38, 124, 222, and 301 mg/L. Three of these are above the regulatory level of 100 mg/L, and the UCL90 of these six samples is above the regulatory level. However, the method blank contained 193 mg/L which is also above the regulatory level. The barium may have been introduced from one of the extraction columns used in the analysis which is a problem encountered periodically (References C205, M064, M235, P273, U043).

- Cadmium was reported in all six samples at 0.04, 0.15, 1.2, 1.3, 1.5, and 24 mg/L. Four of these are above the regulatory level of 1.0 mg/L. The 24 mg/L cadmium value was outside the expected distribution from the other sample points, and consequently, this area was re-sampled. A sample composite was made of three parts new sample to one part previous sample. The result of the composite sample was 6.27 mg/L. The UCL90 of these six samples is above the regulatory level (References C205, M064, M235, P273, U043).

- Chromium, lead, and silver were detected in all six samples but below the regulatory level of 5.0 mg/L. Mercury and selenium were not detected in any of the samples (References C205, M064, P273, U043).

- A cadmium-coated wrench is located in one of the 2-liter HDPE bottles containing absorbent (References C210, U043).

- Waste was also generated from the cleanup of mercury from a regulator gauge located inside a glovebox. The liquid mercury was wiped up from the glovebox floor using cheesecloth. The mercury contaminated cleanup material, and other mercury contaminated waste from the floor of the glovebox (e.g., plexiglass and small metal items) were placed into 2-liter bottles and treated with a zinc amalgam (References C204, C210, M052).

Therefore, EPA hazardous waste numbers D006 (cadmium) and D009 (mercury) are assigned to waste stream OR-NFS-CH-HOM-A.

Listed Waste

F-Listed Waste

Based on review of AK relative to chemicals used or present in the facility and operations potentially contaminating the waste, waste stream OR-NFS-CH-HOM-A is not an F-listed hazardous waste from non-specific sources listed in 40 CFR 261.31.

Products used during decommissioning did not contain listed solvents (Reference M011). The only listed solvents identified in the MOX fuel production process were methylene chloride and trichlorotrifluoroethane contained in a binder material. As part of MOX fuel production, blended oxide was granulated using an oscillating device and stainless-steel screen. Binder was added to cross-blends during granulation. One of the binders used was Oxylene M-6 which contained 81 percent methylene chloride and 19 percent trichlorotrifluoroethane, both of which are F002-listed solvents. Use of this binder does not constitute a listed hazardous waste because these constituents were used as reactants or ingredients in the formulation of a commercial product. The TDEC concurred with this determination (References C142, P273).

NFS soil and debris waste containing small amounts of soil have been assigned F002 for tetrachloroethylene contamination in the soil beneath Building 234. This solvent was not used during decommissioning or in the MOX fuel production process, and therefore will not be a contaminant in the immobilized liquids and fines waste. Therefore, F002 is not assigned to waste stream OR-NFS-CH-HOM-A.

K-Listed Waste

The material in this waste stream is not hazardous from specific sources since it was not generated from any of the processes listed in 40 CFR 261.32.

P- and U-Listed Wastes

Waste stream OR-NFS-CH-HOM-A does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof listed in 40 CFR 261.33. Based on the AK documentation reviewed, U- and P-listed compounds were not used during MOX production or facility decommissioning. Therefore, U- and P-listed EPA hazardous waste numbers, including U134 (hydrofluoric acid) and P015 (beryllium), are not assigned to this waste stream (References C210, M011, P273).

Polychlorinated Biphenyls (PCBs)

This waste stream does not contain PCBs greater than 50 ppm, and therefore, is not regulated as a TSCA waste under 40 CFR 761. Analysis of process line samples of sweepings material indicate PCBs are well below 50 ppm (Reference C205, M064, P273, U043). RADSORB organic polymer absorbent was used to immobilize aqueous solutions only. Hydraulic fluids and oils were collected separately and sent to SEG for incineration (References C210, P317).

Prohibited Items

The HDPE 2-liter bottles were removed from the glovebox in two unvented heat-sealed bags (References C203, P218, P274, P320). Based on a review of the WEAF RTR tapes, the heat-sealed bags may be greater than four liters (fully expanded volume), and the surface area may be less than 390 square inches (Reference M126). For this reason, every drum in this waste stream will be repackaged to breach all of the heat-sealed bags.

When the NFS waste was received at ORNL in the early-1990s, the drums underwent RTR which did not identify liquids in the majority of the drums but did discover liquid in one bottle inside drum NFS0480. Absorbent was added to the bottle. The drum number was then changed to NFS0865 (References C200, M003, M053, M065).

Certified RTR is performed by CCP to ensure the waste does not contain prohibited items in accordance with the WIPP-WAC and WIPP-WAP.

Method for Determining Waste Material Parameters (WMPs) Weights per Unit of Waste

The waste material parameter weight estimates for waste stream OR-NFS-CH-HOM-A were derived from NFS container disposal paperwork, procedures, product information, and a review of previous WEAF RTR data.

NFS Form 28-001, TRU Waste Data Package, lists the gross weight and tare weight for each drum. The reported tare weights vary, and based on a review of the WEAF RTR data, it appears the tare weights include some inner packaging materials (e.g., rigid liner, centering sleeve). It is assumed that the 2-liter HDPE bottles and heat-sealed bags are not included in the tare weight (References M003, M126). According to product information, a Nalgene® 2-liter HDPE wide-mouth bottle weighs 200 grams. The weight of a typical bag-out bag provided in RTR procedure CCP-TP-053 is 100 grams. Each HDPE bottle is contained in two plastic bag-

out bags (References 15, C203, P274, P320). The plastic bags and 2-liter HDPE bottles are included in the table as "plastics (waste materials)." For the purpose of estimating waste material parameter weights, other packaging materials are not included in the calculation.

The weight of the immobilized waste was calculated by summing the weights of the HDPE bottles and plastic bags and subtracting this total from the net weight of each drum. The WEAF RTR was reviewed to determine the contents of each bottle and to estimate the volume utilization and the volume percentage of the different materials in each bottle (References M126, M202). These percentages were converted to actual volumes and then to weights based on an assumed density for the different waste materials (i.e., grouted fines, RADSORB organic polymer absorbent, and miscellaneous metals).

According to the NFS procedure for segregation and immobilization of particulate fines, the amount of fines in a 2-liter HDPE bottle varied, and the amount of cement and water mixed with the fines varied depending on the amount of fines (Reference P274). The density of the fines material is unknown so the density of the immobilized fines cannot be calculated. Instead, a density of 2.403 is assumed which is the density of concrete with gravel and of wet mortar.

Review of the WEAF RTR data by CCP identified numerous 2-liter HDPE bottles containing miscellaneous metals throughout a resin matrix. The metals included scrap, sweepings, hardware (e.g., nuts, bolts, washers), and hand tools (e.g., screwdriver, wrench) (Reference M202). To calculate the iron-based metal/alloy weights for AK, a density of 7.85 was used. Based on a comparison of the net weights to the calculated waste material parameter weights, it appears that the volume of metals was overestimated by CCP in the review of the WEAF RTR. The metal volume percentages were adjusted so the net weights and calculated waste material parameter weights were more comparable. It is possible other residual debris materials may be contained in the resin matrix but cannot be identified by RTR due to their lower densities.

The consistency and density of the resin matrix observed in the WEAF RTR is consistent with an organic polymer absorbent, such as RADSORB, which is a solid, granular, cross-linked homopolymer, and was a common absorbent used by NFS. RADSORB has an average density of 0.62 and can absorb up to 250 times its weight in water and up to 30 times its weight in aqueous solutions such as Radiacwash decontamination solution (Reference M011). However, based on the net weights of the waste, it doesn't appear as if the bottles contain anywhere near that amount of liquid.

Waste Material Parameter Estimates for OR-NFS-CH-HOM-A

Waste Material Parameter	Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	6.1%	0% - 57.3%
Aluminum-based Metals/Alloys	0%	0%
Other Metals	0%	0%
Other Inorganic Materials	0%	0%
Cellulosics	0%	0%
Rubber	0%	0%
Plastic (waste materials)	12.2%	10.4% - 32.8%
Organic Matrix	9.8%	2.5% - 50.1%
Inorganic Matrix	71.9%	0% - 85.6%
Soils/Gravel	0%	0%

List of AK Sufficiency Determinations Requested for the Waste Stream

No AK Sufficiency Determinations were requested for this waste stream.

Transportation

This waste stream and its chemical constituents have been reviewed for consistency with the listed TRUCON codes and they are consistent.

Beryllium

Based on the AK documentation reviewed, beryllium was not used by NFS (Reference C210). Therefore, beryllium will not be present in amounts greater than one percent by weight of the waste in any drum.

Radionuclide Information

To determine isotopic ratios for the waste stream as a whole, the total gram value for each individual radionuclide was divided by the total mass of all radioactive constituents in the waste stream and converted to a percentage. This result is listed as "Total Radionuclide Wt%." To determine the radionuclide Wt% range for individual containers, the radiological mass in each container in the waste stream was summed. The mass of each individual radionuclide in a container was divided by the total radiological mass for that container and converted to a percentage. The minimum and maximum results are listed as "Radionuclide Wt% Range for Individual Containers." The same process was applied to determine "Total Radionuclide Ci%" and "Radionuclide Ci% Range for Individual Containers."

As shown in the Waste Stream OR-NFS-CH-HOM-A Radiological Characterization table, U-238 is the most predominant radionuclide by mass, and Pu-239 is the second most predominant radionuclide by mass based on AK. The radionuclide weight percent of individual radionuclides varies on a container-by-container basis. Because of this variability, some containers will not include the waste stream predominant radionuclides but may include other radionuclides expected in this waste stream. Payload management will not be utilized for this waste stream; however, radioassay data indicate that the TRU alpha activity concentration in each of the drums in this waste stream is more than 100 nCi/g (References M003, M012, M198).

Waste Stream OR-NFS-CH-HOM-A Radiological Characterization

Isotope	Total Radionuclide Wt%[1,5]	Radionuclide Wt% Range for Individual Containers[2,5]	Total Radionuclide Ci%[3,5]	Radionuclide Ci% Range for Individual Containers[4,5]	Suspected Present (Yes/No)
WIPP Required Radionuclides					
Am-241	0.10%	0.01% - 2.86%[7]	2.58%	0.58% - 3.78%	Yes[6]
Pu-238	0.01%	Trace - 0.43%[7]	1.59%	0.55% - 22.66%	Yes
Pu-239	12.81%	3.53% - 90.94%[7]	6.20%	1.59% - 16.73%	Yes
Pu-240	1.94%	0.67% - 23.37%	3.44%	1.42% - 7.16%	Yes
Pu-242	0.02%	0.00% - 1.17%[7]	Trace	Trace - Trace	Yes
U-233	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes[9]
U-234	3.88%	0.00% - 4.00%[7]	0.19%	0.00% - 0.49%	Yes
U-238	80.74%	0.00% - 99.69%[7]	Trace	0.00% - Trace	Yes
Cs-137	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes
Sr-90	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes[8]
Additional Radionuclides					
Pu-241	0.11%	0.04% - 2.91%[7]	86.00%	65.35% - 94.70%	Yes[6]
U-235	0.40%	0.00% - 5.01%[7]	Trace	0.00% - Trace	Yes

1. This listing indicates the total Wt% of each radionuclide over the entire waste stream.
2. This listing is the Wt% range of each radionuclide on a container-by-container basis. Some containers with "0" listed as the lower range, will not contain the specified radionuclide.
3. This listing indicates the total activity Ci% of each radionuclide over the entire waste stream.
4. This listing is the Ci% range of each radionuclide on a container-by-container basis.
5. "Trace" indicates <0.01% for that radionuclide.
6. Am-241 may be present in slightly larger percentages, and Pu-241 in smaller percentages due to the decay of Pu-241.
7. These Wt% ranges were expanded based on plutonium and uranium isotopic distribution data (see AKSR Table 7-3).
8. Sr-90 cannot be quantified by gamma spectroscopy. Its value is calculated based on measured Cs-137 values. A Sr-90/Cs-137 scaling factor of 1.0 is used to calculate Sr-90.
9. U-233 was not reported in NFS waste assay data for any of the grouted fines drums; however, there is a potential for U-233 in this waste because some of the fines originated in the Building 110 laboratory which did handle U-233.

Source Documents

Tracking Number	Title
C099	Letter to Harold Johnson, CBFO DOE re: KAPL-NFS Transuranic Waste Background Information
C100	Interview with Richard Booth and faxed defense and waste information for NFS, Erwin, TN TRU waste
C119	Removal of Contaminated Pipe, Building 234 Area B, Memo to Ron Mitchell, Letter of Authorization (LOA)
C120	Removal of Contaminated Piping, Building 234, Memo to Larry Burleson, Letter of Authorization (LAO)
C121	DVRF Bale Packaging Glovebox Removal, Memo to Ron Mitchell
C122	Building 234 Characterization Results, Memo to Heather Little
C125	Cleaning and Surveying the DVRF Shear Baler for PCBs, Memo to Building 234 Supervision
C126	Waste Packaging of the DVRF Decon Cell Perma-Con Structure, Memo to Richard A. Moore
C127	Size Reduction of the NDA Station 2 Glovebox In the DVRF Decontamination Cell, Memo to Ron Mitchell and Rick Leitner
C129	Size Reduction Process Ductwork within the Decontamination Cell, DVRF, Memo to Ron Mitchell and Rick Leitner
C130	Cleanout of DVRF Bale Packaging Glovebox, Memo to Ron Mitchell and Rick Leitner
C142	Legal Analysis regarding Solvent Binder Used to Make Fuel
C143	Memo to F. J. Schultz re: NFS Project Update from the WEAF
C144	Memo to Distribution re: Experience in Receipt and Inspection of Waste Shipments from Nuclear Fuel Services, Inc.
C145	Memo to Distribution re: Nuclear Fuel Services, In. (NFS) Background Information
C146	Paper from EPA website: Waste Minimization Assessment for a Manufacturer Producing Printed Circuit Boards
C147	Retrieved from EPA website: Consumer Product links for Mercury
C200	Internal Correspondence to M.W. Tull subject: On the Use of Rad-Sorb in NFS TRU-Waste Drums
C201	Letter to Mr. Bill Reynolds, EcoTek from Terry Wickland, Product Engineer regarding Seal for 16 gauge DOT 17H stainless steel drum lid
C202	Letter from Scott A. Toler to L.C.M. Roddeye regarding formal request for variance from Section 4.5.5 of the ORNL/NFS: NFS Waste Parameter Verification Program
C203	Letter to Martin Tull from Robert A. Hunt regarding a picture of the proposed method to "lab pack" bottles of immobilized respirable fines and residual materials
C204	Letter to Martin W. Tull, Martin Marietta Energy Systems, from Michael L. West, Nuclear Fuel Services, Inc. regarding response to his request for information relating to the discovery of mercury during the decommissioning of Station #15 in Building 234.
C205	Internal Correspondence to Distribution regarding Minutes of November 5, 1991 Meeting with NFS Regarding Process-Line Samples

Tracking Number	Title
C206	Numerous Faxes containing handwritten notes (oversight reports) from Paul O. Emerson re: such items as sampling the top of the underground tank, Pu Crew activities, equipment issues, processing of gloveboxes, and information on drums that were packaged.
C209	Internal Correspondence to F.J. Shultz from J.A. Chapman regarding NFS Project Accomplishments for Month of April 1992
C210	Interview re: NFS TRU Waste Shipped to Oak Ridge National Laboratory. Interviewees: Richard Booth, Richard Moore, Bob Hunt, Scott Toller, Marie Moore
C227	Interview with Scott Morie from NFS
C230	E-mail from Brian Oakley to Jeff Harrison, RE: NFS Schedule
C309	Record of Communication Subject: NFS Soil Sampling/Analysis Data Tetrachloroethylene Use
C321	Record of Communication. Subject: Soil and Groundwater Treatment Sludge to be Generated in 2011.
C622	Email from Don Coffey to Jeff Harrison RE: NFS BBA REPACKS NFS0385 A-H
DR001	Discrepancy Resolution re: OR-NFS-CH-HET EPA Hazardous Waste Numbers
DR002	Discrepancy Resolution for OR-NFS-CH-HET re: Radionuclides
DR006	Discrepancy Resolution re: Physical Form of NFS-0116 & NFS-0929
DR010	Discrepancy Resolution re: Incorrect Waste Stream Assignment of Soil Waste Containers
DR013	Discrepancy Resolution re: NFS Soil and Debris EPA Hazardous Waste Numbers
DR015	Discrepancy Resolution re: OR-NFS-CH-HET-A Heterogeneous Debris from NFS
DR022	Discrepancy Resolution re: OR-NFS-CH-SOIL and OR-NFS-CH-HET-A Waste Stream Designation
DR023	Discrepancy Resolution re: NFS0815 and X10C0506069
DR026	Discrepancy Resolution re: Reassignment of NFS815 to OR-NFS-CH-SOIL
DR030	Discrepancy Resolution re: Drum NFS0929
DR031	Discrepancy Resolution re: OR-NFS-CH-HOM-A EPA Hazardous Waste Number Assignment
I022	DOE Order 435.1, Radioactive Waste Management
I023	Radioactive Waste Management Manual
I043	Implementation Guide for Use with DOE M 435.1-1
I052	Memorandum; Building 234 Shear Baler Characterization Samples
I053	KAPL-TN Waste Profile for NFS Building 234 Soil
I056	Removal of Building 234 Wet Cell Permacon Containment Enclosure
I058	Dismantlement of the West Wet Cell Wall in Building 234
I059	Waste Packaging of Wet Cell Wall in Building 234
I061	Size Reduction of the DVRS Glovebox
I067	Procedure for the Operation of the Versatile Automated Gamma Assay System (VAGAS)

Tracking Number	Title
I068	Size Reduction of 4-inch Diameter Duct Section in Area C
M003	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork for Waste Stored at ORNL (container paperwork)
M007	Internal Correspondence and the Environmental Assessment for the Receipt and Storage at ORNL, of Transuranic Waste, Mixed Transuranic Waste, and Mixed Oxide Waste from Nuclear Fuels and the Environmental Assessment for Disposition of Transuranic Waste
M008	Fax from John E. Kirkpatrick to Robert C. Mason on 01/16/1991 and the PuO2 + UO2 (mixed oxide) fuel production flow chart for Pellet Production, Rod/Assembly Fabrication, Scrap Dissolution/Recovery
M011	MSDS (Material Safety Data Sheets) for Products used at NFS
M012	EM Waste Database Query - Container Information; Waste Description; Isotopes
M013	EM Waste Database Query - NFS Box Daughter and Repack Drums: Container; Waste Description; Isotopes
M016	Incoming Container Travelers for NFS Waste - VE Data
M017	NFS NDA Data from Foster Wheeler (by container)
M018	NFS Radiography (NDE) Data from Foster Wheeler (by container)
M019	NFS VE Data from Foster Wheeler (by container)
M020	NFS HSG Data from Foster Wheeler (by container)
M021	Defense Determination Approval for ORNL/NFS-HD-001, Heterogeneous Debris - NFS
M050	Photos of the Site
M051	Fax from Bob Hunt from Martin Tull transmitting drawing for EcoTek - The Hunt 55 Gallon Poly. Insert
M052	Account Book No. S149 - DVRF Decommissioning and Volume Reduction Facility
M053	Letter from L.C.M. Roddye to R.L. Booth regarding Nuclear Fuel Services, Inc. - Contract DE-SCOT-86ID12630 - Closure of Nonconformance Reports NCR-X-94-WMRAD-0011, NCR-X-94-WMRAD-0012, NCR-X-94-WMRAD-0013, NCR-X-94-WMRAD-0014 AND NCR-X-94-WMRAD-0015
M054	Internal Correspondence to Distribution from D.W. Turner regarding Information Concerning NFS D&D Operations
M058	(Handwritten Document) Methods for: Measuring Activity in Baled Waste; Flowsheet for Immobilizing Fines; Assigning Values to Soil; Flowsheet for Packaging and Measuring Raschig Rings
M059	Memo transmitting NCR-X-WMRAD-0015 for Liquid in Liners
M060	Correction Actions to Prevent Recurrence of NCR-X-94-WMRAD-0011
M061	Internal Correspondence to Distribution from J.A. Chapman regarding An Evaluation of NFS Isotopic Estimates by Gamma-ray and Alpha-particle Spectroscopy
M062	NFS Data Set No. 2 PCB Reanalysis of Gasket and K1 Samples
M063	NFS Data Sheet No. 3 PCB Analysis of Fresh Gasket and Pall Filter Samples and Cadmium in Pall Filter TCLP Leachate
M064	Analysis Results for Process Line Samples from Nuclear Fuel Services, Inc. and NFS Sample Set No. 3

Tracking Number	Title
M065	WEAF Data for NFS Drums (by container); WEAF Waste Acceptance Report; NFS Storage Project (by container)
M066	Surveillance: Source Surveillance at Scientific Ecology Group, Oak Ridge, TN
M067	Surveillance: Source surveillance for Contact-Handled Transuranic and Mixed Oxide Wastes
M068	Review of WEAF RTR Video Tapes
M075	TWPC Contact Handled Waste Repackaging Data Forms for NFS Waste. (container paperwork)
M076	Evaluations of Additional Containers for Waste Stream OR-NFS-CH-HET-A (drum additions)
M126	RTR Video Tapes and DVDs from the WEAF Facility for Oak Ridge Waste
M128	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL dated September 5, 2008
M129	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET, dated 9/8/2008
M130	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 09/15/2008
M131	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 11/30/2007
M132	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL dated 9/24/2008
M133	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 09/24/2008
M198	eMWaste Query from ORNL Dated 08/30/2010
M202	Review of WEAF RTR Videos for NFS Immobilized Liquids and Fines
M206	Wet Cell Excavation TRU Waste Shipping Schedule
M207	NFS Waste Container Packaging Forms
M208	Evaluation of Drums for Waste Stream OR-NFS-CH-SOIL from NFS Final Decommissioning Phase
M209	Evaluation of Drums for Waste Stream OR-NFS-CH-HOM-B from NFS Final Decommissioning Phase
M210	TRU Project Waste Processing Facility Job Recipe. Subject: Soil-like Waste Remediation
M211	Evaluation of NFS Groundwater Data
M213	Duratek buys waste processing company
M214	EnergySolutions OKs deal to buy Duratek
M215	EnergySolutions Locations
M216	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET-A
M217	eMWaste Database Query from ORNL Dated 01/03/2013
M235	Evaluation of Data from Source Document M064

Tracking Number	Title
P014	Inventory of ORNL Remedial Action Sites: 11. Research Laboratories
P212	Lattice Experiments with Simulated Burned-Up Fuel for D2O Power Reactors
P218	Oak Ridge National Laboratory/Nuclear Fuel Services, Inc. NFS Waste Parameter Verification Program
P248	Structural Assessment of Building 234 Prepared for NFS, 1205 Banner Hill Road, Erwin, TN 37650
P251	Box Breakdown Area Operations
P252	Glove Box Operations
P253	Drum Bag In/Bag Out and Glove Ports
P254	Contact Handled Waste Repackaging
P255	Contact handled Waste Acceptance Criteria
P256	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis
P267	Nuclear Fuel Services Waste Acceptance and Storage Procedure
P268	ORNL WAC for Contact Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services INC.
P269	ORNL Waste Acceptance Criteria for Transuranic Waste from the Nuclear Fuel Services, Inc.; ORNL WAC for Contact-Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services, Inc.
P272	Oak Ridge National Laboratory Waste Management Plan
P273	Nuclear Fuel Services, Inc., Waste Certification Plan for Transuranic Waste
P274	Segregation and Immobilization of Particulate Fines
P276	Determination of H2 Diffusion Rates through Various Closures on TRU Waste Bag-Out Bags
P283	Plutonium Facilities Decommissioning Project Plan Condition Addendum
P300	Operation of the Decontamination and Volume Reduction Facility
P301	Wet Cell
P303	Removal of Exhaust Systems
P304	Removal of Asbestos-Bearing Materials
P306	Excavation of 110 Lab Tank
P312	Maintenance for Plutonium Decommissioning
P315	Wet Cell Soil Excavation and Mixing
P316	Investigation of DOE-ORNL Nonconformance Reports for Building 234 Plutonium Shipments (Surface Contamination, Free Standing Liquids, Missing Liner Lid)
P317	Packaging for Shipment to Processing, Storage, or Burial
P319	Preparation of Gloveboxes for Decontamination in the DVRF
P320	Bag-Out and Glove Change
P321	Determination of Plutonium Isotopics for Building 110 and 234
P323	Status of Former Mixed Oxide Fuel Fabrication Facility
P432	TRU Waste Processing Center Document Safety Analysis
P582	PCB Decontamination
P1116	EnergX TRU Waste Processing Center Procedure: Absorbing Liquids
P1370	Evaluation of Techniques for Conditioning and Packaging Plutonium Contaminated Soil
P1371	Procedure for Removal and Decontamination of Utility and Process Lines and Systems

Tracking Number	Title
P1372	Building 234 Soil, Groundwater, and Groundwater Sludge Sampling and Analysis Plan (NFS)
P1373	Project Management Plan for Wet Cell Soil Excavation (NFS)
P1374	Characterization of Building 234 Waste (NFS)
P1375	North Site Characterization Report for Nuclear Fuel Services, Erwin, Tennessee
P1398	TRU Waste Processing Center, High Density Waste Item Repackaging
P1399	Operating Procedure for the 234 Excavation Facility Groundwater Pretreatment System
P1400	Operating Procedure for Soil Excavation, Processing and Packaging for the 234 Excavation Facility
P1401	Waste Packaging for WIPP Disposal
P1402	234 Wet Cell Characterization Summary
P1403	Operation of the ORTEC Mobile Counting System
P1404	Final Report: Solidification Testing for 234 Excavation Facility Decommissioning Project
P1405	Geochemical Survey of the Unaka Mountain Roadless Area, Unicoi County, Tennessee
P1407	TWPC Procedure - Pipe Overpack Container Operations
P1409	Attachment K: Compacted Drum Puck Standing Recipe, Job Recipe Number: OPSJR-STANDING-09
P1413	TRU Waste Compactor Operation
P1414	Radioactive Material Receipt
P1415	Radioactive Material Shipment to CNSI Barnwell, US Ecology Richland, and to Customer
P1416	TRU Waste Receipt and Shipment
U016	A Graphical Workbook for Estimating Important Quantities of NFS Radioactive Waste Constituents
U017	The Intercomparison of NDA Measurements on CH-TRU Waste Between Nuclear Fuel Services, Inc. and Oak Ridge National Laboratory
U038	ORNL TRU Waste Historical Survey; Volumes 1, 2, and 3—Origins and Characteristics of Remote-Handled Transuranic Wastes (Trabalka report) Plus Appendices
U040	NFS response to "Transuranic Waste Baseline Inventory Report Questionnaire"
U043	Final Report - Waste Characterization of Wastes Generated from D&D Activity; Buildings 110 and 234 on the NFS Site in Erwin, Tennessee
U044	Weston Report: Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations
U050	Action Description Memorandum for Disposition of Transuranic Waste and Plutonium Scrap from Nuclear Fuel Services, Inc.
U051	Return of 55-Gallon Stainless Steel Drums for Addition of Radsorb
U052	Decommissioning Strategy in Today's Environments
U054	Decontamination and Decommissioning of a Plutonium Fabrication Facility
U055	Abstract, Calibration Schemes and Measurement Techniques
U057	An Interim Report on A Time-Series Analysis of the Events Leading up to the Detection of Free-Liquid in NFS Supercompacted Drums
U058	Oak Ridge National Laboratory/Nuclear Fuel Services Inc. NFS Waste Parameter Verification Program
U597	Building 234 Groundwater Design of Experiment (Groundwater Monitoring Data) (NFS)

AK6

Washington
TRU Solutions LLC

CP:10:01046
UFC:5900.00

INTER-OFFICE CORRESPONDENCE

DATE: January 25, 2010

FROM: R. P. Kantrowitz R.P.K. LOCATION: Certification

TO: CCP Records Custodian GSA-212 LOCATION: Retrieval, Characterization & Transportation

SUBJECT: TRANSMITTAL OF OAK RIDGE NATIONAL LABORATORY WASTE STREAM PROFILE FORM FOR WASTE STREAM #OR-NFS-CH-SOIL

Please accept the attached Oak Ridge National Laboratory Waste Stream Profile Form to be placed in Records for Waste Stream #OR-NFS-CH-SOIL.

RPK:jmc

Attachment

cc: (without attachment)

M. Pearcy ED
W. Weyerman ED

ORIGINAL

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

DEC 15 2009

Mr. D. K. Ploetz, Manager
Central Characterization Project
Washington TRU Solutions LLC
P. O. Box 2078
Carlsbad, NM 88221-2078

Subject: Review of CCP-INL Waste Stream Profile Form Number OR-NFS-CH-SOIL, Soil from Nuclear Fuel Service, Inc.

Dear Mr. Ploetz:

The Carlsbad Field Office (CBFO) has reviewed the subject Waste Stream Profile Form (WSPF) OR-NFS-CH-SOIL, Soil from Nuclear Fuel Service, Inc. and has concluded that the WSPF is complete and that the waste stream determinations were made in accordance with applicable procedures and guidance.

The CBFO therefore approves the WSPF as submitted. Using the methods approved for CCP-ORNL, CCP-ORNL may enter the data into the certification and shipping modules of the WIPP Waste Information System.

If you have questions on this matter, please contact me at (575) 234-7313.

Sincerely,

J. R. Stroble

J. R. Stroble, Acting Director
Office of the National TRU Program

cc:
G. Basabilvazo, CBFO *ED
C. Gadbury, CBFO ED
S. McCauslin, CBFO ED
D. Miehls, CBFO ED
M. Navarrete, CBFO ED
K. Watson, CBFO ED
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S. Lott, LANL ED
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CBFO, M&RC
*ED denotes electronic distribution

CBFO:NTP:JRS:GS:09-2054:UFC 5900.00

Attachment 2 –CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: OR-NFS-CH-SOIL						
(2) Generator site name: Oak Ridge National Laboratory				(4)Technical contact: Richard Kantrowitz		
(3) Generator site EPA ID: TN1890090003				(6) Technical contact phone number: 575-234-7511		
(5) Date of audit report approval by New Mexico Environment Department (NMED): October 14, 2009						
(7) Title, version number, and date of documents used for WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 17, June 23, 2009. CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 21, January 26, 2009 CCP-PO-027 CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document, Revision 0, October 2, 2007.						
(8) Did your facility generate this waste?	YES		NO	X		
(9) If no, provide the name and EPA ID of the original generator: Nuclear Fuel Services, Inc., TND003095635						
Waste Stream Information[1]						
(10) WIPP ID: OR-NFS-CH-SOIL				(11) Summary Category Group: S4000		
(12) Waste Matrix Code Group: Soils				(13) Waste Stream Name: Soil from Nuclear Fuel Services, Inc.		
(14) Description from the TWBIR: Waste consists of soils from NFS.						
(15) Defense TRU Waste:	YES	X	NO			
(16) Check One:	CH	X	RH			
(17) Number of SWBs: N/A		(18) Number of Drums: 545 55-gallon			(19) Number of Canisters: N/A	
(20) Batch Data report numbers supporting this waste stream characterization: See Characterization Information Summary (CIS) Correlation of Container Identification Numbers to Batch Data Report Numbers						
(21) List applicable EPA Hazardous Waste Numbers: F002						
(22) Applicable TRUCON Content Numbers: OR 111, OR 211						
(23)**Acceptable Knowledge Information**[1]						
[For the following, enter the supporting documentation used (i.e., references and dates)]						
Required Program Information						
(23A) Map of site: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Figures 1, 2a, 2b, and 3						
(23B) Facility mission description: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 4.2						
(23C) Description of operations that generate waste: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Sections 4.4 and 6.4						
(23D) Waste identification/categorization schemes: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 4.5						
(23E) Types and quantities of waste generated: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Sections 4.6.1 and 6.2						
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 4.6.2						
(24) Waste certification procedures: CCP-TP-030, Rev. 26, CCP TRU Waste Certification and WWIS Data Entry, May 27, 2009						
(25)Required Waste Stream Information						
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 6.1						

(25B) Waste stream volume and time period of generation: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 6.2			
(25C) Waste generating process description for each building: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Section 6.3			
(25D) Waste Process flow diagrams: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Figures 4 and 5			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-ORNL-001, Revision 4, May 26, 2009, Sections 6.4.1, 6.4.2 & 6.4.3			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See Table 2 of the Summation of Aspects of AK Summary Report: OR-NFS-CH-SOIL			
(26) Which Defense Activity generated the waste: (check one)			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management	X	Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations		
(27)Supplemental Documentation			
(27A) Process design documents: See S1 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27B) Standard operating procedures: See S2 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27C) Safety Analysis Reports: See S3 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27D) Waste packaging logs: See S4 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27E) Test plans/research project reports: See S5 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27F) Site databases: See S6 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27G) Information from site personnel: See S7 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27H) Standard industry documents: See S8 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27I) Previous analytical data: See S9 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27J) Material safety data sheets: See S10 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27K) Sampling and analysis data from comparable/surrogate Waste: See S12 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27L) Laboratory notebooks: See S11 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
Confirmation Information[2]			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: CCP-TP-053, Revision 7, October 21, 2009		
(29)	Visual Examination: NA		

(30)Comments:
For a list of the waste characterization procedures used and date of the respective procedures see the list of procedures on the attached CIS.

Reviewed by AK Expert:	**YES** [X]		**Date:** 10/28/09
Reviewed by STR (if necessary):	**YES** [X]	**NA** [ ]	**Date:** 11/11/09

Waste Stream Profile Form Certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

(31)	(32) Richard Kantrowitz	(33) 12/8/09
Signature of Site Project Manager	Printed Name	Date

NOTE: (1) Use back of sheet or continuation sheets, if required.
(2) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.

CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-NFS-CH-SOIL

Lot 1

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CCP Characterization Information Summary Cover Page

Waste Stream # OR-NFS-CH-SOIL Lot #: 1

AK Expert Review: N/A Date: N/A

SPM Review: Richard Kantrowitz Date: 12/8/2009

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Radiography (RTR/NDE):

CCP-TP-053	Rev. 7	10/21/09	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 6	03/04/08	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 5	11/16/06	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Non Destructive Assay (NDA):

CCP-TP-166	Rev. 2	12/05/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 1	06/19/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 0	10/12/07	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-168	Rev. 3	11/17/09	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 2	12/02/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 1	11/17/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 0	10/18/07	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-169	Rev. 2	11/18/09	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-169	Rev. 1	06/19/08	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-169	Rev. 0	10/12/07	CCP Operating the Mobile Segmented Gamma Scanner

Solids Sampling:

INST-OI-73	Rev. 4	04/07/09	Manual Drum Coring Operations
INST-OI-73	Rev. 3	07/24/08	Manual Drum Coring Operations
INST-OI-16	Rev. 30	04/07/09	Drum Coring Operations
INST-OI-16	Rev. 29	07/03/08	Drum Coring Operations

Solids Analysis:

CCP-TP-180	Rev. 1	08/24/09	CCP Analytical Sample Management
CCP-TP-180	Rev. 0	05/02/07	CCP Analytical Sample Management
CCP-TP-181	Rev. 0	05/02/07	CCP Determination of Mercury by CVAA for TRU Waste Characterization
CCP-TP-182	Rev. 1	01/26/09	CCP Determination of Metals by ICP-AES for TRU Waste Characterization
CCP-TP-182	Rev. 0	05/02/07	CCP Determination of Metals by ICP-AES for TRU Waste Characterization
CCP-TP-183	Rev. 0	05/02/07	CCP Microwave Assisted Digestion of Homogeneous Solids and Soil/Gravel
CCP-TP-184	Rev. 0	05/02/07	CCP Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-185	Rev. 1	11/18/08	CCP Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-186	Rev. 1	08/22/07	CCP Determination of Nonhalogenated Volatile Organic Compunds by Gas Chromatography
CCP-TP-187	Rev. 1	11/18/08	CCP Sample Preparation for Semivolatile Organic Compounds
CCP-TP-188	Rev. 1	06/19/09	CCP Analytical Data Recording, Review, and Reporting
CCP-TP-188	Rev. 0	05/02/07	CCP Analytical Data Recording, Review, and Reporting

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 21	08/24/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 20	08/18/08	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 19	12/22/06	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 16	10/02/07	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 26	05/27/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 25	01/22/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 24	08/20/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/07	CCP CH TRU Waste Certification and WWIS Data Entry

CIS002

CCP Characterization Information Summary Cover Page

WAP Certification:

CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 20	11/02/07	CCP Transuranic Waste Certification Plan
CCP-PO-027	Rev. 0	10/02/07	CCP/TWPC/ORNL Interface Document

CIS003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-NFS-CH-SOIL Lot # 1

Container ID Number	Historical Container ID Number	NDA BDR	NDE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes
NFS0118	10265664	OR-DWAS-0082	OR-RTR6-0070	SSC09-00002	ALD09003M ALD09004V ALD09004S ALD09004N	
NFS0476	10265663	OR-DWAS-0082	OR-RTR6-0070	SSC09-00002	ALD09003M ALD09004V ALD09004S ALD09004N	
NFS0486	10265668	OR-DWAS-0082	OR-RTR6-0070	SSC09-00002	ALD09003M ALD09004V ALD09004S ALD09004N	
NFS0347	10265665	OR-DWAS-0082	OR-RTR6-0070	SSC09-00002	ALD09003M ALD09004V ALD09004S ALD09004N	
X10C0506055	10265666	OR-DWAS-0082	OR-RTR6-0070	SSC09-00002	ALD09003M ALD09004V ALD09004S ALD09004N	

*Containers in waste stream OR-NFS-CH-SOIL are not expected to exceed a total flammable volatile organic compound concentration of greater than or equal to 500 ppm.

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/8/2009
Date

CIS004

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Bromoform	No	0	5	0.09	0.09	0.00	0.09	10	N/A		
Carbon Disulfide	No	0	5	0.27	0.26	0.01	0.27	10	N/A		
Carbon Tetrachloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Chlorobenzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Chloroform	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,2-Dichloroethane	Log	0	5	-1.71	-1.75	0.03	-1.72	10	2.30		
1,1-Dichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
trans-1,2-Dichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Ethyl benzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Methylene chloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2,2-Tetrachloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Tetrachloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Toluene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,1-Trichloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2-Trichloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Trichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Trichlorofluoromethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Vinyl chloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
m,p-Xylene[d]	No	0	5	0.27	0.26	0.01	0.27	10	N/A		
o-Xylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Acetone	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Butanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Ethyl ether	No	0	2	1.05	1.05	0.00	1.05	100	N/A		
Isobutanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		

CT150

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Methanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Methyl ethyl ketone	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Pyradine	No	0	2	1.05	1.05	0.00	1.05	100	N/A		
1,2-Dichlorobenzene[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Formaldehyde[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Hydrazine[b]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

[a] Required only for homogenous solids and soil/gravel waste from the Savannah River Site.

[b] Required only for homogenous solids and soil/gravel waste generated at Oak Ridge National Laboratory and Savannah River Site. OR-NFS-CH-SOIL was generated at the NFS site, located in Erwin Tennessee, and only stored and characterized at ORNL.

[c] Can also be analyzed as an SVOC. If analyzed as an SVOC, the QAO's of CCP-TP-001, Table B3-6 apply.

[d] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site/Project Manager

Richard Kantrowitz
Printed Name

12/8/2009
Date

CCP Solids Analysis SVOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
2-Methylphenol (cresols)	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
3&4 -Methylphenol (cresols)	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
1,4-Dichlorobenzene [a]	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
1,2-Dichlorobenzene [a]	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
2,4-Dinitrophenol	No	0	5	0.20	0.12	0.04	0.15	40	N/A		
2,4-Dinitrotoluene	No	0	5	0.30	0.18	0.07	0.23	2.6	N/A		
Hexachlorobenzene	No	0	5	0.30	0.18	0.07	0.23	2.6	N/A		
Hexachloroethane	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
Nitrobenzene	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
Pentachlorophenol	No	0	5	0.40	0.24	0.09	0.30	40	N/A		

[a] Can also be analyzed as a VOC. If analyzed as a VOC, the QAO's of CCP-TP-001, Table B3-4 apply.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/8/2009
Date

CTS007

CCP Solids Analysis Metals UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Antimony	No	2	5	1.40	0.86	0.49	1.20	100	N/A		
Arsenic	SQRT	5	5	2.17	1.75	0.32	1.97	100	10.00		
Barium	No	5	5	170.00	132.00	31.14	153.36	2000	N/A		
Beryllium	No	5	5	0.76	0.69	0.09	0.76	100	N/A		
Cadmium	Log	2	5	-1.02	-2.38	0.90	-1.77	20	3.00		
Chromium	No	5	5	39.00	37.20	2.39	38.84	100	N/A		
Lead	Log	5	5	2.83	2.42	0.27	2.61	100	4.61		
Mercury	Log	5	5	-2.30	-2.48	0.12	-2.40	4	1.39		
Nickel	No	5	5	19.00	17.40	1.67	18.55	100	N/A		
Selenium	No	0	5	0.35	0.35	0.00	0.35	20	N/A		
Silver	No	0	5	0.30	0.30	0.00	N/A[2]	100	N/A		
Thallium	No	3	5	1.10	0.70	0.35	0.93	100	N/A		
Vanadium	No	5	5	60.00	53.40	6.27	57.70	100	N/A		
Zinc	Log	5	5	4.23	3.91	0.20	4.05	100	4.61		

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) Due to all five sample results being the same numeric value, the statistic package is unable to calculate a UCL_{90}.

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/8/2009
Date

CIS008

CCP Solid VOCs Summary Data

Waste Stream Number OR-NFS-CH-SOIL Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	NA	NA	NA

Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature _____ Date 12/8/2009

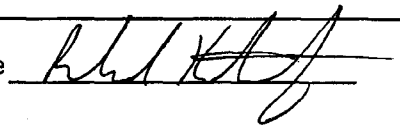
CCP Solid SVOCs Summary Data

Waste Stream Number OR-NFS-CH-SOIL Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	NA	NA	NA

Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature  Date 12/8/2009

CTS010

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-NFS-CH-SOIL Lot #: 1

Container Number	RTR Prohibited Items [a]	Visual Examination Prohibited Items [a]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	None of the containers in this lot had prohibited items identified during RTR.	None of the containers in this lot were processed using Visual Examination technique.

a. See Batch Data Reports

Site Project Manager Signature | Richard Kantrowitz (Printed Name) | 12/8/2009 (Date)

CRSOIL

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 1

Sampling Completeness

RTR:

Number of Valid Samples: 5 Number of Total Samples Analyzed: 5

Percent Complete: 100 (QAO is 100%)

NDA

Number of Valid Samples: 5 Number of Total Samples Analyzed: 5

Percent Complete: 100 (QAO is 100%)

HSG

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total VOC

Number of Valid Samples: 5 Number of Total Samples Collected: 5

Percent Complete: 100 (QAO is ≥90%)

Number of Valid Samples: 5 Number of Total Samples Analyzed: 5

Percent Complete: 100 (QAO is ≥90%)

Total SVOC

Number of Valid Samples: 5 Number of Total Samples Collected: 5

Percent Complete: 100 (QAO is ≥90%)

Number of Valid Samples: 5 Number of Total Samples Analyzed: 5

Percent Complete: 100 (QAO is ≥90%)

Total Metals

Number of Valid Samples: 5 Number of Total Samples Collected: 5

Percent Complete: 100 (QAO is ≥90%)

Number of Valid Samples: 5 Number of Total Samples Analyzed: 5

Percent Complete: 100 (QAO is ≥90%)

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 1

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	NA	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP-TP-003 Attachment 3, and additional U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	Y	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 4, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7b	Y	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 5, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7c	Y	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 6, and additional EPA HWNs were assigned as required. Samples were randomly collected.

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 1

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	NA	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the QAPjP.
13	NA	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	NA	NA	NA
Headspace Gas Analysis	NA	NA	NA
Solids Sampling	Y	Y	Y
Solids VOCs	Y	Y	Y
Solids SVOCs	Y	Y	Y
Solids Metals	Y	Y	Y

Comments:
None

Signature of Site Project Manager | Richard Kantrowitz (Printed Name) | 12/8/2009 (Date)

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: OR-NFS-CH-SOIL

Overview:

Waste Stream OR-NFS-CH-SOIL is contact handled (CH) transuranic (TRU) mixed soil generated at Nuclear Fuel Services, Inc. (NFS) in Erwin, Tennessee and stored at the Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee. The waste was generated from 1993 through 2005 by the decommissioning of Buildings 110 and 234 at NFS.

Building 234 was used to perform defense related plutonium/uranium mixed oxide (MOX) fuel fabrication work that included dissolution, co-precipitation, blending of MOX powders, pellet and rod fabrication, rod loading, and scrap recovery. Building 110 housed chemistry and spectrographic laboratories that provided analytical support to Building 234.

The majority of the plutonium processed by NFS resulted from U.S. Government contracts. The other plutonium processed at NFS supported commercial contracts for the Halden reactor and Consumers Power Company. The two larger contracts were national defense related orders and waste from all of the contracts was co-mingled. Therefore, the TRU waste generated from the decommissioning of Building 234 and subsequent waste from Building 110 at NFS is defense related waste generated from nuclear materials production.

This Summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) number OR-NFS-CH-SOIL for CH TRU soil. The primary source of information for this Summation is CCP-AK-ORNL-001, *CCP Acceptable Knowledge Summary Report For: Nuclear Fuel Services Contact-Handled Transuranic Waste Stored at Oak Ridge National Laboratory, Waste Streams: OR-NFS-CH-HET-A and OR-NFS-CH-SOIL*, Revision 4, May 26, 2009. CCP-AK-ORNL-001 includes information obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, program/processing documentation, and interviews with knowledgeable personnel.

Waste Stream Identification Summary:

Site Where TRU Waste Was Generated:	Nuclear Fuel Services, Inc., Erwin, TN.
Waste Stream Name:	Soil from Nuclear Fuel Services, Inc.
Waste Stream Number:	OR-NFS-CH-SOIL
Dates of Waste Generation:	1993 to 2005
Summary Category Group:	S4000 – Soil/Gravel
Waste Matrix Code Group:	Soils
Waste Matrix Code:	S4100

Waste Stream TWBIR Identification:	OR-NFS-CH-SOIL
Waste Stream Volume:	545 55-gallon drums (current) 0 55-gallon drums (projected)
RCRA EPA Hazardous Waste Numbers:	F002
TRUCON Content Numbers:	OR 111, OR 211

Waste Stream Description and Physical Form:

Waste stream OR-NFS-CH-SOIL is comprised of soil, rock and gravel mixed with RADSORB absorbent (non-hazardous super polymer absorbent). A RADPAD (absorbent pad containing non-hazardous super absorbent polymer) was placed on top of the soil. Small amounts of concrete pieces and block are also present in this waste stream.

This waste stream is assigned Waste Matrix Code S4100, Soil. The soil that comprises waste stream OR-NFS-CH-SOIL was generated from a single process or from an activity that is similar in material, physical form, and hazardous constituents and is therefore, a single waste stream.

Point of Generation - Area and Building of Generation

Waste stream OR-NFS-CH-SOIL is soil excavated from beneath the Building 234 Wet Chemistry Cell and from an area around the Building 110 laboratory underground waste tank. Building 110 was a support facility to Building 234.

Generating Process

Waste stream OR-NFS-CH-SOIL originated from decommissioning of the Building 234 MOX fuel fabrication facility at NFS and remediation around the Building 110 underground waste tank. Building 110 housed wet chemistry and spectrographic laboratories that provided analytical support to Building 234. Piping connected the laboratory drains to an underground storage tank that was also decommissioned with the facilities.

The soil was generated from excavating under the Building 234 Wet Chemistry Cell which was historically used for nitric acid dissolution and mixing of plutonium and depleted or low-enriched uranium. The floor of the Wet Chemistry Cell was breached along a wall and sump providing a path for contamination to the sub-floor soil. Following removal of the Wet Chemistry Cell floor, contaminated soil was identified.

The excavated soil was placed on a conveyor and transferred from the Wet Chemistry Cell to a mixer. During the mixing process, soil was blended based on plutonium content and RADSORB absorbent was added to the soil. A slide gate was attached to the mixer for dumping the contents to a chute that allowed the material to exit the mixer into a drum. A RADPAD absorbent pad was then placed on top of the drum of soil.

Building 110 Wet Chemistry and Spectrographic Laboratories provided analytical support to Building 234. In early years, Building 110 also supported the Light Water Breeder Reactor program. Soil analysis identified high levels of radioactive contamination two feet to the north of the concrete pad covering the Building 110 underground waste tank which was breached due to tank deterioration. Soil beneath the tank became contaminated with tank contents. The liquid in the tank was sampled and analyzed for metals, organics, and PCBs. No constituents were detected at levels greater than the regulatory threshold. Soil in this area was excavated,

dewatered (using RADSORB), and packaged into 55-gallon drums in accordance with ORNL waste acceptance criteria.

Following is a discussion of the processes conducted in Buildings 234 and 110 that may contaminate the waste.

The process capabilities of the Building 234 facility, which ceased in 1973, included pellet and rod fabrication, rod loading, and scrap recovery.

Pellet Production

Solutions containing a mixture of plutonium nitrate and uranyl nitrate hexahydrate were transferred to precipitation units. Plutonium and uranium were precipitated as ammonium diuranate and plutonium hydroxide, using ammonium hydroxide as a precipitant. When the feed solution was plutonium nitrate, the plutonium was precipitated using oxalic acid, nitric acid, and hydrogen peroxide.

Supernate was decanted from the ammonium diuranate or oxalate slurry and the remaining precipitate was filtered to remove liquids. Supernate/filtrate from the ammonium diuranate or oxalate slurry was polished and stored. Filtrate was evaporated producing ammonium nitrate concentrate and ammonium hydroxide condensate. During Southwest Experimental Fast Oxide Reactor (SEFOR) production, ammonium hydroxide condensate was used to wash ammonium diuranate cake. Wet ammonium diuranate or oxalate cake was dried and then heated in a nitrogen and hydrogen gas atmosphere. The resultant oxide solids (MOX or plutonium oxide) were passed through a blender and cross-blended. Sub-blended oxide was ball-milled, screened, and weighed.

Once cross-blend was performed; each cross-blend was subdivided into five sub-blends. The plutonium oxide cross-blending was followed by the addition of uranium oxide solids. The mixture of plutonium oxide and uranium oxide was cross-blended and sub-blended. Blended oxide was granulated and screened. Binder was added to cross-blends during granulation. Granulated oxide was transferred to a pellet press. Pellets were then loaded into a furnace, heated and allowed to off-gas.

Sintered pellets were machined to finished size. Recycled water from the pellet wash was used as coolant. Grinder sludge and damaged pellets were sent to scrap recovery. Machined pellets were cleaned with isopropyl alcohol or distilled water and then dried. Pellets were sampled using destructive analyses and measured for density and dimensional attributes. Rejected pellets and sample residues were sent to scrap recovery. Finished pellets were loaded in tubes that were capped and sent to rod assembly and fabrication stations.

Scrap Dissolution and Recovery

Oxide scrap was ball-milled to reduce particle size. Ball-milled oxide scrap was heated with nitric acid, dissolved and pumped to the evaporator.

Non-combustible items containing recoverable material (e.g., bottles, plastics, screens, gloves, etc.) were sent to the scrap preparation station for manual cutting and shredding. Shredded materials were leached in a nitric acid bath to recover plutonium. Leachate was pumped to the evaporator, and solids were removed and packaged for disposal.

Plutonium nitrate solutions were transferred from the evaporator to storage columns. Solutions were circulated, sampled, and pumped to the load-out station. Plastic cylinders were placed in

a rack and filled with solutions from the columns. Loaded cylinders were packaged for shipment.

TRU waste stored at ORNL is not from production operations but from the decommissioning operations described above. A portion of the NFS waste required size reduction and repackaging at the Transuranic Waste Processing Center (TWPC) at Oak Ridge. Processing of CH-TRU waste is limited to characterization, sorting, segregation, size reduction and repackaging as required to produce waste suitable for disposal at WIPP.

Table 1 identifies the toxicity characteristic (TC) and F-listed chemicals, as applicable, in waste stream OR-NFS-CH-SOIL.

Table 1 – Metal and organic TC and F-Listed Contaminants for Waste Stream OR-NFS- CH-SOIL

Chemical	CAS Number	EPA Hazardous Waste Numbers
Tetrachloroethylene	127-18-4	F002

RCRA Determinations - Hazardous Waste Determinations

Waste generated in this waste stream does not qualify for any of the exclusions identified in 40 CFR 260 or 261. Real-time radiography (RTR) or visual examination is used to verify that the waste stream is not a liquid waste and does not contain explosives, non-radioactive pyrophoric material, compressed gases or reactive waste. Therefore, this waste stream does not exhibit the characteristic for ignitability (D001), corrosivity (D002), or reactivity (D003).

Ignitability

The waste does not meet the definition of ignitability as defined in 40 CFR 261.21. The material is not a liquid, an ignitable compressed gas, or an oxidizer, and is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. Pyrophoric material and compressed gases are not present in NFS TRU soil waste (References M003, M065, P268, P273, and P317). Radiography and/or visual examination are performed to ensure the absence of compressed gases and liquids.

TRU waste generated at NFS was packaged in accordance with NFS waste certification plans to meet ORNL waste acceptance criteria for TRU waste. Liquids encountered are immobilized with RADSORB (References C125, C126, I059, M003, M011, P268, P269, P273, and P317). Therefore, this waste stream does not exhibit the characteristic of ignitability (D001).

Corrosivity

The waste does not meet the definition of corrosivity as defined in 40 CFR 261.22. The waste is not a liquid waste and absorbent (e.g. RADSORB) was mixed with the soil to ensure the absence of liquids. TRU waste generated at NFS was packaged in accordance with NFS waste certification plans to meet ORNL waste acceptance criteria for TRU waste. Radiography or visual examination is performed to ensure the absence of liquids. Therefore the characteristic of corrosivity (D002) does not apply to this waste stream (References M003, M011, P268, P273, P315, and P317).

Reactivity

The waste does not meet the definition of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The waste does not contain reactive cyanide or sulfide compounds. The materials are not capable of detonation or explosive reaction if subjected to a strong initiating source if heated under confinement. The materials are not readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure (References C122, I053, M003, P268, P273, and P317). Radiography or visual examination is performed to ensure the absence of compressed gases (e.g., un-punctured aerosol cans) and liquids. Waste stream OR-NFS-CH-SOIL is therefore not reactive (D003).

Toxicity Characteristic

This waste stream does not exhibit the characteristic of toxicity for metal or organic compounds per 40 CFR 261.24. Toxicity characteristic constituents were not identified in the MOX fuel production process (Reference P273). Products used during decommissioning did not contain toxicity characteristic constituents (Reference M011).

No metals or organics were detected above the regulatory threshold in soil samples taken from the area around the Building 110 underground waste tank (Reference U043). Barium was detected in trace amounts in soil samples taken from beneath Building 234. These barium concentrations were below the regulatory threshold and the EPA HWN D005 is not applied. No additional toxicity characteristic metals were detected in these samples (References C122 and I053).

No toxicity characteristic organic constituents were detected in soil samples taken from the beneath Building 234 Wet Chemistry Cell (Reference I053) with the exception of tetrachloroethylene and chloroform. Tetrachloroethylene (D039) was detected in trace amounts in one of the two composite soil samples from beneath Building 234; however, this concentration was below the regulatory threshold. The F-listed EPA hazardous waste number for tetrachloroethylene is conservatively assigned to this waste stream. Chloroform (D022) was detected in one of the samples in trace amounts but was also found in the sample blank. Therefore the HWN for chloroform was not applied to this waste stream. No other organic constituents were detected in the two composite soil samples (Reference C122). Based on AK and sampling, no toxicity characteristic EPA HWNs are assigned to this waste stream.

F-Listed Waste

Waste stream OR-NFS-CH-SOIL is an F-listed hazardous waste because the soil was contaminated with hazardous wastes from non-specific sources as listed in 40 CFR Part 261, Subpart D

The soil waste was characterized by NFS as non-hazardous (References M003 and M012). However, analytical data for the soil collected by NFS identified trace amounts of tetrachloroethylene. Tetrachloroethylene was not used in the Building 234 Wet Chemistry Cell but was used for cleaning in Building 234C which is an area in the building where fuel pin welding was conducted. Tetrachloroethylene has also been detected in groundwater samples up-gradient from Building 234. The source of the tetrachloroethylene in the groundwater may be attributed to its use in off-site facilities and may be the source of contamination for the sampled soil (Reference C309). To resolve the discrepancy between the NFS non-hazardous characterization and the presence of tetrachloroethylene in the soil, EPA HWN F002 is conservatively applied to the waste stream.

The following F-listed constituent may contaminate the waste and is conservatively applied.

(F002)
Tetrachloroethylene

U, K, and P-Listed Chemicals

Waste stream OR-NFS-CH-SOIL does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33). Based on the AK documentation, U and P-listed compounds were not used during MOX production or facility decommissioning (References M011, P273). Therefore, U- and P-listed EPA hazardous waste numbers are not assigned to this waste stream.

Based on the AK documentation, neither beryllium powder (P015) nor hydrofluoric acid (U134) were used by NFS (Reference C210). Therefore, this waste stream is not assigned EPA HWNs P015 (beryllium powder) or U134 (hydrofluoric acid).

The material in waste stream OR-NFS-CH-SOIL is not a hazardous waste from any of the sources specified in 40 CFR 261.32. Waste stream OR-NFS-CH-SOIL is therefore not K-listed waste.

Solids Sampling and Analysis Information

Solid sampling and analysis was completed on 5 randomly selected 55-gallon drums from Lot 1. No target analyte UCL_{90} values exceeded their respective Program Required Quantitation Limits (PRQLs). No TICs were identified.

Based on the analytical results, no new HWNs were assigned. The specifics of this information are included in the attached Characterization Information Summary report.

Conclusion

EPA HWN F002 is assigned to this waste stream.

Polychlorinated Biphenyls (PCBs)

This waste stream does not contain polychlorinated biphenyls (PCBs) greater than 50 ppm, and therefore, is not regulated as a Toxic Substance Control Act (TSCA) waste under 40 CFR 761.

Two composite soil samples were collected from beneath Building 234 and analyzed for total PCBs. Arochlor-1254 was detected in trace amounts (0.014 mg/kg) in one of the samples (Reference C122). Eleven surface soil samples were collected from beneath the Building 234 Wet Chemistry Cell and were also analyzed for total PCBs. Arochlor-1254 was detected in trace amounts in 4 of the samples (0.12 – 0.45 mg/kg) (Reference I053). Two samples of the Building 110 tank contents were collected and analyzed for PCBs. PCB compounds were not detected above 50 ppm in any of the above samples (Reference U043).

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and confirmation activities. Radiography (RTR) or visual examination (VE) is performed on each container in this waste stream as a confirmation activity. The following items have been determined as not present in the waste:

- Liquids
- Non-radioactive pyrophoric materials
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, or other wastes
- Explosives or compressed gases
- Waste with PCBs not authorized under an EPA PCB waste disposal authorization
- Waste exhibiting the characteristics of ignitability, corrosivity, or reactivity
- Non-mixed hazardous wastes
- Waste that has ever been managed as high-level waste and waste from tanks specified in Table B-8 of the WIPP Hazardous Waste Permit, unless specifically approved through a Class 3 permit modification
- Any waste container from a waste stream (or waste stream lot) which has not undergone either radiographic or visual examination of a statistically representative subpopulation of the waste stream in each shipment, as described in the WIPP Hazardous Waste Facility Permit, Attachment B7.

Each container of waste is certified and shipped only after VE or RTR:

- Did not identify any prohibited items in the waste container, or
- All prohibited items found in a waste container by VE or RTR are identified and corrected (i.e., eliminated or removed) through the site non-conformance reporting system.

Method for Determining Waste Material Parameter Weights per Unit of Waste

The waste material parameter weight estimates for waste stream OR-NFS-CH-SOIL were derived from information related to the soil excavation and mixing procedure, as well as data from 512 waste disposal forms. Because the RADSORB and RADPADS are organic polymers, they are considered "organic matrix." The soil/absorbent mixture is contained in a plastic drum liner bag that is considered part of the waste. This information combined with the weight of the waste identified on waste disposal forms was used to estimate waste material parameter weight percentages. Table 2 identifies the waste material parameters for waste stream OR-NFS-CH-SOIL.

Table 2. Waste Stream OR-NFS-CH-SOIL Waste Material Parameters

Waste Material Parameter	Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	0%	0%
Aluminum-based Metals/Alloys	0%	0%
Other Metals	0%	0%
Other Inorganic Materials	0%	0%
Cellulosics	0%	0%
Rubber	0%	0%
Plastics (waste materials)	0.2%	0.1 – 1.5%
Organic Matrix	2.0%	1.5 – 13.6%
Inorganic Matrix	0%	0%
Soils/Gravel	97.7%	84.9- 98.3%

List of AK Sufficiency Determinations

No AK Sufficiency Determinations were requested for this waste stream.

Transportation

This waste stream and its chemical constituents have been reviewed for consistency with listed TRUCON codes and they are consistent.

Beryllium

The level of beryllium contamination in individual drums is expected to be less than one weight percent.

Radionuclide Information

The two most prevalent radionuclides by mass in this waste stream are U-238 and Pu-239. The radionuclides anticipated in the waste stream are listed in Table 3.

Table 3. Radionuclides in Waste Stream OR-NFS-CH-SOIL

WIPP Tracked Radionuclides	Additional Reported Radionuclides
Am-241	Pu-241
Pu-238	Tc-99
Pu-239	Th-228
Pu-240	Th-232
Pu-242	U-232
U-233	U-235
U-234	
U-238	
Cs-137	
Sr-90	

Payload management will not be employed for Oak Ridge National Laboratory.

Attachment 1

AK SOURCE DOCUMENTS, SUPPLEMENTAL DOCUMENTATION

Tracking Number	AK #	Title	Document Number	Rev. #	Date
C100	S7	Interview With Richard Booth And Faxed Defense And Waste Information For NFS, Erwin, TN TRU Waste	NA	NA	2/24/2005
C119	S2	Removal of Contaminated Pipe, Building 234 Area B, Memo to Ron Mitchell, Letter of Authorization	LOA-7000-018	NA	3/20/2000
C120	S2	Removal of Contaminated Piping, Building 234, Memo to Larry Burleson, Letter of Authorization	LOA-7000-011	NA	3/2/2000
C121	S2	DVRF Bale Packaging Glovebox Removal, Memo to Ron Mitchell	LOA-7000-034	NA	2/15/2001
C122	S9, S5, S9	Building 234 Characterization Results, Memo to Heather Little	DCM-03-18, 44T-99-0436, GPC-99-013	NA	9/30/1999
C125	NA	Cleaning and Surveying the DVRF Shear Baler for PCBs, Memo to Building 234 Supervision	SWI-02-035	NA	10/3/2002
C126	NA	Waste Packaging of the DVRF Decon Cell Perma-Con Structure, Memo to Richard A. Moore	SWI-02-001	NA	2/18/2002
C129	S2	Size Reduction Process Ductwork Within the Decontamination Cell, DVRF, Memo to Ron Mitchell and Rick Leitner	SWI-01-015	NA	3/15/2001
C130	S2	Cleanout of DVRF Bale Packaging Glovebox, Memo to Ron Mitchell and Rick Leitner	SWI-01-013	NA	3/7/2001
C142	S13	Legal Analysis regarding Solvent Binder Used to Make Fuel	NA	NA	11/28/1990
C146	S8	Waste Minimization Assessment for a Manufacturer Producing Printed Circuit Boards	NA	NA	2/6/1996
C147	S8	Environmental Protection Agency Consumer Product Links for Mercury	NA	NA	8/7/2007

Tracking Number	AK #	Title	Document Number	Rev. #	Date
C210	NA	Record of Communication. Subject: NFS TRU Waste Shipped to Oak Ridge National Laboratory	NA	NA	9/12/2007
C309	NA	Record of Communication. Subject: NFS Soil Sampling/Analysis Data and Tetrachloroethylene Use	NA	NA	6/4/2008
I052	S9, S12	Memorandum; Building 234 Shear Baler Characterization Samples	DC-03-18, 44T-02-0633, GPC-02-013	NA	9/11/2002
I053	NA	KAPL-TN Waste Profile for NFS Building 234 Soil	44G-03-1050, WST-20, JWP-03-009	NA	9/11/2003
I056	S2	Removal of Building 234 Wet Cell Permacon Containment Enclosure	DC-SWI-03-041	NA	6/20/2003
I057	S2	NFS Building 234 Removal of Asbestos Transite Panels	DC-SWI-03-046	NA	07/23/2003
I058	S2	Dismantlement of the West Wet Cell Wall in Building 234	DC-SWI-02-030	NA	9/30/2002
I059	S2	Waste Packaging of Wet Cell Wall in Building 234	WST-SWI-02-002,	1	9/19/2002
I060	S2	Packaging Soil and Debris Waste Stored in Building 234	DC-SWI-00-028	NA	NA
I061	S2	Size Reduction of the DVRS Glovebox	DC-SWI-01-020	NA	5/24/2001
I062	S2	Sorting and Repackaging Radioactively Contaminated Drummed Waste	DC-SWI-01-072-1	NA	08/03/2001
I063	S2	Item Control of Special Nuclear Material	NFS-ACC-26	NA	02/04/2005
I064	S2	Building 310 Storage Procedure	NFS-ACC-32	NA	04/07/2003
I065	S2	General Requirements for Class C Waste Handling and Packaging	SOP 335 Sec 1	NA	04/25/2002
I066	S2	Data Validation Procedure	NFS-DC-008	NA	05/10/1999
I067	S2	Procedure for the Operation of the Versatile Automated Gamma Assay System (VAGAS)	NFS-ACC-104	0	5/8/2000
I068	S2	Size Reduction of 4-inch Diameter Duct Section in Area C	DC-SWI-02-004	0	1/25/2002

Tracking Number	AK #	Title	Document Number	Rev. #	Date
M003	S4	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork	NA	NA	Various
M007	NA	Finding of No Significant Impact, Receipt and Storage at Oak Ridge National Laboratory of Transuranic Waste, Mixed Transuranic Waste, and Mixed Oxide Waste from Nuclear Fuel Services, Inc.	Ltr.# ER-NEPA/92-05	NA	11/9/1996
M011	S8, S10	Material Safety Data Sheets for Products Used at NFS	NA	NA	Various
M012	S6	EM Waste Database Query	NA	NA	8/9/2007
M013	S9	EM Waste Database Query - NFS Box Daughter and Repack Drums	NA	NA	8/23/2007, 8/29/2007
M016	S4	Incoming Container Travelers for NFS Waste	Various	NA	Various
M017	S9	Foster Wheeler Nondestructive Assay (NDA) Data for NFS TRU Waste	Various	NA	Various
M019	S9	Foster Wheeler Visual Examination (VE) Data for NFS TRU Waste	Various	NA	Various
M065	S6	WEAF Waste Acceptance Reports, NFS Waste Storage Project.	NA	NA	Various
M020	S9	Foster Wheeler Headspace Gas (HSG) Data for NFS TRU Waste	Various	NA	Various
P212	S5	Lattice Experiments with Simulated Burned-Up Fuel for D2O Power Reactors	DP-1122	NA	2/1968
P248	S2, S3	Structural Assessment of Building 234	DCM-03-18, 44T-99-0450, SS-99-002	NA	11/1999
P251	S2	Box Breakdown Area Operations	CH-P-OP-003	7	3/13/2007
P252	S2	Glove Box Operations	CH-P-OP-004	8	3/13/2007
P253	S2	Drum Bag In/Bag Out and Glove Ports	CH-P-OP-011	10	5/2/2007
P254	S2	Contact Handled Waste Repackaging	CH-P-OP-013	6	4/30/2007
P256	S1, S3	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis	T-CM-FW-R-AD-001	13	3/1/2007

Tracking Number	AK #	Title	Document Number	Rev. #	Date
P268	NA	ORNL WAC for Contact Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services, Inc.	WMRA-WMPC-106	NA	10/16/1992
P273	S2	Nuclear Fuel Services, Inc., Waste Certification Plan for Transuranic Waste	28G-91-001, Rev. 0 DCM-03-05	0,1	7/1991 2/1992 11/1992
P276	NA	Determination of H2 Diffusion Rates through Various Closures on TRU Waste Bag-Out Bags	LA-13616-MS	NA	6/1999
P315	NA	Wet Cell Soil Excavation and Mixing	DCM-61	NA	7/5/1993
P317	NA	Packaging for Shipment to Processing, Storage, or Burial	DCM-03,	6	7/15/1993
P432	S3	TRU Waste Processing Center Document Safety Analysis	CM-R-AD-001	15, 16	10/31/2007 12/20/2007
U016	S11	A Graphical Workbook for Estimating Important Quantities of NFS Radioactive Waste Constituents	NA	NA	3/1/1992
U040	NA	NFS Response to "Transuranic Waste Baseline Inventory Report Questionnaire"	NA	NA	1/1996
U043	NA	Final Report - Waste Characterization of Wastes Generated from D&D Activity; Buildings 110 and 234 on the NFS Site in Erwin, Tennessee	NA	NA	1/31/1992

Alphanumeric Designations

C Correspondence
D Documents
DR Discrepancy Resolution
I Internal Procedures and Notes*
M Miscellaneous
P Procedures and Published Documents
U Unpublished Documents

AK Numbers

S1 Process Design Documents
S2 Standard Operating Procedure
S3 Safety Analysis Reports
S4 Waste Packaging Logs
S5 Test plans/research project reports
S6 Site databases
S7 Information from site personnel
S8 Standard industry documents
S9 Previous analytical data
S10 Material safety data sheets
S11 Laboratory Notebooks
S12 Comparable or surrogate sampling and analysis data
S13 Other

Attachment 2 –CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: OR-REDC-RH-HET						
(2) Generator site name: Oak Ridge National Laboratory				(4)Technical contact: Larry Porter		
(3) Generator site EPA ID: TN1890090003				(6) Technical contact phone number: 505-234-7481		
(5) Date of audit report approval by New Mexico Environment Department (NMED): TBD						
(7) Title, version number, and date of documents used for WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Rev. 16, October 31, 2007 CCP-PO-002, CCP Transuranic Waste Certification Plan, Rev. 20, November 2, 2007 CCP-PO-027 CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document, Revision 0, October 2, 2007.						
(8) Did your facility generate this waste?	YES	X	NO			
(9) If no, provide the name and EPA ID of the original generator: NA						
Waste Stream Information[1]						
(10) WIPP ID: OR-W212[3]				(11) Summary Category Group: S5000		
(12) Waste Matrix Code Group: Heterogeneous Debris Waste				(13) Waste Stream Name: Remote Handled Heterogeneous Debris Waste from the Radiochemistry Engineering Development Center		
(14) Description from the TWBIR: Radionuclides from updated model. Mixed waste treated to LDR.						
(15) Defense TRU Waste:	YES	X	NO			
(16) Check One:	CH		RH	X		
(17) Number of SWBs: N/A	(18) Number of Drums: NA			(19) Number of Canisters: 691[4]		
(20) Batch Data report numbers supporting this waste stream characterization: See Characterization Information Summary (CIS) Correlation of Container Identification Numbers to Batch Data Report Numbers						
(21) List applicable EPA Hazardous Waste Numbers:[2] D005, D006, D007, D008, D009, D010, D011, D019, F002, and F005						
(22) Applicable TRUCON Content Numbers: OR 325						
(23)**Acceptable Knowledge Information**[1]						
[For the following, enter the supporting documentation used (i.e., references and dates)]						
Required Program Information						
(23A) Map of site: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Figures 1, 2, and 3						
(23B) Facility mission description: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Section 4.1						
(23C) Description of operations that generate waste: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Section 5.3						
(23D) Waste identification/categorization schemes: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Section 4.2						
(23E) Types and quantities of waste generated: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Section 4.2.1						
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Section 4.2.2						
(24) Waste certification procedures: : CCP-TP-530, Rev. 6, CCP TRU Waste Certification and WWIS Data Entry, June 25, 2008						
(25)Required Waste Stream Information						

(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Section 5.1			
(25B) Waste stream volume and time period of generation: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Section 5.2			
(25C) Waste generating process description for each building: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Section 5.3			
(25D) Waste Process flow diagrams: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Figures 4, 5, 6, 7, 8 and 9			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-ORNL-500, Revision 0, May 2, 2008, Section 5.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See Table 2 of the Summation of Aspects of AK Summary Report: OR-REDC-RH-HET			
(26) Which Defense Activity generated the waste: (check one)[5]			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management	X	Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations		
(27)Supplemental Documentation			
(27A) Process design documents: See S1 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27B) Standard operating procedures: See S2 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27C) Safety Analysis Reports: See S3 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27D) Waste packaging logs: NA			
(28E) Test plans/research project reports: See S5 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27F) Site databases: NA			
(27G) Information from site personnel: See S7 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27H) Standard industry documents: See S8 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27I) Previous analytical data: See S9 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27J) Material safety data sheets: See S10 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27K) Sampling and analysis data from comparable/surrogate Waste: See S12 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27L) Laboratory notebooks: See S11 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
Confirmation Information[2]			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: NA		
(29)	Visual Examination: CCP Remote-Handled Waste Visual Examination, CCP-TP-500, Revision 7, 2/27/2008		

(30)Comments:
For a list of the waste characterization procedures used and date of the respective procedures see the list of procedures on the attached CIS.

Reviewed by AK Expert: YES [X] **Date:** 6/25/08

Reviewed by STR (if necessary): YES [X] NA [ ] **Date:** 6/25/08

Waste Stream Profile Form Certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

(31)	(32) Hillari Neely	(33) 6-26-08
Signature of Site Project Manager	Printed Name	Date

NOTE:
(1) Use back of sheet or continuation sheets, if required.
(2) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.
(3) TWBIR numbers OR-W211 and OR-W214 also apply.
(4) Waste stream OR-REDC-RH-HET consists of casks, 55-gallon drums and a B-88 box that will be packaged into 2055 55-gallon drums and then into 685 canisters.
(5) The following defense activities also resulted in generation of this waste: naval reactors development, defense nuclear waste and by-products management and defense research and development activities.

CHARACTERIZATION INFORMATION SUMMARY
AUDIT PURPOSES ONLY

WSPF # OR-REDC-RH-HET

Lot 1

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RTR/VE Summary of Prohibited Items and AK Confirmation..... 007

Reconciliation with Data Quality Objectives..... 008

CCP Characterization Information Summary Cover Page

Waste Stream # OR-REDC-RH-HET Sub-Lot #: 1

AK Expert Review: Kevin Peters Date: 6/26/2008

SPM Review: Hillari Neely Date: 6/26/2008

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Headspace Gas Sampling and Analysis (HSG):

CCP-TP-093	Rev. 13	03/19/07	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 6	07/12/07	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-173	Rev. 0	05/03/07	CCP Analysis of Gas Samples for VOCs by GC/FID
CCP-TP-175	Rev. 0	05/02/07	CCP Analysis of Gas Samples for VOCs by GC/MS

Visual Examination (VE):

CCP-TP-500	Rev. 7	05/02/08	CCP Remote-Handled Waste Visual Examination

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 19	12/22/06	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 16	10/02/07	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation

WAP Certification:

CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan

CIS 002

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET Sub-Lot # 1

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			
								Sample	Analysis		
ORRH080004	NA	NA	NA	RHORVE080002	NA	NA		NA	NA	NA	NA
ORRH080005	NA	NA	NA	RHORVE080002	NA	NA		NA	NA	NA	NA
ORRH080006	NA	NA	NA	RHORVE080002	NA	NA		NA	NA	NA	NA
ORRH080007	NA	NA	NA	RHORVE080003	NA	NA		NA	NA	NA	NA
ORRH080008	NA	NA	NA	RHORVE080003	NA	NA		NA	NA	NA	NA
ORRH080009	NA	NA	NA	RHORVE080003	NA	NA		NA	NA	NA	NA
ORRH080010	NA	NA	NA	RHORVE080004	NA	NA		NA	NA	NA	NA
ORRH080011	NA	NA	NA	RHORVE080004	NA	NA		NA	NA	NA	NA
ORRH080012	NA	NA	NA	RHORVE080004	NA	NA		NA	NA	NA	NA

Signature of Site Project Manager

Hillari J. Neely
Printed Name

6/26/2008
Date

C15

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-REDC-RH-HET **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples (2)	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Bromoform	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Chloroform	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Cyclohexane [a]	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
1,1-Dichloroethylene	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
cis-1,2-Dichloroethylene	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
trans-1,2-Dichloroethylene	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Ethyl benzene	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Ethyl ether	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Methylene chloride	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Tetrachloroethylene	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Toluene	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Trichloroethylene	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
1,2,4-Trimethylbenzene[a]	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
1,3,5-Trimethylbenzene[a]	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
m-Xylene[b]	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
p-Xylene[b]	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
o-Xylene	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Acetone	NA	NA	NA	NA	NA	NA	NA	100	FALSE		
1-Butanol	NA	NA	NA	NA	NA	NA	NA	100	FALSE		
Methanol	NA	NA	NA	NA	NA	NA	NA	100	FALSE		
Methyl ethyl ketone	NA	NA	NA	NA	NA	NA	NA	100	FALSE		
Methyl isobutyl ketone	NA	NA	NA	NA	NA	NA	NA	100	FALSE		

CAS 004

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-REDC-RH-HET **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples (2)	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Chloromethane[c]	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
Carbon Disulfide[c]	NA	NA	NA	NA	NA	NA	NA	10	FALSE		
1,2-Dichloropropane[c]	NA	NA	NA	NA	NA	NA	NA	10	FALSE		

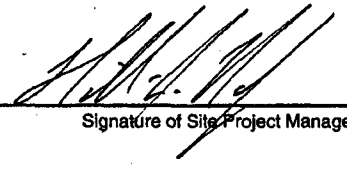
[a] These compounds are from the TRAMPAC and are flammable VOCs that do not appear in the QAPjP or the WIPP WAP. These are not part of the target analyte list, but samples may be analyzed for these compounds.

[b] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

[c] Compounds are reported as target analytes by the Idaho Laboratory and have been added to the evaluation accordingly.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)



Signature of Site Project Manager

Hillari Neely
Printed Name

6/26/2008
Date

C15
005

CCP Headspace Gas Summary Data

Waste Stream Number OR-REDC-RH-HET Sub-Lot Number (s) 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐			
If no, describe the basis for assigning the EPA Hazardous Waste Codes: **No Data**			

SPM Signature _____ Date 6/26/2008

C15
D66

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-REDC-RH-HET Sub-Lot(s)#: 1

Container Number	RTR Prohibited Items [a]	Visual Examination Prohibited Items [a]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	Radiography was not used to verify prohibited items.	None of the containers in this lot had prohibited items identified during Visual Examination.

a. See Batch Data Reports
b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Site Project Manager Signature | Hillari Neely Printed Name | 6/26/2008 Date

C15
007

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 1

Sampling Completeness

VE

Number of Valid Samples: 9 Number of Total Samples Analyzed: 9
Percent Complete: 100 (QAO is 100%)

RTR

Number of Valid Samples: NA Number of Total Samples Analyzed: NA
Percent Complete: 100 (QAO is 100%)

HSG

Number of Valid Samples: NA Number of Total Samples collected: NA
Percent Complete: 100 (QAO is ≥90%)

Total VOC

Number of Valid Samples: NA Number of Total Samples collected: NA
Percent Complete: 100 (QAO is ≥90%)
Number of Valid Samples: NA Number of Total Samples analyzed: NA
Percent Complete: 100 (QAO is ≥90%)

Total SVOC

Number of Valid Samples: NA Number of Total Samples collected: NA
Percent Complete: 100 (QAO is ≥90%)
Number of Valid Samples: NA Number of Total Samples analyzed: NA
Percent Complete: 100 (QAO is ≥90%)

Total Metals

Number of Valid Samples: NA Number of Total Samples collected: NA
Percent Complete: 100 (QAO is ≥90%)
Number of Valid Samples: NA Number of Total Samples analyzed: NA
Percent Complete: 100 (QAO is ≥90%)

CLS
008

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 1

	Y/N/NA	Reconcilliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	NA	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	Y	Mean concentrations, UCL90 values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP TP 003, Attachment 3, and additional Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	NA	Mean concentrations, UCL90 values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003-Attachment 4, and additional EPA Hazardous Waste Numbers were assigned as required. Samples were randomly collected.
7b	NA	Mean concentrations, UCL90 values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP TP 003 Attachment 5, and additional EPA Hazardous Waste Numbers were assigned as required. Samples were randomly collected.
7c	NA	Mean concentrations, (UCL90) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP TP 003 Attachment 6, and additional EPA Hazardous Waste Numbers were assigned as required. Samples were randomly collected.

CLS 009

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 1

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	Y	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the QAPjP.
13	Y	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in CCP-PO-001 Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	NA	NA	NA
VE	Y	Y	Y
Headspace Gas Analysis	NA	NA	NA
Solids Sampling	NA	NA	NA
Solids VOCs	NA	NA	NA
Solids SVOCs	NA	NA	NA
Solids Metals	NA	NA	NA

Comments: N/A

Signature of Site Project Manager

Hillari Neely
Printed Name

6/26/2008
Date

CLS
6/27

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: OR-REDC-RH-HET

Overview:

Waste Stream OR-REDC-RH-HET is Remote-Handled (RH) transuranic (TRU) heterogeneous debris generated in Building 7920 of the Radiochemical Engineering Development Center (REDC) and subsequently repackaged in Building 7880 of the Transuranic Waste Processing Center (TWPC) at the Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee. The waste was generated from 1972 through present. Waste Stream OR-REDC-RH-HET includes debris originating from the target fabrication and processing, analytical chemistry, and process development activities. This debris is currently stored in concrete casks, boxes, and drums at ORNL. These storage containers are transferred to the TWPC hot cell in the Building 7880 for repackaging and certification.

Since 1966, the REDC was the production, storage, and distribution center for the Department of Energy (DOE) heavy element research program, producing Berkelium (Bk)-249, Californium (Cf)-252, Einsteinium (Es)-253, and Fermium (Fm)-257. Target rods containing plutonium (before or about 1970), americium, and curium were remotely fabricated in the Building 7920 hot cells, irradiated in the High Flux Isotope Reactor (HFIR) facility, and then processed in the Building 7920 hot cells for the separation and purification of the heavy actinide elements. The purified Bk-249, Es-253, and Fm-257 were packaged for shipment whereas the Cf-252 was fabricated into neutron sources. Between 1979 and 1986, some uranium fuel cycle development work was performed in the Building 7920 Solvent Extraction Test Facility (SETF). Solvent extraction flow sheets for processing irradiated fuels from commercial light water reactors and fast breeder reactors were developed and tested, and plutonium recovery schemes were demonstrated. Since 1991, the REDC has processed Mark-42 target assemblies that were irradiated at the Savannah River Site (SRS). High-purity Am-243, Cm-244, and Pu-242 are separated and recovered in Building 7920 for shipment to the Los Alamos National Laboratory (LANL).

The Cf-252 neutron sources have applications which are defense related. Applications include neutron radiography of weapons components and military aircraft, neutron counting of fissile material and transuranic waste, land mine detection, and in-field inspection and identification of chemical weapons and high explosives. Other target campaigns ran concurrently with the Solvent Extraction Test Facility (SETF) and Mark-42 campaigns. Due to the similarity of contamination in the REDC from prior HFIR target campaigns, the waste generated from SETF and Mark-42 campaigns were not segregated from waste generated by the HFIR target campaigns. Therefore, the TRU wastes generated from the REDC, waste stream OR-REDC-RH-HET, is defense related waste generated from nuclear materials production in addition to naval reactor development, and defense nuclear wastre abd by-products management.

This Summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) number OR-REDC-RH-HET for RH TRU debris. The primary source of information for this Summation is CCP-AK-ORNL-500, Central Characterization Project Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Radiochemical Engineering Development Center Remote-Handled Transuranic Waste, Waste Stream: OR-REDC-RH-HET, Rev. 0, May 2, 2008. CCP-AK-ORNL-500 includes information obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, program/processing documentation, and interviews with knowledgeable personnel.

Waste Stream Identification Summary:

Site Where TRU Waste Was Generated:	Oak Ridge National Laboratory
Waste Stream Name:	Remote Handled Heterogeneous Debris Waste from the Radiochemistry Engineering Development Center
Waste Stream Number:	OR-REDC-RH-HET
Dates of Waste Generation:	1972 to present

Summary Category Group:	S5000 – Debris Waste
Waste Matrix Code Group:	Heterogeneous Debris Waste
Waste Matrix Code:	S5400, Heterogeneous Debris
Waste Stream TWBIR Identification:	OR-W212[1]
Waste Stream Volume:	685 canisters (current)[2] 6 canisters (projected)[3]
RCRA EPA Hazardous Waste Numbers:	D005, D006, D007, D008, D009, D010, D011, D019, F002, and F005
TRUCON Content Numbers:	OR 325

Waste Stream Description and Physical Form:

Waste stream OR-REDC-RH-HET is comprised primarily of Waste Stream OR-REDC-RH-HET is comprised primarily of repackaged organic and inorganic debris waste items. The waste includes cellulosics (paper), plastic, rubber, metal, and glass items. Examples of debris include the following:

• Cellulosic waste consists of paper, cotton, cloth, and wood, including wipes, swabs, bags, towels, rags, protective clothing, gloves, rope, string, cardboard, brushes, blotter paper, and filter paper.

• Plastic waste consists of polyethylene, polypropylene, polyvinyl chloride, Tygon, nylon, Bakelite (methacrylate polymer plastic), and Plexiglass items, including sheeting, melted plastic, beads, blocks, tape, tubing, bags, fittings, buckets, bottles, caps, pans, discs, brushes, laboratory equipment (pipettes, syringes), gloves, manipulator boots, and plastic filter components

• Rubber waste consists of items, including gaskets, rings, hose/tubing, squeegees, bulbs, stoppers, gloves, boots, leaded glovebox gloves, wire/cord/cable insulation, and metal filter components.

• Glass waste consists of glass and ceramic items, including bottles, laboratory glassware, pipettes, columns, plates, thermometers, light bulbs (mercury and incandescent), mirrors, lenses, insulation, and broken glass.

• Metal items include ferrous debris such as carbon steel, stainless steel, and iron. Non-ferrous materials include items made from aluminum, brass, copper, and lead. Metal waste items include cans, needles, tubes, valves, cable, wire, planchets, piping, tools (tongs, dies, punches, wrenches, knives, clamps, tweezers), foil, weights, blocks, plates, frames, columns, racks, shielding, sheeting, light fixtures, equipment (pumps, motors, balance, ultrasonic cleaner, hot plates, furnace, centrifuge), hardware (nuts, bolts, brackets, washers), manipulator parts, and metal filter components.

Secondary waste generated during repackaging operations in the TWPC hot cell include amalgamated mercury, personal protective equipment (PPE), and equipment generated during repackaging operations in the TWCP hot cell.

[1] TWBIR numbers OR-W211 and OR-W214 also apply.
[2] Waste stream OR-REDC-RH-HET consists of casks, 55-gallon drums and a B-88 box that will be packaged into 2055 55-gallon drums and then into 685 canisters.
[3] Building 7920 REDC operations will generate approximately 3.4 m3 (two casks) of waste to be processed in the TWPC per year with no projected end date.

This waste stream is assigned Waste Matrix Code S5400, Heterogeneous Debris. This category includes waste that is at least 50 percent, by volume, debris materials that do not meet the criteria for assignment as either an Inorganic Debris (S5100) or Organic Debris (S5300). The debris that comprises waste stream OR-REDC-RH-HET was generated from a single process or from an activity that is similar in material, physical form, and hazardous constituents and is therefore, a single waste stream.

Point of Generation - Area and Building of Generation

This heterogeneous debris waste stream was generated in Building 7920 which is part of the REDC located at the ORNL in Oak Ridge, Tennessee. The waste is transferred to the TWPC hot cell in Building 7880 for repackaging and certification.

Generating Process

Building 7920 operations include chemical processing, target fabrication and processing (chemical processing), analytical laboratory, and process development activities. The operations represent the primary chemical processing activities in the REDC; however, special separation projects, referred to as campaigns, were periodically performed. These special small scale separation campaigns (e.g., separating Cf-249 from decaying Bk-249 or purifying a sample for shipment to another site) were performed in the hot cell. Chemicals used in Building 7920 operations or that were identified as part of the REDC chemical inventory, and may contaminate this waste stream, are listed in CCP-AK-ORNL-500, Table 5-3, Waste Stream OR-REDC-RH-HET Material and Chemical Inputs.

Chemical Processing

Transuranium element processing includes the dissolution of irradiated targets, the separation of the transuranium elements and the removal of impurities and fission products. This is accomplished using solvent extraction, precipitation, and ion-exchange. Recovered americium and curium are purified and converted to oxide for fabrication of new targets.

Berkelium, einsteinium, and fermium are separated from the curium and californium and then purified further by additional cycles of ion-exchange. The purified products are then packaged for shipment. The californium is sorbed on resin and calcined to convert the californium to the oxysulfate for future use.

The Solvent Extraction Test Facility (SETF) operated from 1979 through 1986 and recovered uranium and plutonium from irradiated commercial power reactor fuels. This was achieved by dissolution of irradiated fuel assembly sections, solvent extraction, ion-exchange, precipitation, and calcination.

The Mark-42 program began operation in 1991 and includes the dissolution of irradiated segments; the separation of the transuranium elements and removal of impurities, activation products, and fission products. This is accomplished using solvent extraction, precipitation, and ion-exchange process steps.

The Global Nuclear Energy Partnering (GNEP) program initiated in May 2007 involves the demonstration of isotopic separations technologies using fuel from the H.B. Robinson and Dresden LWR reactors.

The REDC supports small-scale experiments involving the separation of fission products such as tritium, C-14, iodine, krypton, and xenon from uranium fuel oxides followed by chemical extraction.

Target Fabrication

Actinide oxide (americium and curium) is incorporated into aluminum target rods for irradiation in the High Flux Isotope Reactor (HFIR). The operations and inspections include pellet forming, weighing, measurement, calorimetry, thermal cleaning, target loading, welding, x-ray examination, helium leak tests, dimensional inspections, hydrostatic compression of the aluminum tube around the pellets, coolant shroud attachment, decontamination, and carrier loading for transfer to the HFIR.

Analytical Laboratory

Samples are collected and then stored in the analytical laboratory. Radiochemical analyses are performed on highly-radioactive samples in analytical chemistry gloveboxes. Sample preparation includes pipetting, titration, dissolution, filtration, solvent extraction, and centrifugation. (See chemicals lists inn Table 5-3 of CCP-AK-ORNL-500.)

Process Development

The process development alpha laboratories have been used for studies and process development of alpha-active materials. Early work focused on development of sol-gel processes (fuel pellet processes) and isolation and purification of alpha-active materials. Other research and process development work included reprocessing of reactor fuels, conversion of recovered uranium and plutonium for use in reactor fuel elements, and development of waste separation processes. The chemical processes (e.g., solvent extraction, ion-exchange, and precipitation) performed in process development are similar to those processes performed in the hot cells but on a smaller scale.

Maintenance Operations

The processing equipment in the hot cells was maintained or replaced within the hot cell cubicles using remote techniques. Occasionally, large equipment and equipment racks require maintenance that cannot be performed in the cubicles. These items are moved to the portable decontamination glovebox for cleaning (using acetone, and ethanol-methanol mixtures) and repair. For maintenance operations in a tank pit, work may be performed directly in the pit or remotely from the top of the pit. Maintenance of the off-gas systems for the cells and the process tanks generate HEPA filters, charcoal and Hopcalite organic vapor trap filters (mixture of copper and manganese oxide used as a catalyst to convert carbon monoxide to carbon dioxide). Glovebox operations are performed using neoprene or leaded glovebox gloves which are periodically replaced. Glovebox equipment and components require periodic decontamination, inspection, maintenance, repair and replacement. Glovebox interiors required regular decontamination using pentasodium diethylene triamine pentaacetate, ethanol and Ajax.

Process Waste Handling

Glovebox waste transfers are accomplished using plastic bags and cardboard ice cream cartons. Large pieces of equipment are transferred through the roof door. Liquid waste is transferred out of the gloveboxes through liquid waste lines. See liquids listed in CCP-AK-ORNL-500, Table 5-3, Waste Stream OR-REDC-RH-HET Material and Chemical Inputs, for liquid waste that may have been transferred out of gloveboxes.

Prior to 1976, all Building 7920 solid waste was managed as RH TRU waste, even though a significant portion of the inventory produced was CH-TRU waste. In March 1976, operations were initiated to segregate RH from CH-TRU waste but were not fully implemented until 1978. Most of the waste generated prior to 1978 was placed into concrete casks. This waste contains lower dose rate waste (paper, glassware, PPE, wipes, glovebox equipment, and HEPA filters) generated from the laboratory and support areas. The quantity of lower dose rate waste decreased significantly in RH casks loaded after 1978, which contain greater volumes of waste from hot cell activities.

In the hot cell cubicles, waste is placed into small containers (e.g., plastic buckets or metal cans) and monitored for radiation. Depending on the type of waste and radiation level, the item is leached using nitric acid, rinsed with water, and dried before placement into the bucket. Larger waste items are cut up to fit into the buckets. To reduce the volume of waste, a furnace is used to melt plastic items such as polyethylene bottles and to consolidate them in a metal bucket.

Spent cation-exchange resins are calcined, leached with nitric acid, collected in a polyethylene bottle and melted, then placed into a metal bucket. Spent anion-exchange resins are de-nitrated, rinsed with water and grouted (using concrete) in a metal bucket. Empty metal buckets are crushed. Waste buckets are transferred from the hot cell cubicles for characterization. The buckets are also transferred for monitoring of beta-gamma and neutron radiation. Buckets that have low radiation levels are disposed as waste and are not part of this waste stream.

Larger equipment, such as processing racks, charcoal filter beds, and Hopcalite organic filters traps are directly loaded into the casks. Racks were packaged in polyethylene bags then placed into the concrete cask. Lead bricks were used to balance the processing racks and will be found in the disposal casks. The concrete casks of TRU waste are loaded in a solid waste loading station. The cask lid is installed, sealed with roofing pitch, and secured.

REDC waste has been generated with limited segregation based on the radiological and chemical properties. Solid waste from the REDC is accumulated over a long period of time, resulting in mixing of campaigns of waste. As containers of REDC debris are generated during repackaging in the TWPC, the container-specific documentation is reviewed to assure that each container included in waste stream OR-REDC-RH-HET meets the requirements identified in the WIPP-WAP and the WCPIP.

Table 1 identifies the RCRA toxicity characteristic constituents in this waste stream.

Table 1 – RCRA Toxicity Characteristic

Waste Stream OR-REDC-RH-HET

Chemical	CAS Number	EPA Hazardous Waste Numbers
Barium	7440-39-3	D005
Benzene	71-43-2	F005
Cadmium	7440-43-9	D006
Carbon tetrachloride	56-23-5	D019
Chromium	7440-47-3	D007
Lead	7439-92-1	D008
Mercury	7439-97-6	D009
Methyl ethyl ketone	78-93-3	F005
Selenium	7782-49-2	D010
Silver	7440-22-4	D011
Toluene	108-88-3	F005
1,1,2-Trichloroethane	79-00-5	F002
Trichloroethylene	79-01-6	F002

RCRA Determinations - Hazardous Waste Determinations

Waste generated in this waste stream does not qualify for any of the exclusions outlined in 40 CFR 260 or 261. Visual examination is used to verify that the waste stream is not a liquid waste and does not contain explosives, non-radioactive pyrophoric material, compressed gasses or reactive waste. Therefore, this

waste stream does not exhibit the characteristic for ignitability (D001), corrosivity (D002), or reactivity (D003).

Ignitability

The waste does not meet the definition of ignitability as defined in 40 CFR 261.21. The material is not a liquid, an ignitable compressed gas, or an oxidizer, and is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. The waste does not meet the definition of a DOT oxidizer as defined in 49 CFR 173.

REDC process solutions, used reagents are identified in Table 5-3 o the CCP-AK-ORNL-500, were not prepared in the gloveboxes and hot cells and were introduced into the closed loop process tanks. The resulting waste process solutions were piped out of the facility and are not included in the inventory of REDC waste for repackage (References P161, P241, P242, P263, P282, and U011). Acetone and ethanol-methanol mixtures were used for equipment degreasing in the REDC but are not present in liquid form.

Visual examination is performed to ensure the absence of compressed gases (e.g., un-punctured aerosol cans) and that liquids do not exceed the amount allowed by the WIPP-WAP. Any container identified with compressed gases, or liquids will be segregated from the waste stream during characterization and will not be eligible for disposal at WIPP until further characterization and/or processing is conducted. Therefore, this waste stream does not exhibit the characteristic of ignitability (D001).

Corrosivity

The waste does not meet the definition of corrosivity as defined in 40 CFR 261.22. The debris is not liquid and VE is performed to ensure liquids were not added to containers.

Chemicals such as acetic, citric, hydrofluoric, hydrochloric, oxalic and sulfuric acid; hydrazine and lithium hydroxide were used during dissolution, extraction, and titration processes or were identified on chemical inventories. Prohibited quantities of liquids identified during VE will be removed and/or immobilized using concrete grout. Therefore the characteristic of corrosivity (D002) does not apply to this waste stream.

Reactivity

The waste does not meet the definition of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The waste does not contain reactive cyanide or sulfide compounds. The materials are not capable of detonation or explosive reaction if subjected to a strong initiating source if heated under confinement. The materials are not readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

Hazardous chemical reagents, identified in Table 5-3 o the CCP-AK-ORNL-500, may contaminate this waste stream but are not present in the pure form. Preventative measures have been taken to ensure that nitrated ion-exchange resins are treated prior to disposal. Anion-exchange resins used with nitric acid are flushed from the column, rinsed with ammonium hydroxide to convert the resin to the hydroxide form, air dried, and grouted in metal cans. Spent cation-exchange resins are calcined to an oxysulfate ash, and the ashes are leached with nitric acid and dried prior to assimilation (and fixing) into melted polyethylene waste in a metal bucket. Prohibited quantities of liquids identified during VE are removed and/or immobilized during repackaging. Waste Stream OR-REDC-RH-HET is therefore not reactive (HWN D003) (References P161 and U011).

Toxicity Characteristic Metals

This waste stream exhibits the characteristic of toxicity per 40 CFR 261.24. The toxicity characteristic contaminants fall into two categories; metals and organics. The debris may contain toxicity characteristic metals based on the following identified uses/sources but is not toxicity characteristic for organics.

Where a constituent has been identified and there is no quantitative data available to demonstrate that the concentration of a constituent is below regulatory threshold levels, the applicable EPA HWN is conservatively applied to the waste stream in accordance with the CCP AK procedure CCP-TP-005.

Barium (D005), cadmium (D006), chromium (D007), and lead (D008) have been attributed to fission product contaminants, product solution impurities and target cladding. Cadmium is also attributed to flashlight batteries and electronic equipment. The presence of mercury (D009) in this waste stream is attributed to vapor lamps, electronic equipment, thermostats and solder. Selenium (D010) metal was identified on an REDC inorganic chemical inventory. Silver (D011) is assigned due to photographic development solutions and circuit boards in the waste. Based on AK, EPA HWNs D005, D006, D007, D008, D009, D010, D011 are assigned to waste stream OR-REDC-CH-HET (Reference DR005).

Toxicity Characteristic Organics

Waste stream OR-REDC-RH-HET does not meet the definition of toxicity for organic compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24). Toxicity characteristic organic compounds were identified in the REDC processes. Where a constituent has been identified and there is no quantitative data available to demonstrate that the concentration is below regulatory threshold, the applicable EPA HWN is conservatively applied to the waste stream.

The AK identified the use of organic toxicity characteristic compounds including benzene (D018), carbon tetrachloride (HWN D019), and trichloroethylene (D040). EPA HWNs F005 and F002 are assigned to the waste stream for F-listed solvents benzene (F005) and trichloroethylene (F002). Because the more specific F-listed EPA HWNs have been assigned for these compounds, assignment of the corresponding toxicity characteristic HWNs D018 and D040 is not necessary. Therefore only D019 is conservatively assigned to waste stream OR-REDC-RH-HET for carbon tetrachloride (identified in the REDC inorganic chemical inventory). (Reference DR005).

F-Listed Waste

Waste stream OR-REDC-RH-HET is an F-listed hazardous waste because the debris was mixed with or contains hazardous wastes from non-specific sources listed in 40 CFR Part 261, Subpart D (40 CFR 261.31).

F002 and F005-listed solvents were identified on REDC chemical inventories. Toluene was identified as a constituent in the liquid scintillation reagent Ultima Gold that was used in the laboratory. F003 constituents, including acetone, methanol, methyl isobutyl ketone, and xylene are listed solely because these solvents are ignitable in the liquid form. The waste stream will not exhibit the characteristic of ignitability because it is not liquid; therefore, F003 is not assigned. Although F001-listed solvents were identified in the AK record (carbon tetrachloride and trichloroethylene), no "large-scale" degreasing operation such as cold cleaning or vapor degreasing on an industrial scale was performed and F001 is not applied.

The following is a listing of the EPA HWNs and associated constituents assigned to waste stream OR-REDC-RH-HET.

(F002)
1,1,2-Trichloroethane, trichloroethylene

(F005)
Benzene, methyl ethyl ketone, toluene

U, K, and P-Listed Chemicals

Waste stream OR-REDC-RH-HET does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33). No U, K and P- listed chemicals were identified in the AK record for waste stream OR-REDC-RH-HET. The only source identified for beryllium was small foil targets and source plates electroplated

with microgram quantities of transplutonium elements. Review of the container documentation did not identify beryllium as a component of the waste in these containers. Therefore, if present, beryllium is a process contaminant. Since no beryllium powder will be present in the debris waste, P015 is not assigned to the waste stream.

Hydrofluoric acid was used as a dissolution reagent; however, there is no indication that unused acids or other reagents, or spills of these reagents were disposed of in this waste stream. Therefore, no U-and P-listed EPA HWNs, including U134, are assigned to waste stream OR-REDC-RH-HET (References M005, M100 and P223).

The material in waste stream OR-REDC-RH-HET is not a hazardous waste from sources specified in 40 CFR 261.32. Waste stream OR-REDC-RH-HET is therefore not assigned a K-listed HWN.

Headspace Gas/Volatile Organic Compound Information

TBD

Conclusion

The following EPA hazardous waste numbers are assigned to this waste stream: D005, D006, D007, D008, D009, D010, D011, D019, F002 and F005.

Polychlorinated Biphenyls (PCBs)

Based on a review of the AK record, incandescent bulbs, mercury-vapor bulbs, vacuum pumps, and lighting fixtures (bases) were identified in the RH container documentation, however items potentially containing polychlorinated biphenyl (PCB) compounds were not specifically identified (capacitors, ballasts, etc.). No other potential sources for PCBs were identified in the AK record for this stream; however the ORNL waste management practices described in the AK record did not historically identify PCB materials as prohibited items or special management of these materials in the REDC. Additionally, interviews with ORNL waste management personnel have identified that vacuum pumps and capacitors containing PCB liquids could potentially be present in ORNL waste containers. If the waste is found to contain fluorescent light ballasts or other potential PCB-containing items during repackaging, these items will be managed in accordance with CCP Waste Certification Program (References C307, C308, M024, M100, P240, and P263).

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and characterization activities. Visual examination is performed on each container in this waste stream as a confirmation activity. The following items have been determined as not present in the waste:

- Liquids
- Non-radioactive pyrophoric materials
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, or other wastes
- Explosives or compressed gases
- Waste with PCBs not authorized under an EPA PCB waste disposal authorization
- Waste exhibiting the characteristics of ignitability, corrosivity, or reactivity
- Non-mixed hazardous wastes
- Waste that has ever been managed as high-level waste and waste from tanks specified in Table B-8 of the WIPP Hazardous Waste Permit, unless specifically approved through a Class 3 permit modification.
- Any waste container from a waste stream (or waste stream lot) which has not undergone either radiographic or visual examination of a statistically representative subpopulation of the waste stream in each shipment, as described in the WIPP Hazardous Waste Permit, Attachment B7.

Each container of waste is certified and shipped only after visual examination:

- Did not identify any prohibited items in the waste container, or
- All prohibited items found in a waste container by visual examination are identified and corrected (i.e., eliminated or removed) through the site non-conformance reporting system.

Method for Determining Waste Material Parameter Weights per Unit of Waste

The waste material parameter weight estimates for waste stream OR-REDC-RH-HET were derived from data located on site-specific waste disposal, transportation, and storage forms from 45 casks generated from 1991 through 2007. These containers are considered representative of the waste stream because the production operations that generated this waste were consistent through the generation timeline. An analysis of the RTR and VE data was performed, the results of which are presented in Table 2.

Table 2. Waste Stream OR-REDC-RH-HET Waste Material Parameters

Waste Material Parameter	Weight Percent	Weight Percent Range
Iron-based Metal/Alloy	59.13%	30.23% – 95.51%
Aluminum based Metal/Alloys	0.01%	0.0% – 0.64%
Other Metals/Alloy	5.91%	0.0% – 52.38%
Other Inorganic Materials	16.78%	0.0% – 47.51%
Cellulosics	6.68%	0.0% – 18.03%
Plastics (waste materials)	8.62%	1.44% – 30.97%
Rubber	1.66%	0.0% – 11.9%
Organic Matrix	0.00%	0.0% – 0.0%
Inorganic Matrix	1.21%	0.0% – 7.93%
Soil/Gravel	0.00%	0.0% – 0.0%

List of AK Sufficiency Determinations

No AK Sufficiency Determinations were required for this waste stream.

Transportation

This waste stream and its chemical constituents have been reviewed for consistency with listed TRUCON codes and they are consistent. The waste stream and chemical constituents will be reviewed for consistency with the applicable TRUCON Content Number prior to shipment.

Radionuclide Information

The two most prevalent radionuclides by mass in this waste stream are Pu-239 and Cm-246. The isotopes expected to be present in the waste stream are listed in Table 3.

Table 3. Radionuclides in Waste Stream OR-REDC-RH-HET

WIPP Tracked Radionuclides	Additional Reported Radionuclides
Am-241	Am-243
Pu-238	Ba-137m
Pu-239	Cm-244
Pu-240	Cm-244
Pu-242	Cm-246
U-233 (Not expected)	Cm-248
U-234	Pu-241
U-238	U-235
Cs-137	Y-90
Sr-90	

Payload management will not be employed for Oak Ridge National Laboratory.

Attachment 1

AK SOURCE DOCUMENTS, SUPPLEMENTAL DOCUMENTATION

Source Document Tracking Number	AK #	Title	Document Number	Date
C046	S5	Memo to J. A. Lenhard, DOE OR re: Materials Management Plan-ORNL	NA	06/13/1984
C307	NA	Interview of Walt Bond. Subject: Processes and Waste in Building 3508 at ORNL	NA	2/21/2008
C308	NA	Interview of Jason Taylor. Subject: PCB Management at ORNL.	NA	4/8/2008
DR005	NA	EPA Hazardous Waste Number Discrepancies	NA	
M005	NA	UCN-2109 Forms and Related Container Paperwork.	NA	Various
M024	S6, S9	RH EM Waste Database Query	NA	10/04/2007
P146	S9	C-Tank Transfers; Transuranic Sludge Removal From the C-1, C-2, and W-23 Waste Storage Tanks at Oak Ridge National Laboratory. Oak Ridge, Tennessee	BJC/OR-279	05/1999
P161	NA	Safety Analysis Report Radiochemical Engineering Development Center Building 7920	SAR/7920-CTD/0	3/14/2001
P223	NA	Chemical Technology Division Annual Progress Report for Period Ending 5/31/1969	ORNL-4422	Oct-69
P240	NA	Packaging and Disposition of Contact-Handled Transuranic Waste At the Radiochemical Engineering Development Center	REDC FO/WH 5100, Rev. 1 & 2	1/26/1995;7/15/1998
P241	NA	Oak Ridge National Laboratory Contact-Handled Transuranic Waste Certification Program Plan	ORNL/TM-10322/2, Rev. 2	8/1/1990
P242	NA	Oak Ridge National Laboratory Contact-Handled Transuranic Waste Certification Program Plan	ORNL/TM-10322/R3, Rev. 3	Jun-92
P263	NA	TRU Operating Manual and Supporting Documentation	NA	10/10/1980
P282	NA	Building 7920 Analytical Chemistry Procedures	Various	Various

Source Document Tracking Number	AK #	Title	Document Number	Date
P324	S3	Technical Safety Requirements Irradiated Fuels Examination Laboratory Building 3525	ORNL/3525/TSR	8/1/2004
P325	S3	Oak Ridge National Laboratory Standardized Safety Analysis Report for Nonreactor Nuclear Facilities	ORNL/NNFD/SSAR	5/12/2004
P330	S3	Safety Analysis Report Irradiated Fuels Examination Laboratory / Building 3525	ORNL/3525/SAR	6/22/2006
P401	S13	Radioactive materials Analysis laboratory Quality Assurance Plan for the Characterization of Radioactive Waste	QAP-X-96-CASD/RML-001	10/1997
P424	S5	Californium-252: A Remarkable Versatile Radioisotope	ORNL/TM-12706	10/10/1995
U011	NA	Safety Analysis: Transuranium Processing Plant, Building 7920	ORNL/TM-7688, Draft	Dec-84
U049	S9	Waste Stream Profile Sheet for 7920-HCAL-005 and Supporting documentation	7920-HCAL-005	08/18/1999
U601	S9	CCP Calculation Package: Sample Radionuclide Information Input Check	ORNL-RH-01	04/19/2008
U602	S9	CCP Calculation Package: Sample Data Decay Correction	ORNL-RH-02	04/19/2008
U603	S9	CCP Calculation Package: Campaigns 69 and M5 Information Input Check	ORNL-RH-03	04/19/2008
U605	S9	CCP Calculation Package: Mark 42 Campaigns Inventory Information Input Check	ORNL-RH-05	04/19/2008
U606	S9	CCP Calculation Package: Radiological Inventories for SETF Campaigns	ORNL-RH-06	04/19/2008
U607	S9	CCP Calculation Package: Dose-to-Curie Derivation for Cs-137, Eu-152 and Eu-154	ORNL-RH-07	04/19/2008; 05/23/2008
U608	S9	CCP Calculation Package: Determination of Reportable Isotopes-Mark 42 Period	ORNL-RH-08	04/19/2008
U609	S9	CCP Calculation Package: Campaign Inventory Information Input Check	ORNL-RH-09	04/19/2008
U610	S9	CCP Calculation Package: Uncertainty Analysis	ORNL-RH-10	05/13/2008
U611	S9	CCP Calculation Package: DTC Spreadsheet for Mark 42 Time-Mark/HFIR	ORNL-RH-11	05/22/2008

Source Document Tracking Number	AK #	Title	Document Number	Date
U612	S9	CCP Calculation Package: Development of Cs-137 Partition Factors	ORNL-RH-12	04/19/2008
U613	S9	CCP Calculation Package: MCNP5 Uncertainty Analysis	ORNL-RH-13	04/19/2008
U614	S9	CCP Calculation Package: Determination of Cm-242 Processed in Campaign 69	ORNL-RH-14	04/19/2008
U615	S9	CCP Calculation Package: Development of Campaigns 69 and M5 Inventories	ORNL-RH-15	04/19/2008
U616	S9	CCP Calculation Package: Direct Assay Information Input Check	ORNL-RH-16	05/13/2008
U617	S9	CCP Calculation Package: Direct Assay Data Analysis	ORNL-RH-17	05/13/2008
U618	S9	CCP Calculation Package: Scaling Factor Development for Mark 42 Time Period	ORNL-RH-18	04/19/2008
U620	S9	CCP Calculation Package: Fission Product Contribution to Total Dose Rate	ORNL-RH-20	04/19/2008
U621	S9	CCP Calculation Package: Sample Scaling Factor Development	ORNL-RH-21	04/19/2008
U622	S9	CCP Calculation Package: SR-90/Cs-137 Scaling Factor Development	ORNL-RH-22	05/14/2008
U623	S9	CCP Calculation Package: DTC Spreadsheet for Mark 42 Time-HFIR/HFIR	ORNL-RH-23	05/22/2008
U626	S9	CCP Calculational Package for: Determination of Neutron Surface to 1-m Dose Ratio	ORNL-RH-26	05/23/2008
U627	S9	CCP Calculational Package for: Ratio BetweenContact and One Meter Dose Rates	ORNL-RH-27	05/23/2008

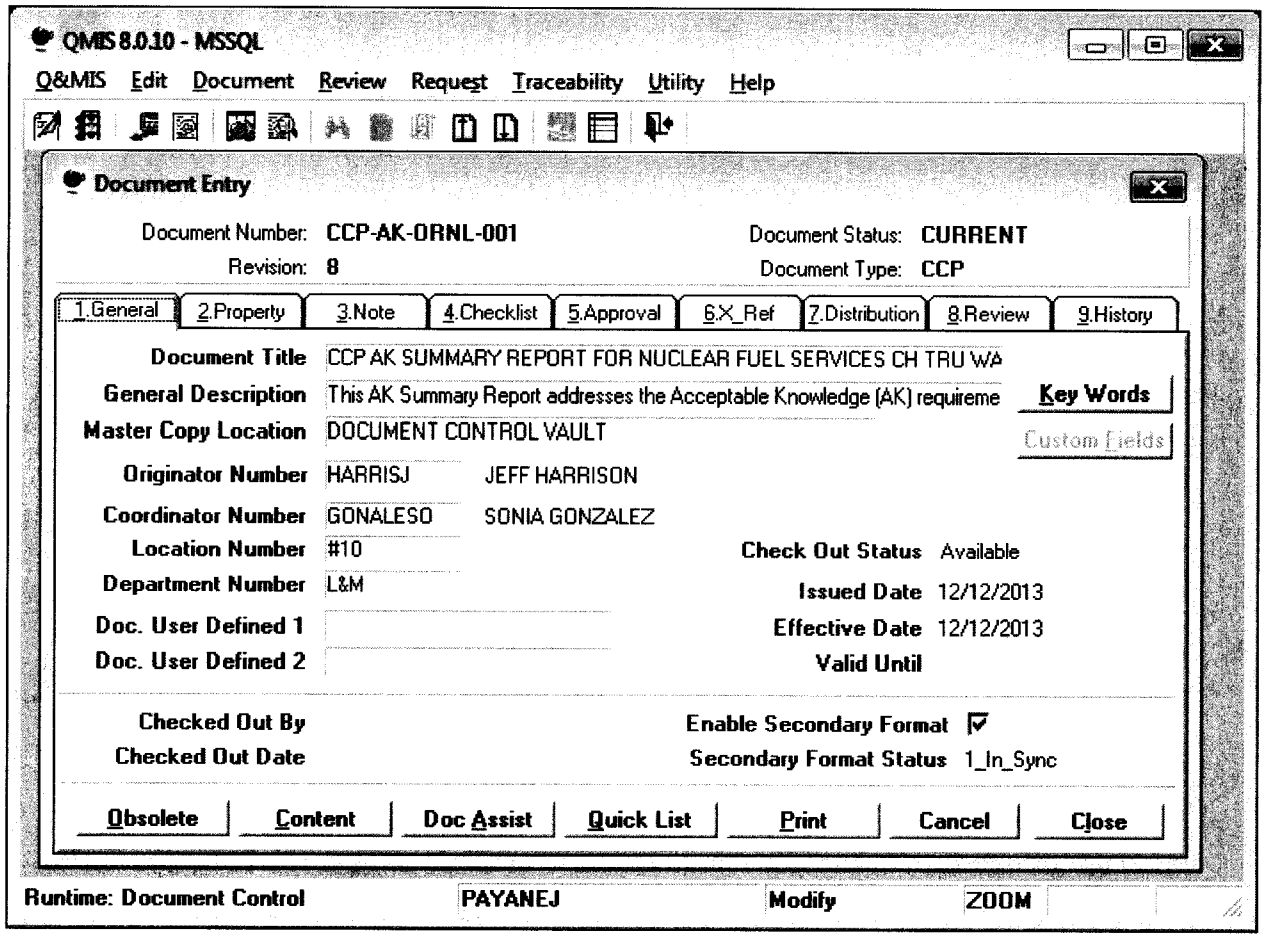
Alphanumeric Designations

C Correspondence
D Documents
DR Discrepancy Resolution
M Miscellaneous
P Procedures and Published Documents
U Unpublished Documents

AK Numbers

S1 Process Design Documents
S2 Standard Operating Procedure
S3 Safety Analysis Reports
S4 Waste Packaging Logs
S5 Test plans/research project reports
S6 Site databases
S7 Information from site personnel
S8 Standard industry documents
S9 Previous analytical data
S10 Material safety data sheets
S11 Laboratory Notebooks
S12 Comparable or surrogate sampling and analysis data
S13 Other

AK8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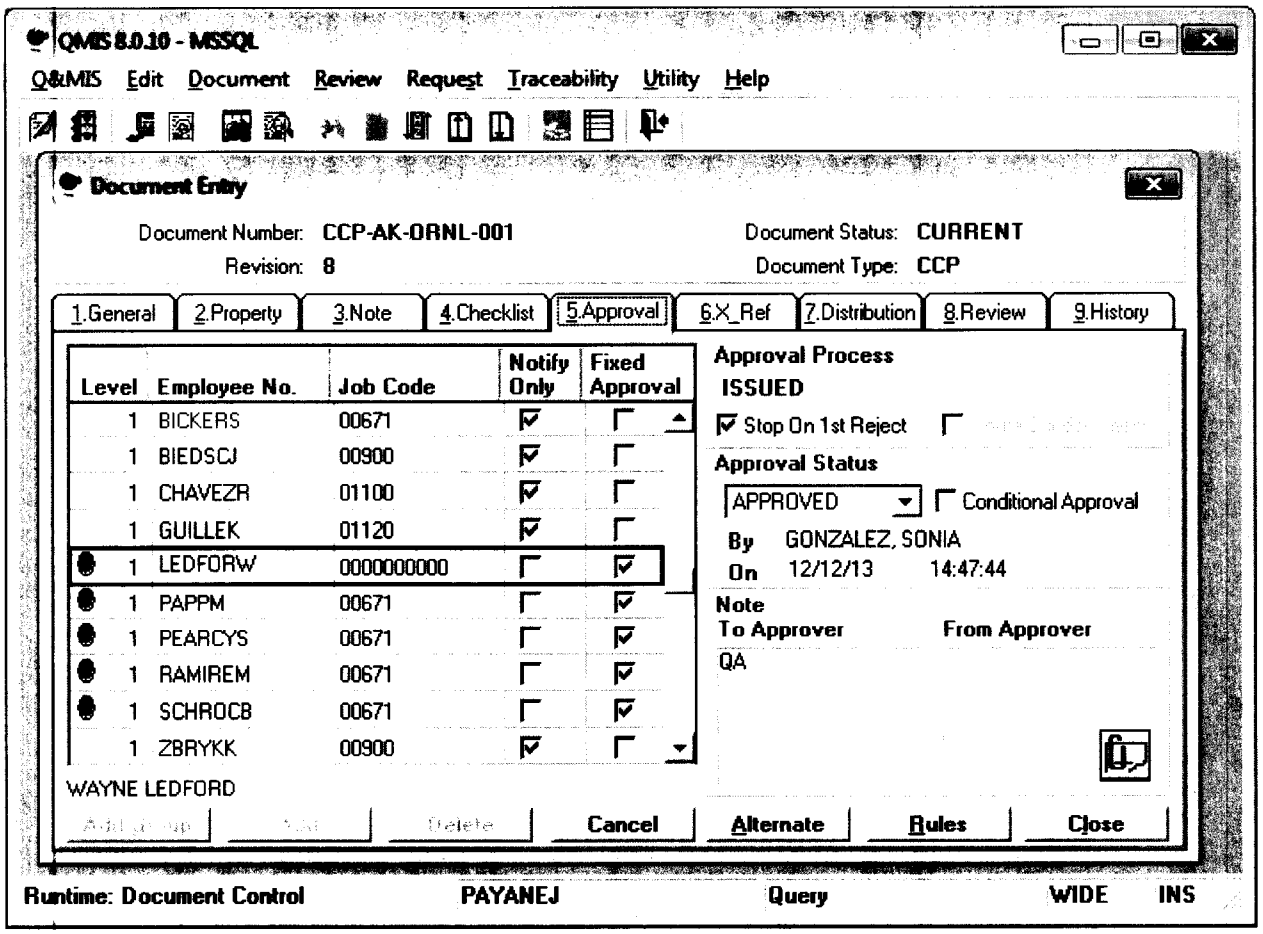
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1 GUILLEK 01120
1 LEDFORW 0000000000
1 PAPPM 00671
1 PEARCYS 00671
1 RAMIREM 00671
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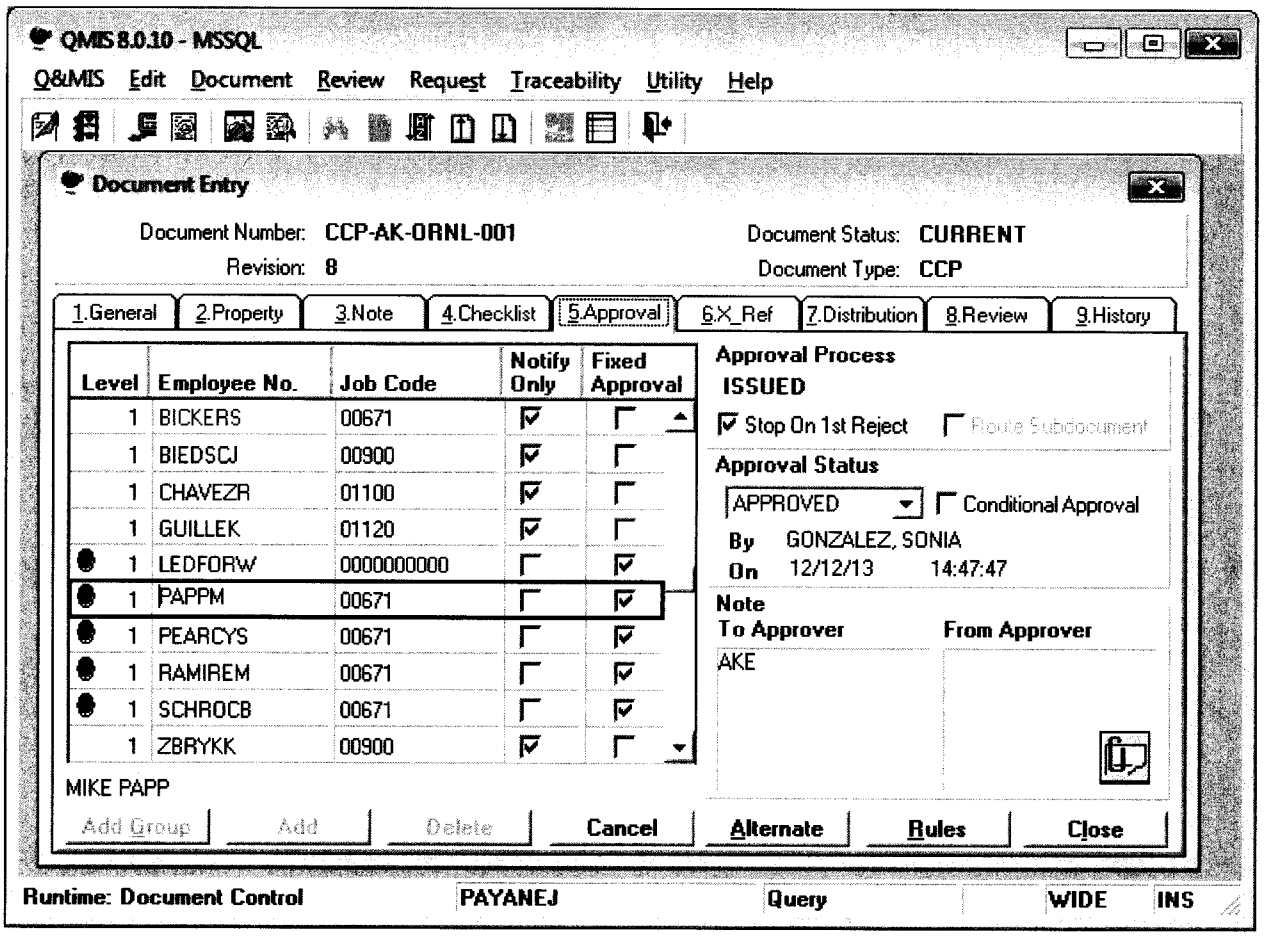
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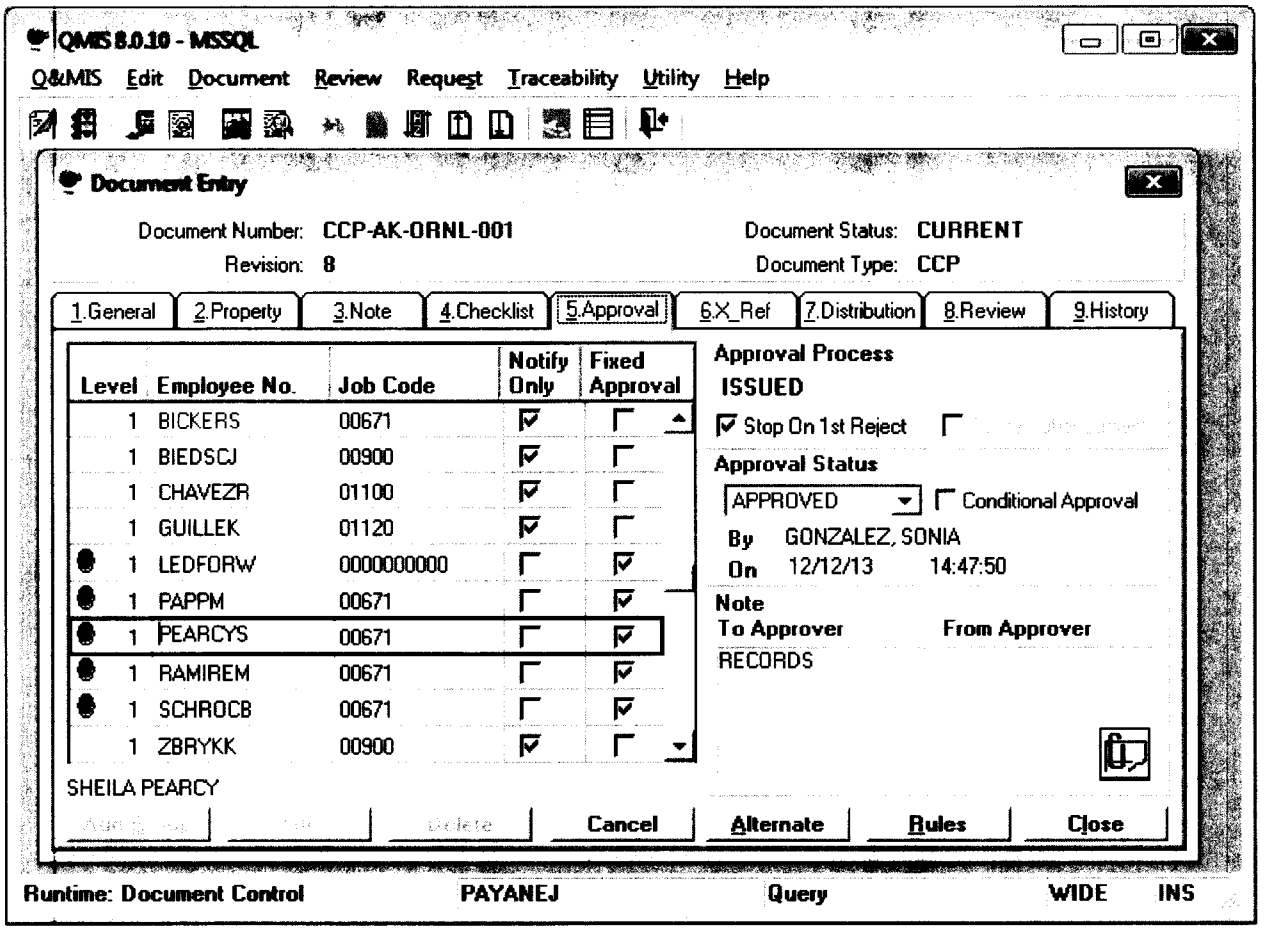
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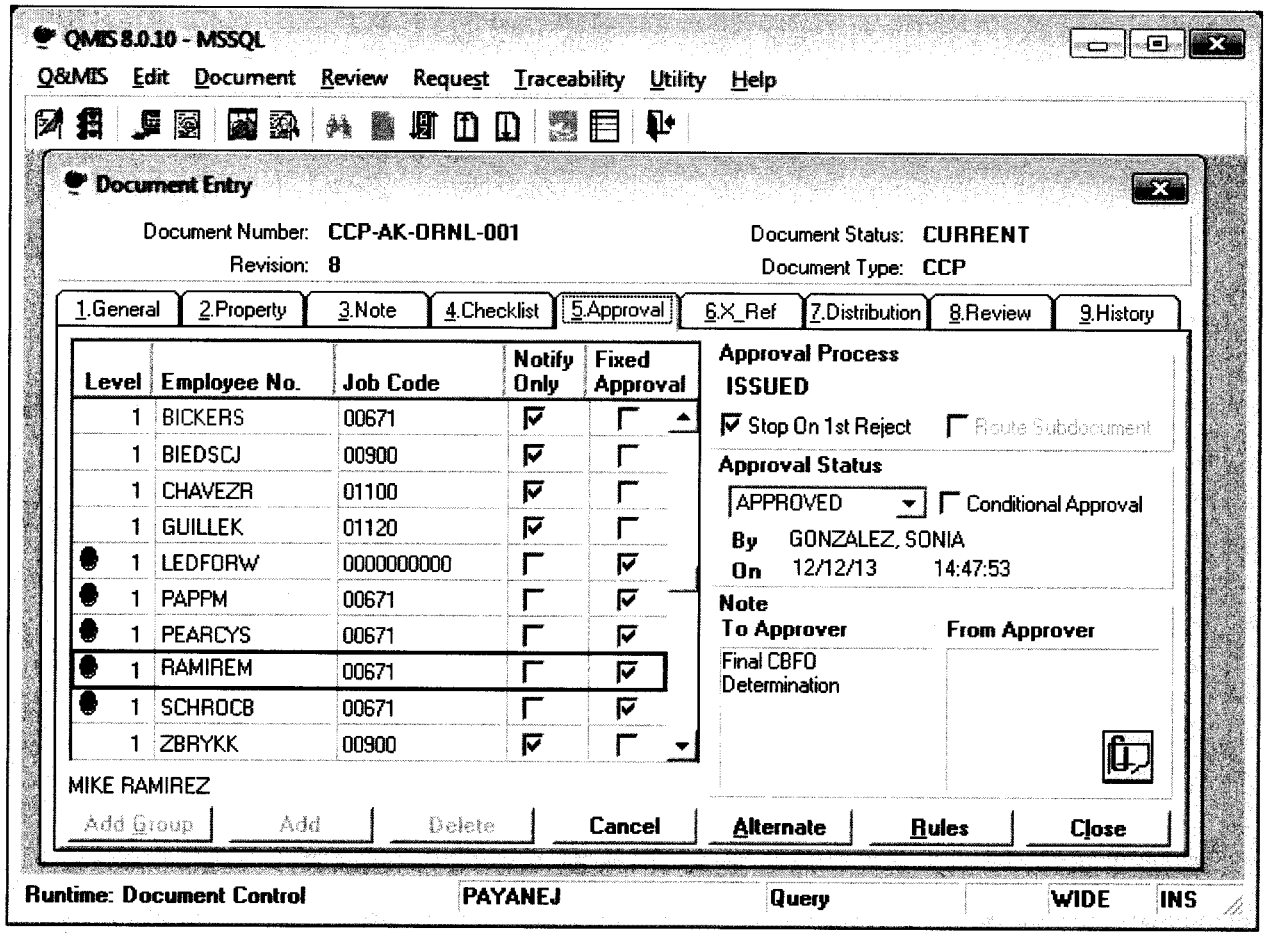
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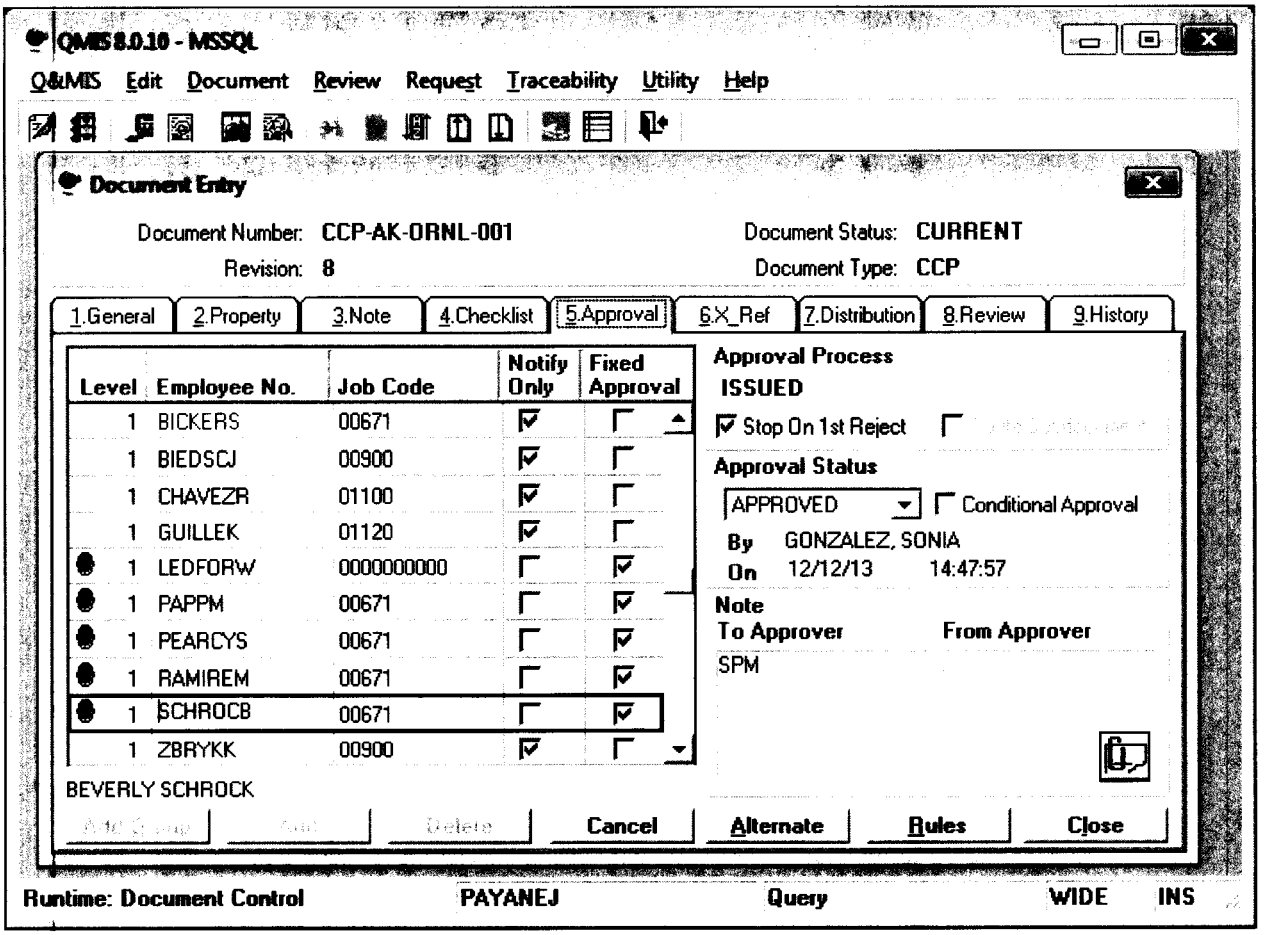
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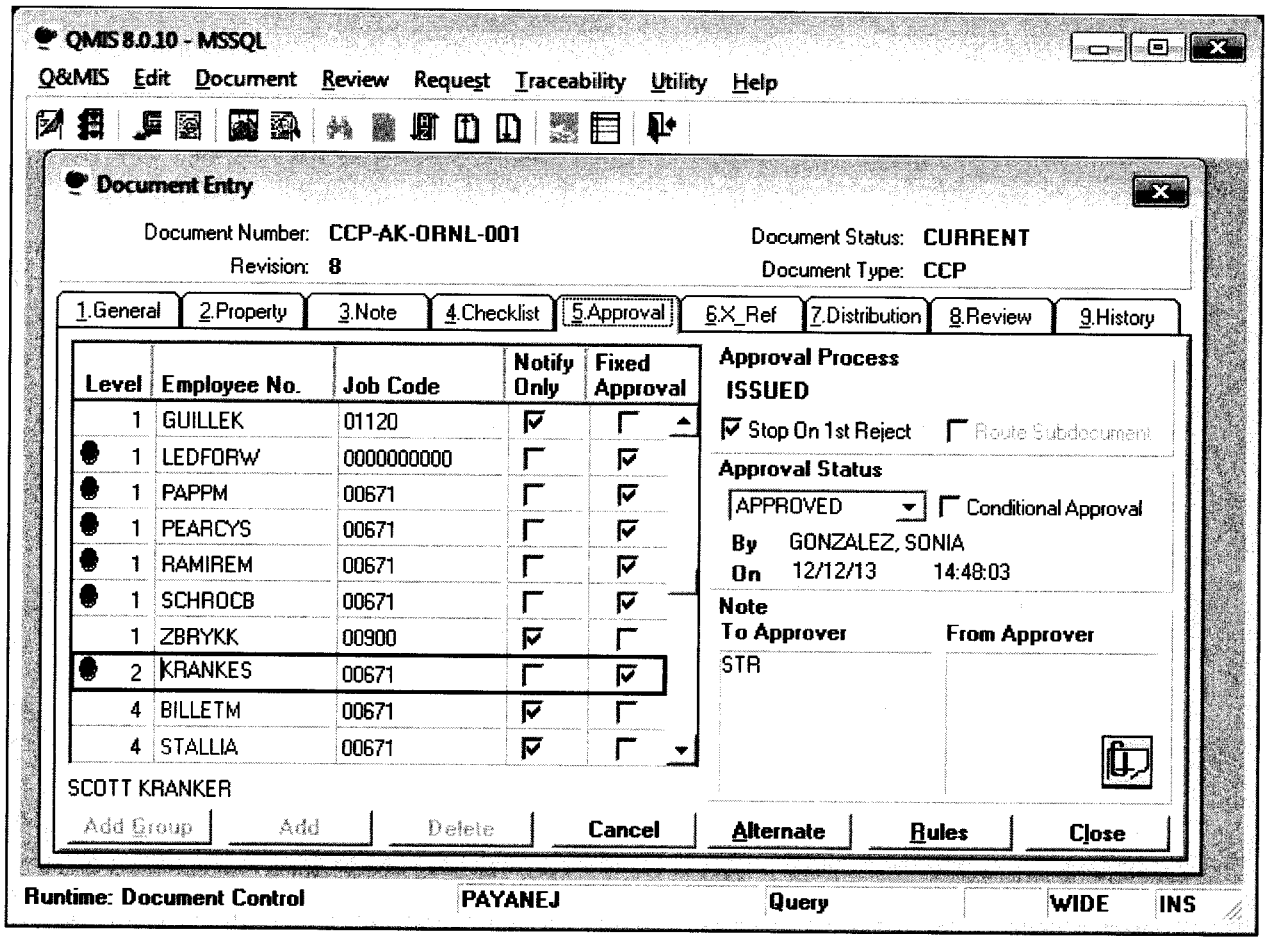
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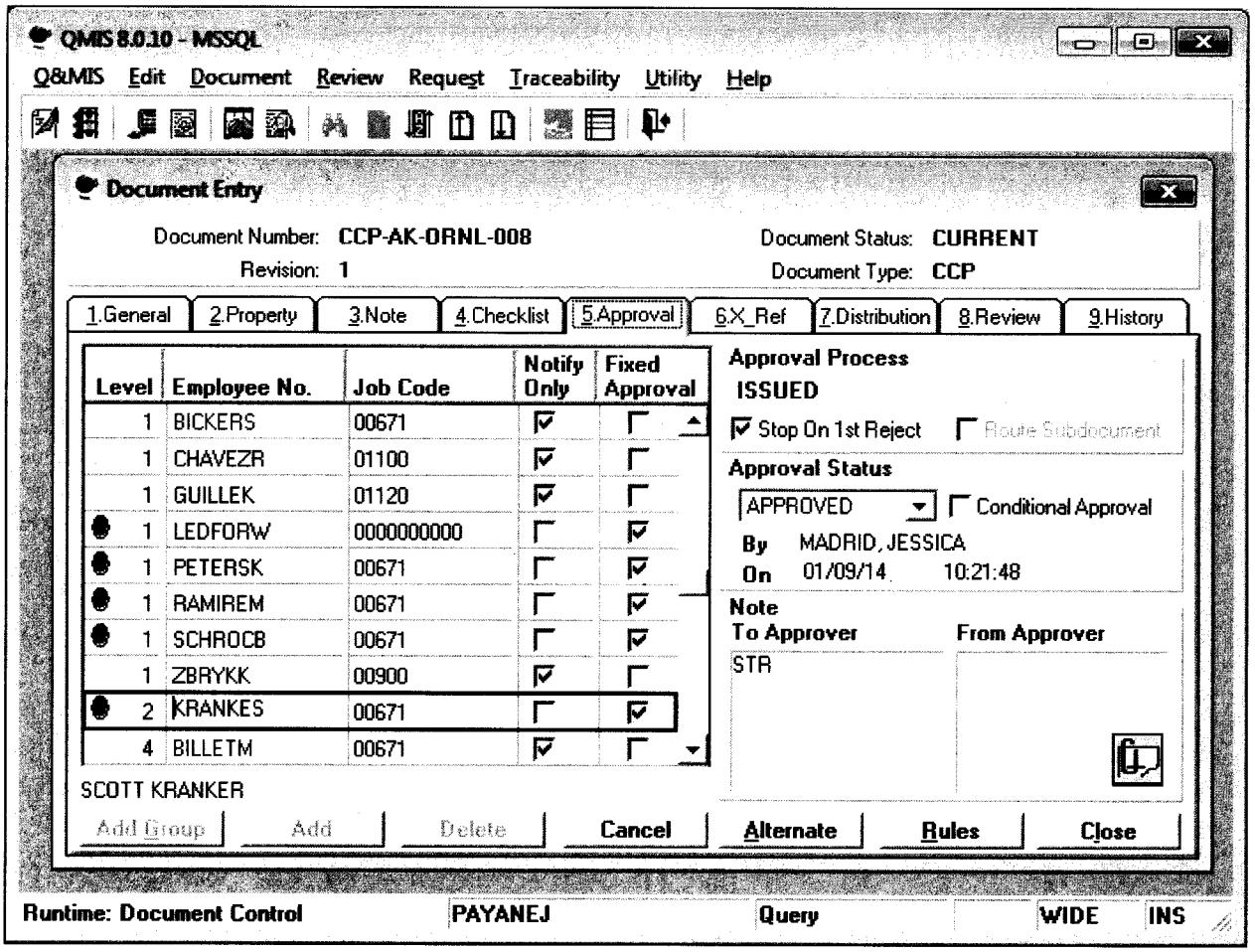
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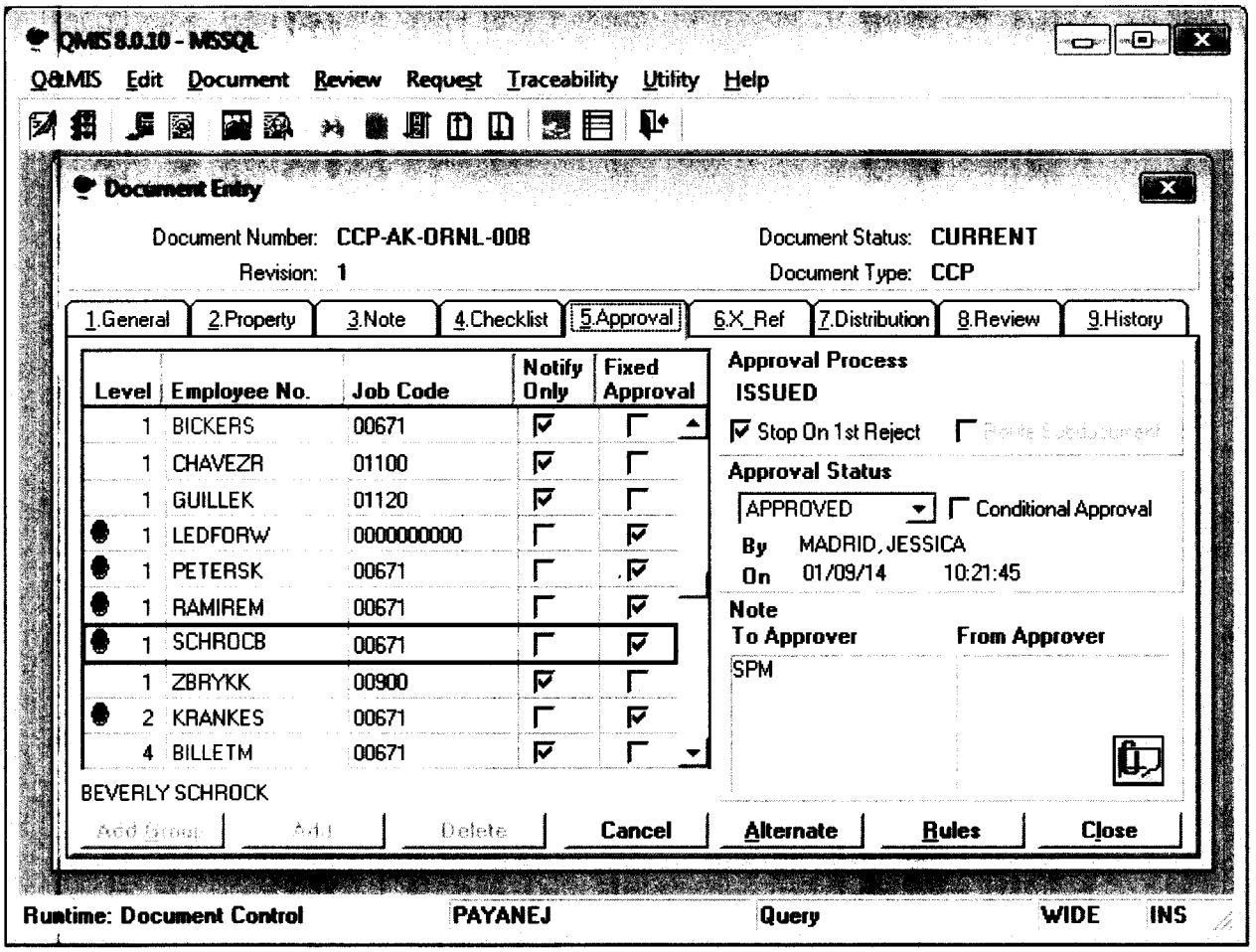
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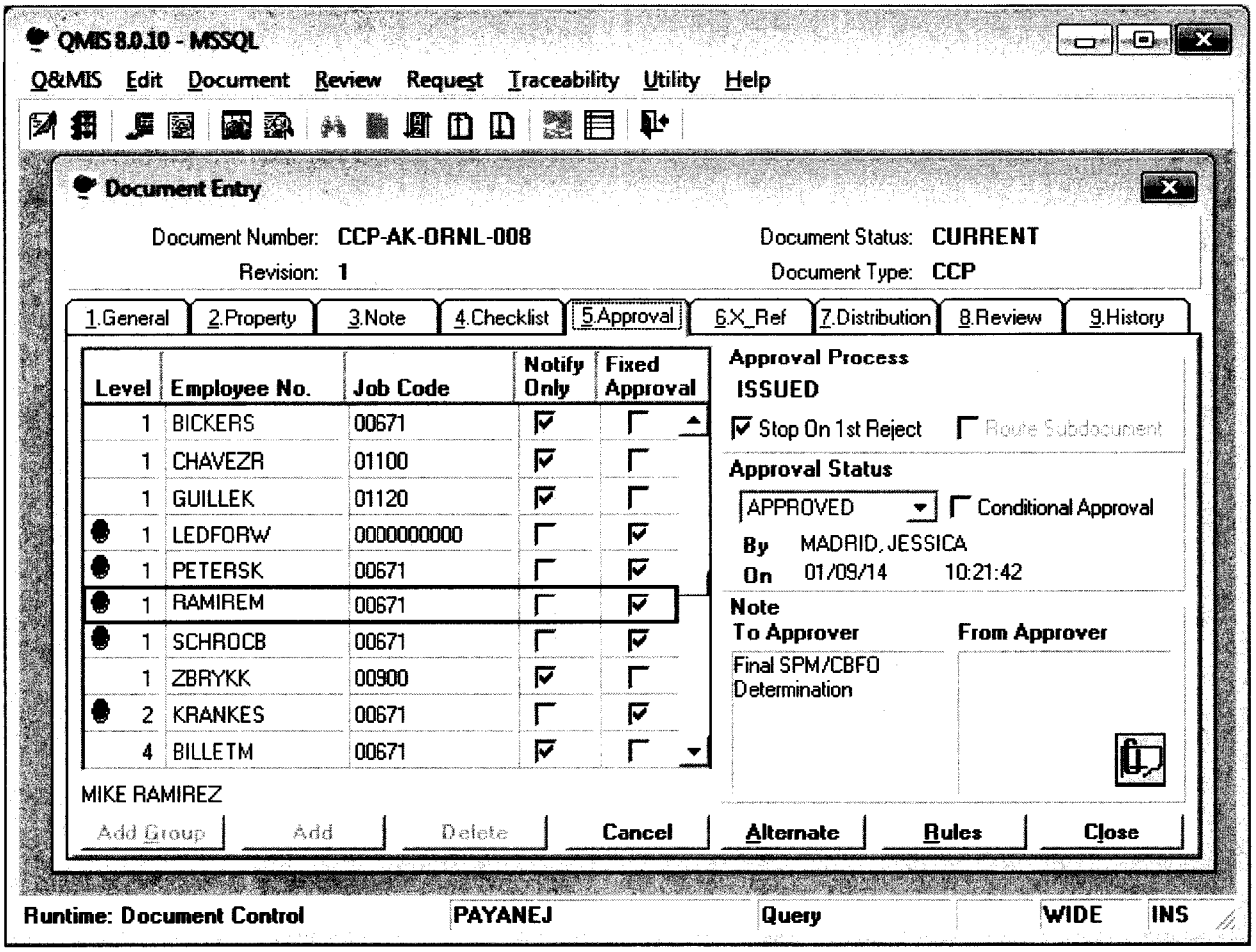
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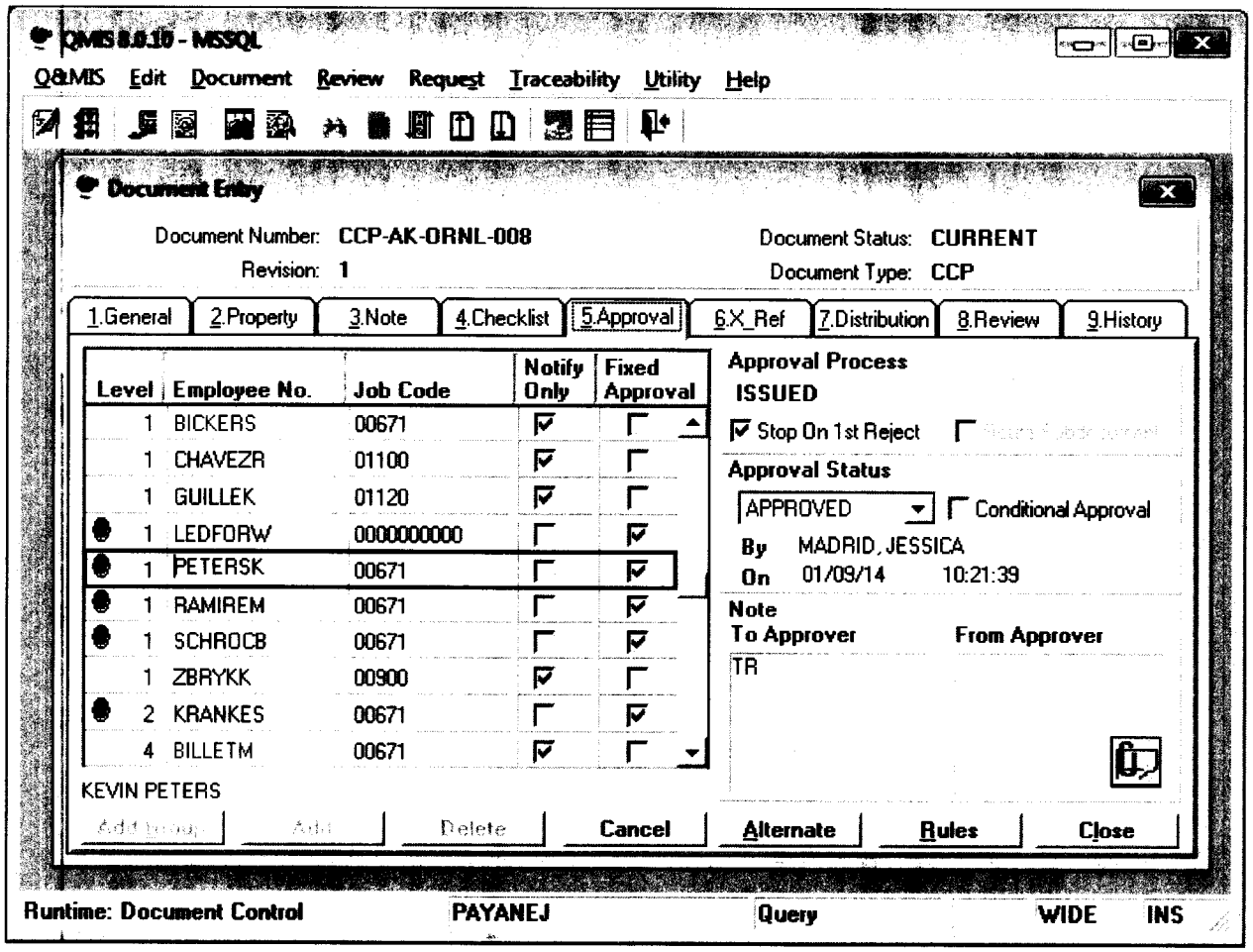
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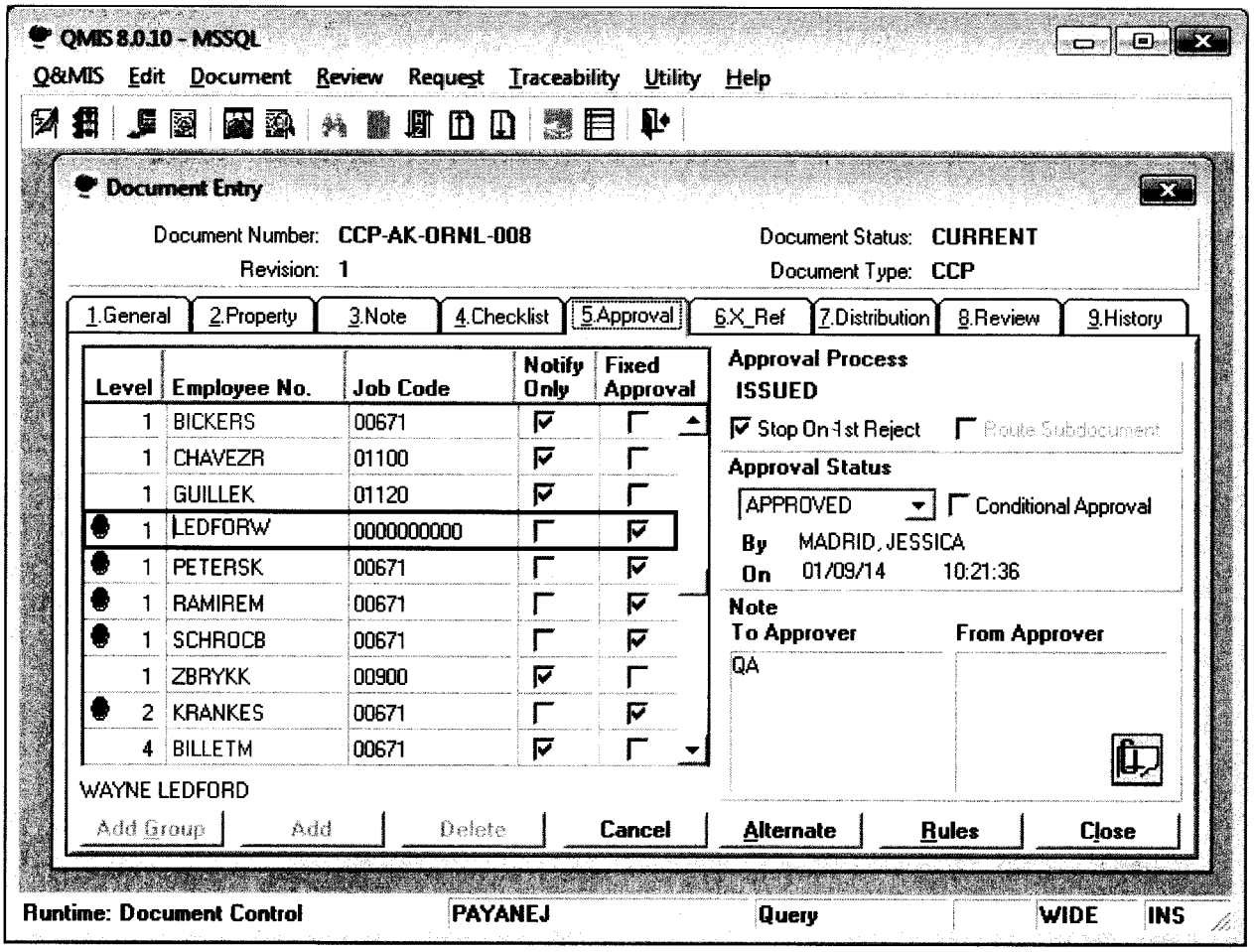
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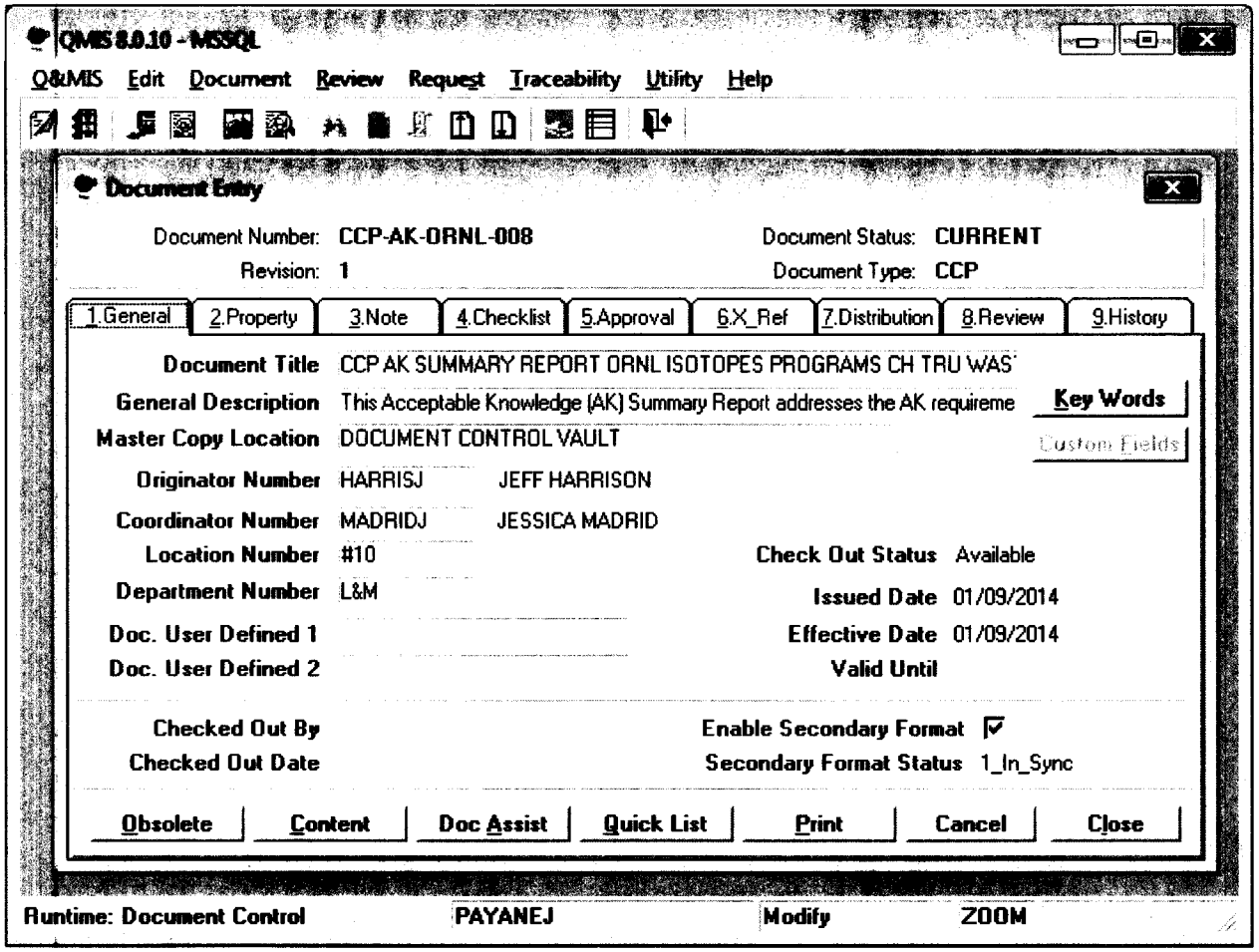
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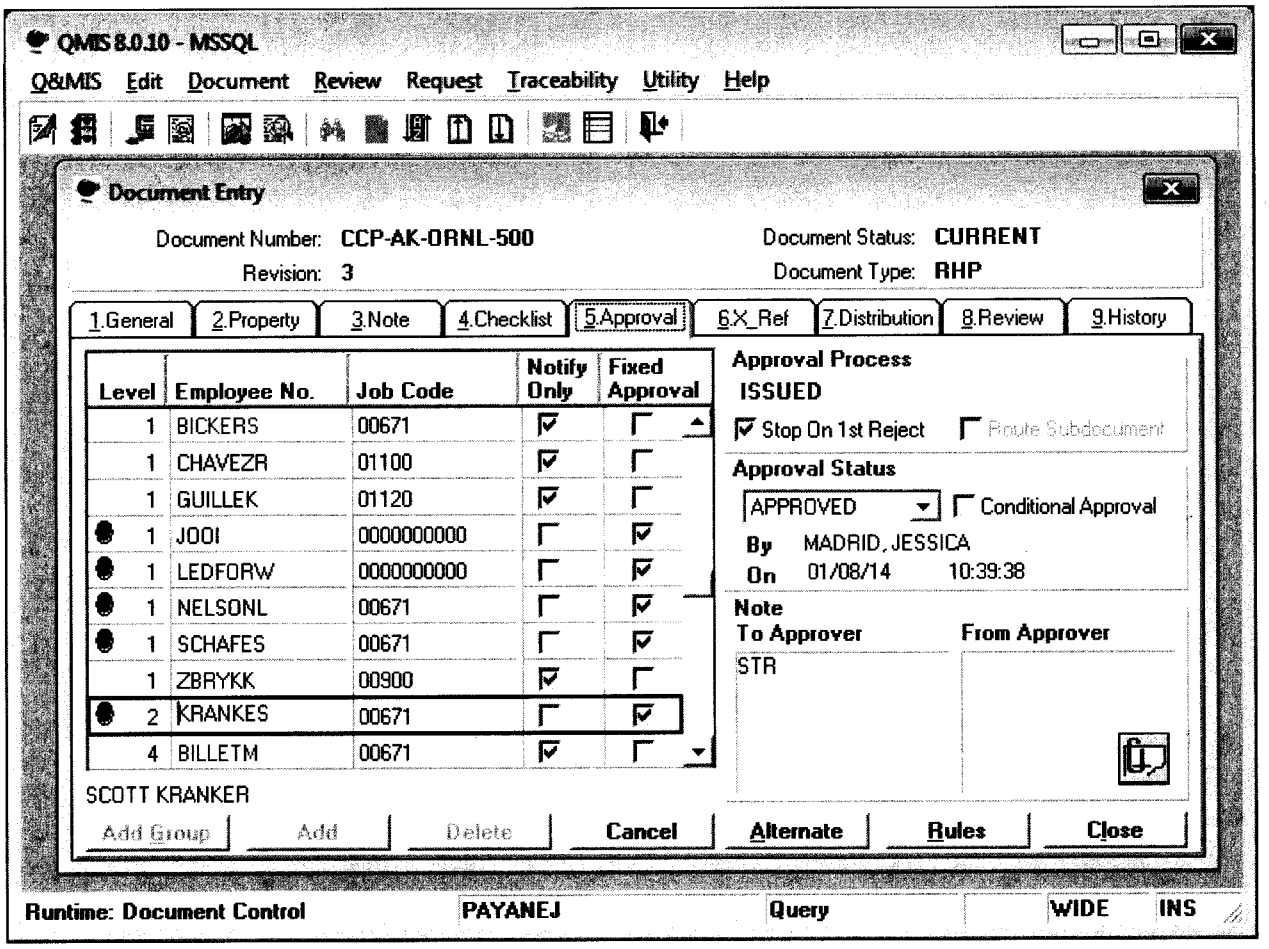
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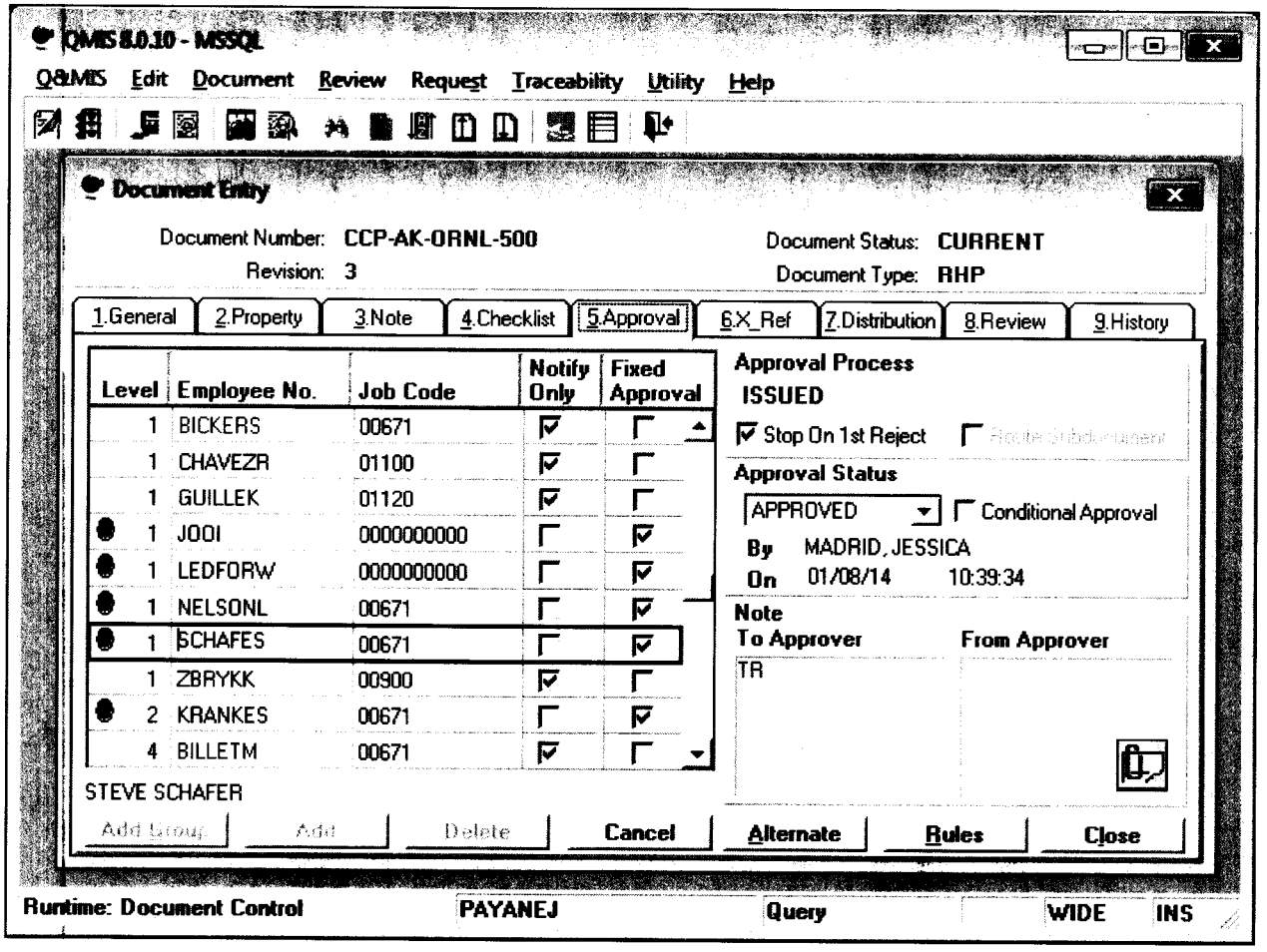
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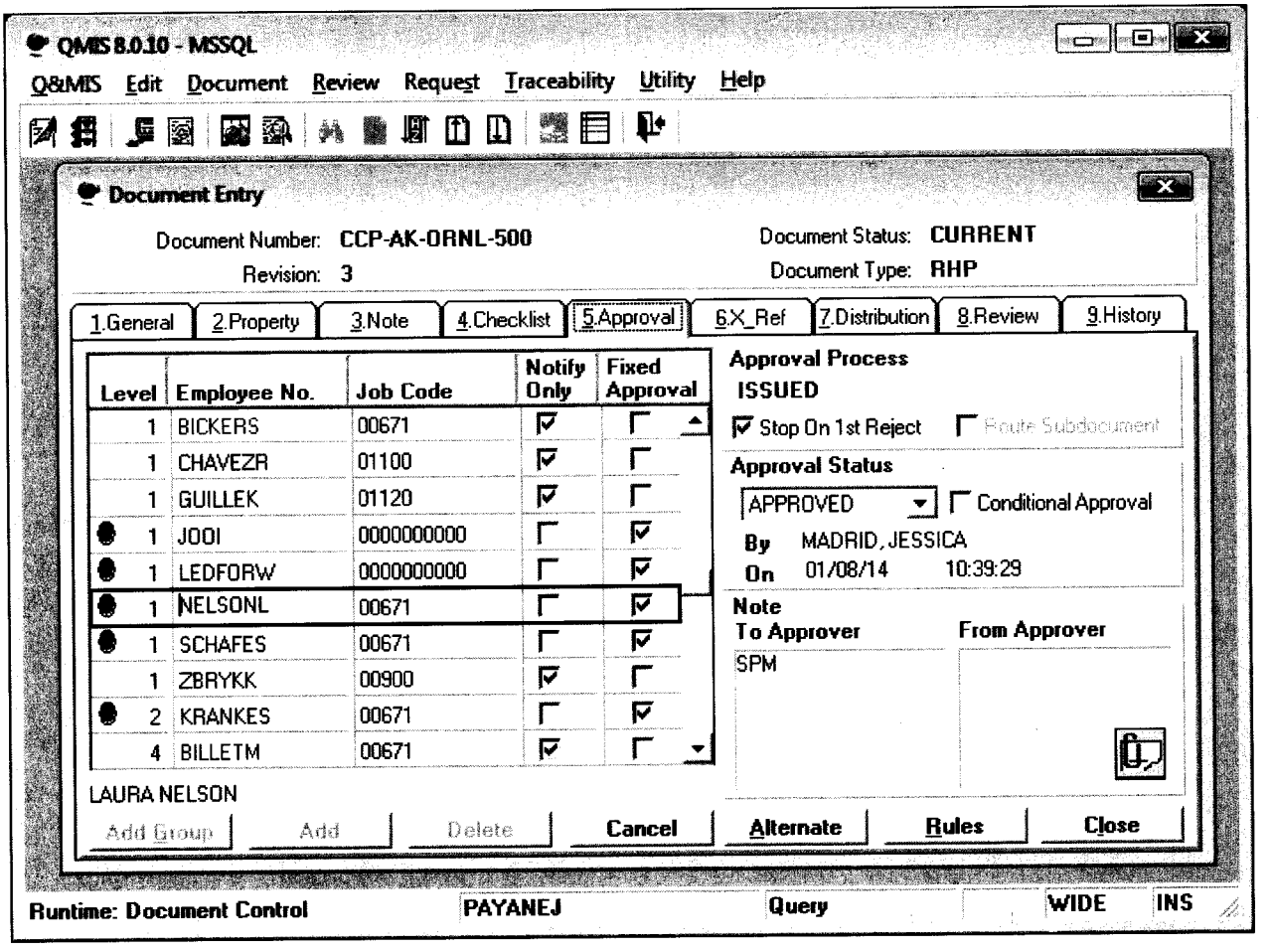
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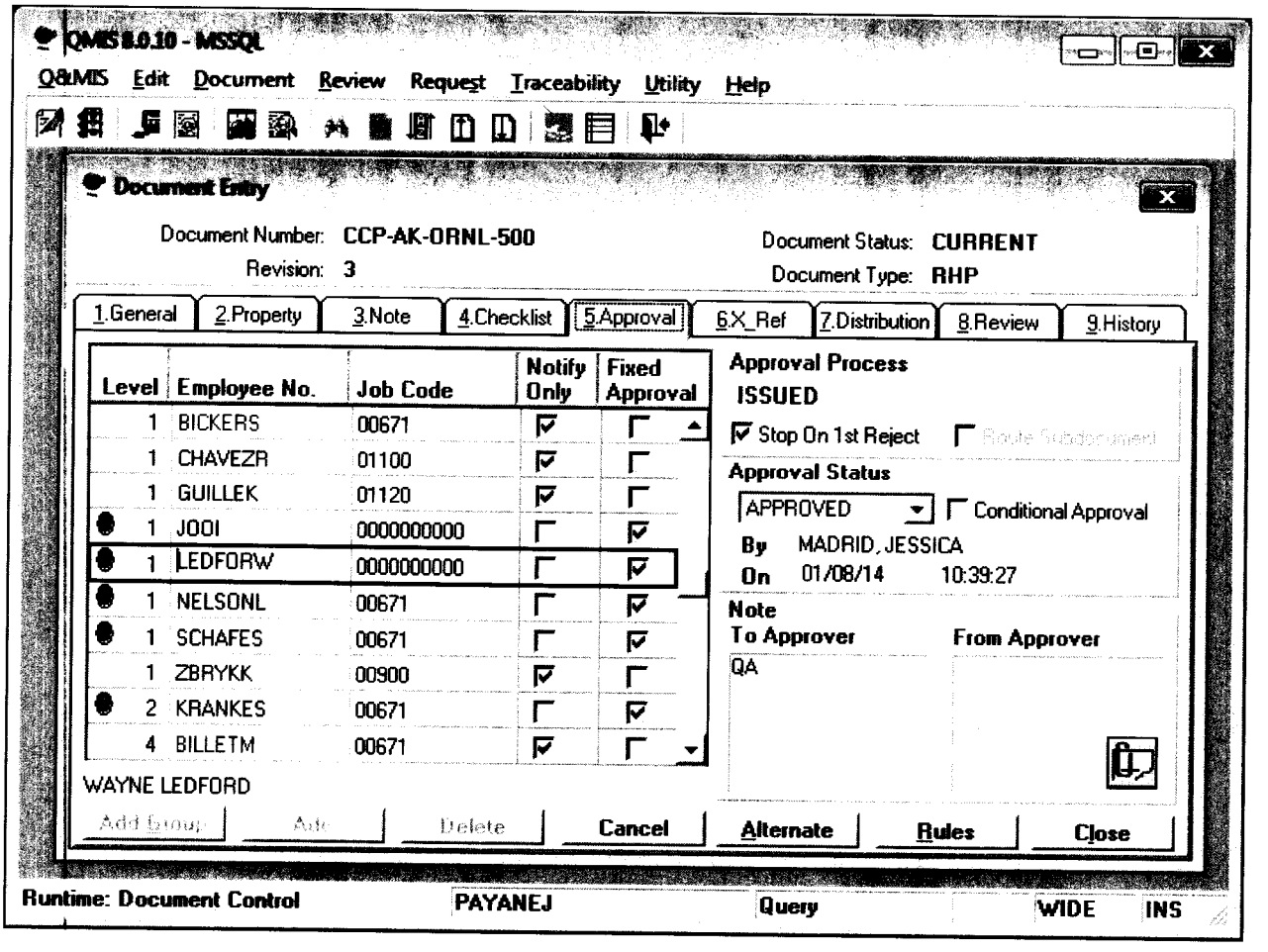
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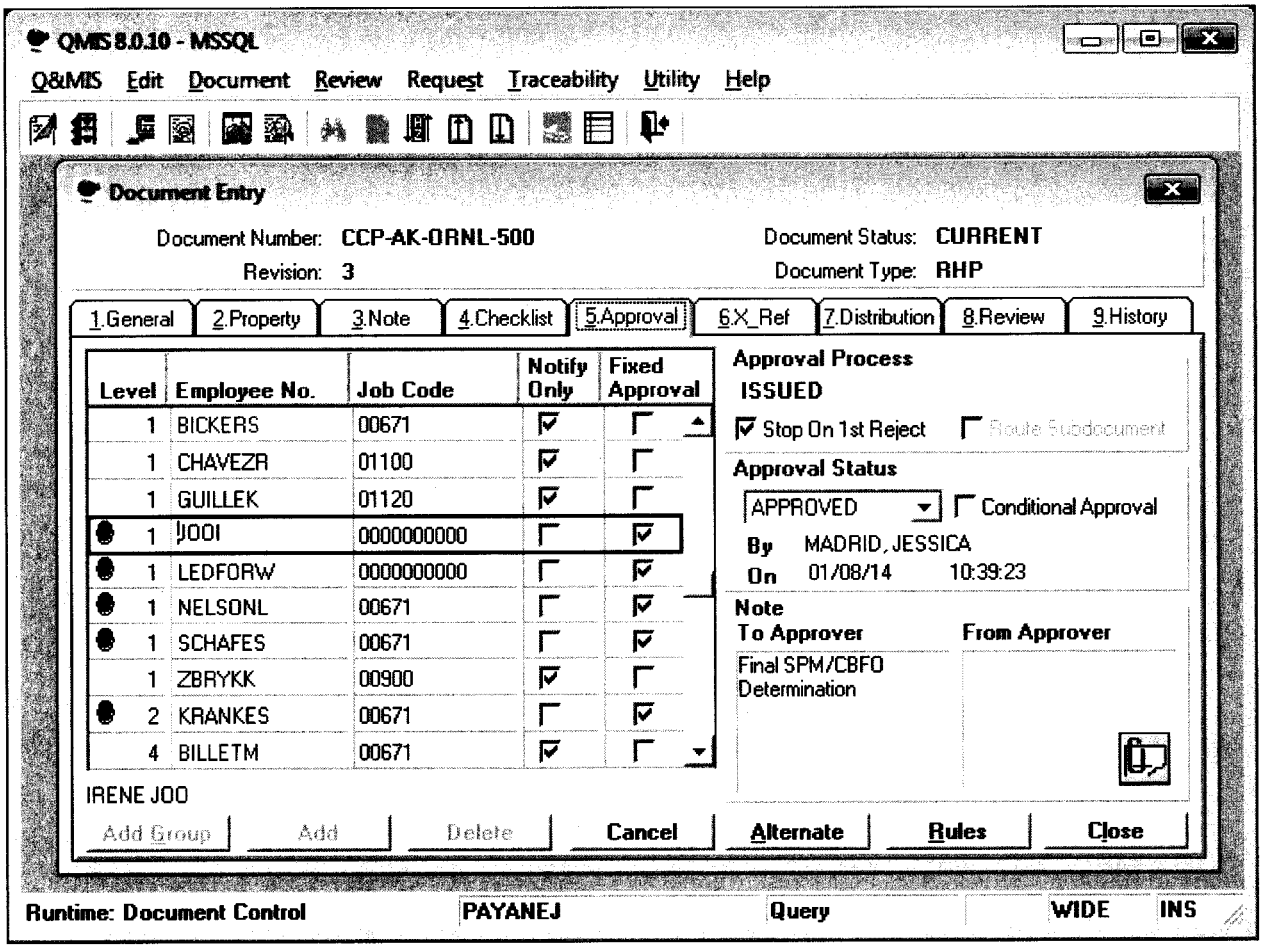
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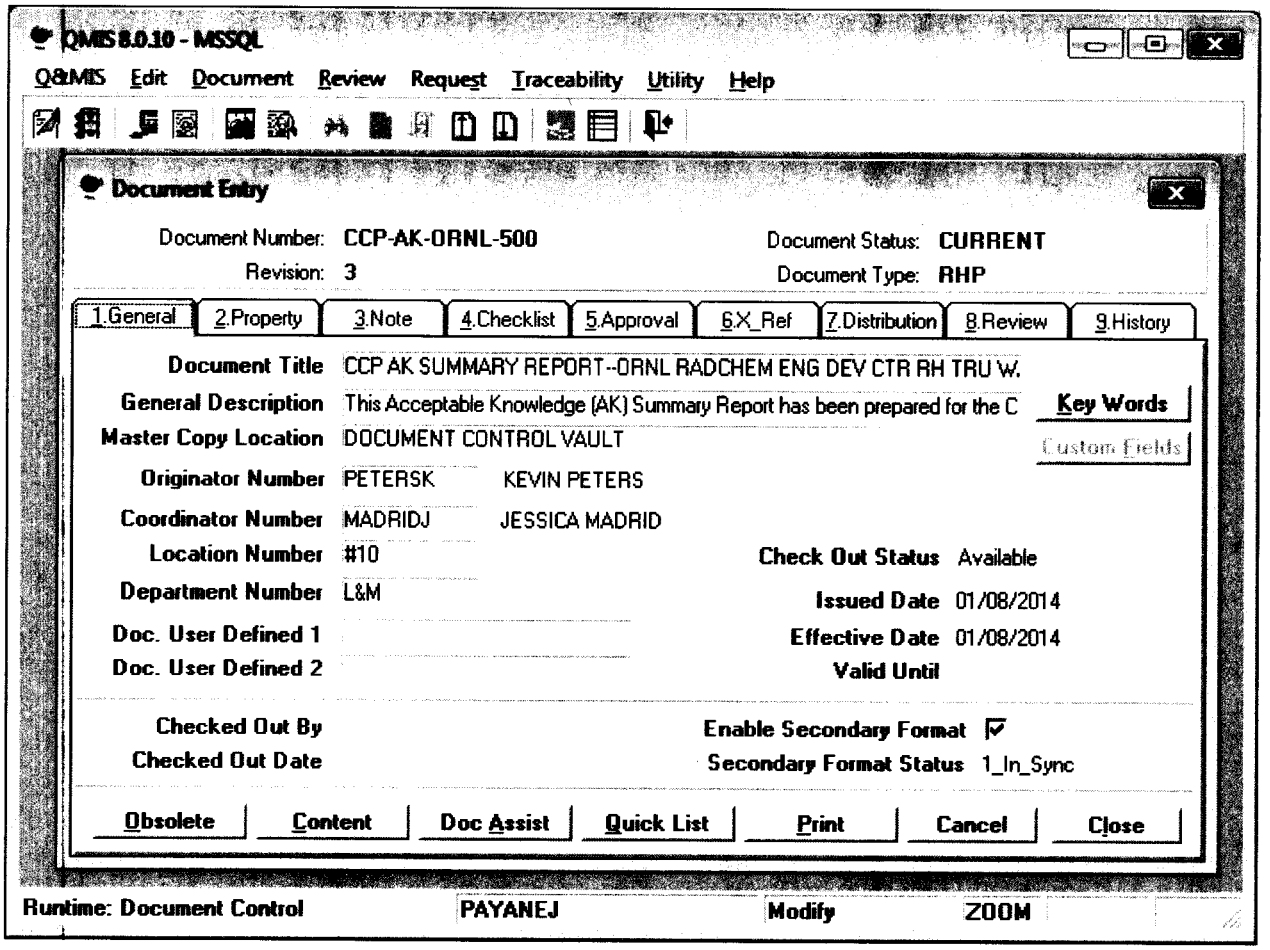
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Title or Description of Source Document [a]: Contact Handled Waste Acceptance Criteria	
Source Document Reference Information (author(s), document and revision number, date, publisher): NA, CH-X-AD-001, Rev. 5, 11, 13, 14, 15, & 25, 10/19/2006-08/29/2013, TWPC	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR8	Throughout	This document established the Transuranic (TRU) Waste Processing Center (TWPC) Waste Acceptance Criteria (WAC) for the acceptance of Contact Handled (CH) waste at the TWPC for characterization and processing. Revisions 5, 11, 13, and 14 are included. 6.3 - TRU waste definition 6.4 - Mixed TRU waste definition 8.1 - Free liquids prohibition 8.2 - FGE limits 8.3 - Dose limits 8.4 - Size/volume of waste containers 8.6 - Waste matrix Code 8.9 - Waste container integrity 8.10 - Vented containers 8.11 - Non-compliant hazardous wastes Revision 11 made the following changes: (1) add waste containers that are classified as soil and 92) adds case by case approval of containers that are not on an approved AK/PK list. Rev. 13 made the following changes: Updated for incoming previously processed drums. Rev. 14 made the following changes: Revised to remove prohibition of regulated asbestos. Rev. 15 made the following changes: Revision to WAC required for DVS start-up and DSA/TSR Rev 19 and 20.

CCP RECORDS ORIGINAL EPF
DATE REC'D 12/30/2013

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: P255
Source Document Data Limitations (if any): 1. None.	
Acceptable Knowlege Expert: Travis Smith / [signature] Date: 12/05/2013 Print /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

Contact Handled Waste Acceptance Criteria

Implementation Date: 6/29/10

APPROVAL:

RC McKay
General Manager

6/23/10
Date

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Revision Summary

Revision	Change Summary
0	Initial issue
1-5	Previously issued
6	Implement Criticality program.
7	Corrective Actions from IVR
8	Implement DSA/TSR Rev 15 changes
9	CH Clarifications to coincide with new RH WAC
10	Procedure updated to reflect corrections on PE Ci limit and removal of lid restraint requirement for overpack drums.
11	Document revised to allow for case by case acceptance of waste containers that are not on an approved AK/PK list and also to allow for waste containers that are classified as soil.
12	Revised to remove the prohibition of pressurized gases at TWPC.
13	Update for incoming previously processed drums
14	Revised to remove prohibition of regulated asbestos.
15	Revision to WAC required for DVS start-up and DSA/TSR Rev 19 and 20

Current Revision Specific Changes

Location	Description	Reason
Section 7.1	Add: Overpack containers shall not exceed 130 PE-Ci individually.	Update
Section 7.9	Remove: Acceptability of unvented drums with lid restraints installed (i.e., incoming drums must be equipped with a filter vent).	Update

1.0 PURPOSE

This document establishes the Transuranic (TRU) Waste Processing Center (TWPC) Waste Acceptance Criteria (WAC) for the acceptance of Contact Handled (CH) waste (hereinafter, waste) at the TWPC for characterization and processing.

By establishing and implementing this WAC the TWPC:

- ensures the safe and compliant processing of contracted waste materials in accordance with the applicable permits and authorizations
- protects TWPC personnel, co-located workers, and the environment from chemical and radiological hazards associated with the contracted waste in compliance with applicable federal, state, and local laws and regulations

Subject to the terms and conditions of the contract, the TWPC accepts waste material for processing that meets this WAC. The WAC has been developed to capture the requirements of the TWPC permits, Documented Safety Analysis (DSA) and other requirements as determined applicable.

The TWPC revises the WAC as determined appropriate to reflect changes to the contract, additional or alternate administrative controls, temporary physical controls, or other appropriate actions to ensure a safe and regulatory-compliant handling of the waste.

NOTE: This document is not used to determine acceptability of waste or waste packages for shipment to the Waste Isolation Pilot Plant (WIPP) or Nevada Test Site.

The CH WAC applies to the CH waste stream described in the current U.S. Department of Energy (DOE) Contract governing waste processing activities at the TWPC. The portion of these wastes that are Resource Conservation and Recovery Act (RCRA) wastes are stored by the TWPC in accordance with the facility Hazardous Waste Management Permit TNHW-145. The gaseous effluents from these wastes are permitted to be released to the environment by the facility Air Operating Permit Number #057077P. |

2.0 REFERENCES

- "TRU Waste Baseline Inventory Report for Oak Ridge," Revision 3, June 14, 1996
- DOE Facility CH-TRU Inventory, Revision 1, March 18, 1998
- TNHW-145, Hazardous Waste Management Permit |
- Air Operating Permit Number #057077P
- CM-R-AD-001, Documented Safety Analysis
- T-CH-FW-C-WP-001, Maximum Plutonium Equivalent Curies for Drum with One NFT-019DS Filter Vent
- Contact Handled Transuranic Waste Acceptance Criteria for Waste Isolation Pilot Plant, DOE/WIPP-02-3122
- Nevada Test Site, Waste Acceptance Criteria, DOE/NV-325

3.0 MAINTENANCE

The Director of Waste Management is designated the document owner and is responsible for updating this document. Approval authority rests with the General Manager. Submit suggestions for revisions or improvement to the Director of Waste Management.

4.0 GENERAL ACCEPTANCE

Waste containers are authorized onto the TWPC for the purposes of verifying Acceptable Knowledge (AK)/Process Knowledge (PK), characterization, treatment, packaging, or repackaging. Accordingly, certain conditions or characteristics of the waste may not be known prior to receipt of wastes at the TWPC. Initial waste receipt and/or the conduct of other preliminary characterizations shall not be construed as unqualified acceptance of the waste or portions thereof. The TWPC reserves the right, in accordance with its contract, Memoranda of Understanding, permits, and approved DSA, to segregate and/or return to the DOE wastes determined at any point in the process to exhibit non-compliant characteristics. This is particularly the case for the wastes packaged in boxes or in numerous layers of confinement in drums. The constituents therein may only be revealed or determined by Non-Destructive Examination, and successive disassembly and dissection during Repackaging.

5.0 WASTE TYPES

The TWPC accepts radioactive wastes, that once fully characterized by the TWPC meets one of the following definitions:

5.1 Contact Handled Waste

Waste that is less than 200mR/hr contact dose rate.

5.2 Low Level Waste (LLW)

Waste that contains at least a regulatory threshold concentration of radioactivity and is not classified as high-level waste, TRU waste or spent nuclear fuel or by-product material. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium may be classified as LLW provided the concentration of TRU is less than or equal to 100 nCi/g.

5.3 Mixed Low Level Waste (MLLW)

MLLW that contains hazardous constituents as defined by the RCRA. All RCRA Hazardous Codes are allowed.

5.4 Transuranic (TRU) Waste

Waste that is contaminated with alpha-emitting TRU radionuclides with half-lives greater than 20 years, at concentrations greater than 100 nCi/g at the time of assay. The origin of the waste must be designated as defense waste as defined by the DOE-Oak Ridge Operations (ORO).

5.5 Mixed Transuranic Waste

TRU waste that contains hazardous constituents as defined by the RCRA. All RCRA Hazardous Codes are allowed. The origin of the waste must be designated as defense waste as defined by the DOE-ORO.

6.0 NOTIFICATIONS

6.1 Waste Transfers

The transfer of waste (i.e., delivery of waste containers to the TWPC site) is controlled by approved TWPC procedures using transfer authorization forms submitted by the TWPC to the DOE or DOE designated Point of Contact (POC), such as the appropriate Management and Integration Contractor subcontractor. This authorization form serves as a formal request to DOE for container transfer. When completed by DOE and approved by the TWPC, it serves to notify the TWPC of incoming transfers. A just-in-time approach for the receipt of waste is utilized by the TWPC. Transfers may be cancelled or suspended due to severe weather, mutual agreement between the parties, other transfer route concerns, or inventory limits at the TWPC.

6.2 Packaging Changes

The contract references identify several characteristics of individual waste containers to be received (e.g., weight, volume, dimensions, etc.). Significant discrepancies identified during receipt inspection and initial processing shall be formally recorded by the TWPC and reflected during update of the waste stream AK report. However, if overpacking or other packaging changes are made prior to transfer, or discrepancies from the contract description are observed by the POC prior to transfer, these changes should be brought to the attention of TWPC management prior to the transfer to the TWPC of the affected containers (with as much advance notice as possible). Containers that are delivered to the TWPC without prior approval are returned to DOE if they cannot be accepted.

No formal pre-approval for packaging changes is required, assuming the changes are bounded by the contract documents.

The following information shall be communicated via the transfer authorization form, as applicable:

- date and time of intended transfer
- descriptions of atypical configurations for package loading
- extra packaging applied to original waste containers at the time of loading

6.3 Transfer Paperwork

6.3.1 Per the Hazardous Waste (RCRA) regulations and TWPC, no further manifesting of the waste transferred is expected.

6.3.2 The POC will provide a record of the transferred inventory that lists the individual unique numbers of the containers in each transfer.

7.0 WASTE ACCEPTANCE CRITERIA

7.1 Radioactive Material Content

Waste accepted by the TWPC is limited by the DSA such that criticality concerns are not credible.

Each container is evaluated based on best available generator and/or AK/PK information to ensure that the individual container Pu-239 Fissile Gram Equivalent (FGE) values (as calculated in accordance with CH-P-OP-014, Waste and Activity Inventory Control) are within the limits established in the DSA.

Incoming waste containers shall not exceed 309 PE Ci individually. Incoming waste containers shall not exceed 200 FGE (Pu-239) individually.

Overpack containers shall not exceed 130 PE-Ci individually.

7.2 Dose Limits

The TWPC DSA limits contact dose rates for individual waste containers acceptable for receipt and characterization to < 200 mR/hr.

The TWPC administratively limits contact dose rates for individual waste containers acceptable for receipt and characterization to < 40 mR/hr contact (localized higher doses may be case-approved by the TWPC).

7.3 Size/Volume of Waste Containers

Acceptable Drum Sizes and Configurations (nominal gallon)

Standard Drums

55 gallon

Overpack Drums

30 gallon in a 55 gallon

55 gallon in a 79 gallon

55 gallon in an 85 gallon

Incoming waste boxes shall not exceed the maximum length, width, or height dimensions of boxes identified in the contractual references. These dimensions are approximately:

Box sizes (max. dimensions)

8 ft x 6 ft x 10 ft
(L x W x H)

Box sizes (min. volume)

Standard B12 waste box or equivalent OR
21 cubic foot in volume

7.4 Loose Surface Contamination (exterior surface of container)

Beta Gamma

$< 1{,}000$ dpm/100 cm^2

Alpha

≤ 20 dpm/100 cm^2

7.5 Waste Matrix

Wastes shall be classified as either soils or debris.

7.6 Adequate Acceptable Knowledge or Process Knowledge

Incoming waste containers shall be identifiable as part of a waste stream for which adequate AK/PK has been accumulated, reviewed, and summarized. Wastes shall be of defense-origin as defined by the DOE-ORO.

If the container is not on an approved AK/PK list, the containers may be approved on a case by case basis by the Acceptable Knowledge Expert/Process Knowledge Expert using generator documents, such as 2109 forms or other equivalent documents.

7.7 Waste Container Identification

Incoming waste containers shall exhibit a unique container identification number consistent with contractual references.

7.8 Waste Container Integrity

Wastes shall be packaged in securely lidded metal boxes and drums. Incoming containers shall demonstrate the integrity defined in the DSA, which is verified by inspecting each container upon receipt using the following general criteria:

- no denting, deformation, breaches, creasing, cracking, or gouging that might reasonably compromise container integrity, expose the internal contents, or affect the closure of the container
- no significant rusting or a readily observable loss of metal due to oxidation (e.g., flaking, bubbling, pitting, or perforation) that causes perforation of the container
- no bulging or distortion indicative of over pressurization
- closure devices properly installed and secure

7.9 Vented Containers

Incoming drums shall be equipped with a securely installed DRUM FILTER-VENT with headspace gas sample results that do not exceed 32,000 ppm hydrogen equivalent content and 6,000 ppm total volatile organic compounds.

In some cases, incoming drums were previously processed at the TWPC and returned to DOE for temporary storage. These drums were properly vented with an approved filter during repack operations at the TWPC. When these previously processed drums are requested for transfer back to the TWPC, headspace gas sample results are not required for acceptance, as justified in T-CH-FW-C-WP-001, Maximum Plutonium Equivalent Curies for Drum with One NFT-019DS Filter Vent.

External shipping containers or overpacked containers, which are welded closed or fitted with a tight sealing closure device, are considered unvented containers. Containers (boxes) which are not fitted with tight sealing closure devices and incorporate metal to metal sealing surfaces or are fitted with closure gaskets are considered self-venting containers, and are not required to be mechanically vented.

7.10 Hazardous Wastes

All RCRA Hazardous Codes are allowed at the TWPC.

Additionally, incoming waste containers shall not be known to contain:

- regulated concentrations of Polychlorinated Biphenyl (PCB) (e.g., ≥ 50 ppm PCBs) – EXCEPTION: PCB bulk products and remediation wastes, e.g., ballasts, wiring, paint chips, are allowable
- dangerous constituents such as explosives, pyrophorics, etiologic agents, biological waste, or beryllium except for encased beryllium sources
- classified materials

8.0 WASTE ACCEPTANCE

Acceptance of waste is accomplished in accordance with approved TWPC procedures. The first steps for acceptance of transferred wastes are accomplished through the waste container request and authorization process. Transferred waste containers are verified as being consistent with the request for transfer document upon receipt of the conveyance. The unique container numbers are verified, as the waste is off-loaded. Waste packaging integrity, dose rates, surface contamination levels, sizes, venting, and hazardous waste labeling of the waste containers are verified at various points in the receipt process.

Some or all of the following techniques are used to confirm that WAC are satisfied for individual waste containers:

- Weighing
- Non-Destructive Assay
- Non-Destructive Examination
- Headspace Gas Sampling

9.0 NON-COMPLIANT WASTE

Waste containers or waste articles discovered to be non-compliant with this WAC shall be segregated from the waste stream as appropriate to maintain worker and public safety. The non-compliant condition shall be reported to DOE and Tennessee Department of Environment and Conservation, as appropriate. Disposition of non-compliant wastes shall be completed as promptly and safely as the DSA and permits require and may include return transfer to DOE.

10.0 RECORDS

There are no specific records created by this document.

11.0 ATTACHMENTS

Attachment A: Acronyms/Abbreviations and Definitions

Attachment A: Acronyms/Abbreviations and Definitions

Acronyms/Abbreviations:

AK – Acceptable Knowledge
CH – Contact Handled
DOE – U.S. Department of Energy
DSA – Documented Safety Analysis
FGE – Fissile Gram Equivalent
LLW – Low Level Waste
MLLW – Mixed Low Level Waste
ORO – Oak Ridge Office
PCB – polychlorinated biphenyl
PK – Process Knowledge
POC – Point of Contact (for waste transfers)
RCRA – Resource Conservation and Recovery Act
TRU – Transuranic
TWPC – TRU Waste Processing Center
WAC – Waste Acceptance Criteria
WIPP – Waste Isolation Pilot Plant

Terms and Definitions:

None

END OF DOCUMENT

DIVIDER PAGE ONLY

Not part of page count

Contact Handled Waste Acceptance Criteria

Implementation Date: 10/15/09

APPROVAL:

C B Thompson for Bob Mackey
Deputy General Manager

10/8/09
Date

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Revision Summary

Revision	Change Summary
0	Initial issue
1-5	Previously issued
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7	Corrective Actions from IVR
8	Implement DSA/TSR Rev 15 changes
9	CH Clarifications to coincide with new RH WAC
10	Procedure updated to reflect corrections on PE Ci limit and removal of lid restraint requirement for overpack drums.
11	Document revised to allow for case by case acceptance of waste containers that are not on an approved AK/PK list and also to allow for waste containers that are classified as soil.
12	Revised to remove the prohibition of pressurized gases at TWPC.
13	Update for incoming previously processed drums
14	Revised to remove prohibition of regulated asbestos.

Current Revision Specific Changes

Location	Description	Reason
7.10	Revised to remove prohibition of regulated asbestos.	Regulated asbestos is allowed onsite.

1.0 PURPOSE

This document establishes the Transuranic (TRU) Waste Processing Center (TWPC) Waste Acceptance Criteria (WAC) for the acceptance of Contact Handled (CH) waste (hereinafter, waste) at the TWPC for characterization and processing.

By establishing and implementing this WAC the TWPC:

- ensures the safe and compliant processing of contracted waste materials in accordance with the applicable permits and authorizations
- protects TWPC personnel, co-located workers, and the environment from chemical and radiological hazards associated with the contracted waste in compliance with applicable federal, state, and local laws and regulations

Subject to the terms and conditions of the contract, the TWPC accepts waste material for processing that meets this WAC. The WAC has been developed to capture the requirements of the TWPC permits, Documented Safety Analysis (DSA) and other requirements as determined applicable.

The TWPC revises the WAC as determined appropriate to reflect changes to the contract, additional or alternate administrative controls, temporary physical controls, or other appropriate actions to ensure a safe and regulatory-compliant handling of the waste.

NOTE: This document is not used to determine acceptability of waste or waste packages for shipment to the Waste Isolation Pilot Plant (WIPP) or Nevada Test Site.

The CH WAC applies to the CH waste stream described in the current U.S. Department of Energy (DOE) Contract governing waste processing activities at the TWPC. The portion of these wastes that are Resource Conservation and Recovery Act (RCRA) wastes are stored by the TWPC in accordance with the facility Hazardous Waste Management Permit TNHW-097. The gaseous effluents from these wastes are permitted to be released to the environment by the facility Air Operating Permit Number #057077P.

2.0 REFERENCES

- "TRU Waste Baseline Inventory Report for Oak Ridge," Revision 3, June 14, 1996
- DOE Facility CH-TRU Inventory, Revision 1, March 18, 1998
- TNHW-097, Hazardous Waste Management Permit
- Air Operating Permit Number #057077P
- CM-R-AD-001, Documented Safety Analysis
- T-CH-FW-C-WP-001, Maximum Plutonium Equivalent Curies for Drum with One NFT-019DS Filter Vent

- Contact Handled Transuranic Waste Acceptance Criteria for Waste Isolation Pilot Plant, DOE/WIPP-02-3122.
- Nevada Test Site, Waste Acceptance Criteria, DOE/NV-325.

3.0 MAINTENANCE

The Director of Waste Management is designated the document owner and is responsible for updating this document. Approval authority rests with the Deputy General Manager. Submit suggestions for revisions or improvement to the Director of Waste Management.

4.0 GENERAL ACCEPTANCE

Waste containers are authorized onto the TWPC for the purposes of verifying Acceptable Knowledge (AK)/Process Knowledge (PK), characterization, treatment, packaging, or repackaging. Accordingly, certain conditions or characteristics of the waste may not be known prior to receipt of wastes at the TWPC. Initial waste receipt and/or the conduct of other preliminary characterizations shall not be construed as unqualified acceptance of the waste or portions thereof. The TWPC reserves the right, in accordance with its contract, Memoranda of Understanding, permits, and approved DSA, to segregate and/or return to the DOE wastes determined at any point in the process to exhibit non-compliant characteristics. This is particularly the case for the wastes packaged in boxes or in numerous layers of confinement in drums. The constituents therein may only be revealed or determined by Non-Destructive Examination, and successive disassembly and dissection during Repackaging.

5.0 WASTE TYPES

The TWPC accepts radioactive wastes, that once fully characterized by the TWPC meets one of the following definitions:

5.1 Contact Handled Waste

Waste that is less than 200mR/hr contact dose rate.

5.2 Low Level Waste (LLW)

Waste that contains at least a regulatory threshold concentration of radioactivity and is not classified as high-level waste, TRU waste or spent nuclear fuel or by-product material. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium may be classified as LLW provided the concentration of TRU is less than or equal to 100 nCi/g.

5.3 Mixed Low Level Waste (MLLW)

MLLW that contains hazardous constituents as defined by the RCRA. All RCRA Hazardous Codes are allowed.

5.4 Transuranic (TRU) Waste

Waste that is contaminated with alpha-emitting TRU radionuclides with half-lives greater than 20 years, at concentrations greater than 100 nCi/g at the time of assay. The origin of the waste must be designated as defense waste as defined by the DOE-Oak Ridge Operations (ORO).

5.5 Mixed Transuranic Waste

TRU waste that contains hazardous constituents as defined by the RCRA. All RCRA Hazardous Codes are allowed. The origin of the waste must be designated as defense waste as defined by the DOE-ORO.

6.0 NOTIFICATIONS

6.1 Waste Transfers

The transfer of waste (i.e., delivery of waste containers to the TWPC site) is controlled by approved TWPC procedures using transfer authorization forms submitted by the TWPC to the DOE or DOE designated Point of Contact (POC), such as the appropriate Management and Integration Contractor subcontractor. This authorization form serves as a formal request to DOE for container transfer. When completed by DOE and approved by the TWPC, it serves to notify the TWPC of incoming transfers. A just-in-time approach for the receipt of waste is utilized by the TWPC. Transfers may be cancelled or suspended due to severe weather, mutual agreement between the parties, other transfer route concerns, or inventory limits at the TWPC.

6.2 Packaging Changes

The contract references identify several characteristics of individual waste containers to be received (e.g., weight, volume, dimensions, etc.). Significant discrepancies identified during receipt inspection and initial processing shall be formally recorded by the TWPC and reflected during update of the waste stream AK report. However, if overpacking or other packaging changes are made prior to transfer, or discrepancies from the contract description are observed by the POC prior to transfer, these changes should be brought to the attention of TWPC management prior to the transfer to the TWPC of the affected containers (with as much advance notice as possible). Containers that are delivered to the TWPC without prior approval are returned to DOE if they cannot be accepted.

No formal pre-approval for packaging changes is required, assuming the changes are bounded by the contract documents.

The following information shall be communicated via the transfer authorization form, as applicable:

- date and time of intended transfer
- descriptions of atypical configurations for package loading
- extra packaging applied to original waste containers at the time of loading

6.3 Transfer Paperwork

6.3.1 Per the Hazardous Waste (RCRA) regulations and TWPC, no further manifesting of the waste transferred is expected.

6.3.2 The POC will provide a record of the transferred inventory that lists the individual unique numbers of the containers in each transfer.

7.0 WASTE ACCEPTANCE CRITERIA

7.1 Radioactive Material Content

Waste accepted by the TWPC is limited by the DSA such that criticality concerns are not credible.

Each container is evaluated based on best available generator and/or AK/PK information to ensure that the individual container Pu-239 Fissile Gram Equivalent (FGE) values (as calculated in accordance with CH-P-OP-014, Waste and Activity Inventory Control) are within the limits established in the DSA.

Incoming waste containers shall not exceed 309 PE Ci individually. Incoming waste containers shall not exceed 200 FGE (Pu-239) individually.

7.2 Dose Limits

The TWPC DSA limits contact dose rates for individual waste containers acceptable for receipt and characterization to < 200 mR/hr.

The TWPC administratively limits contact dose rates for individual waste containers acceptable for receipt and characterization to < 40 mR/hr contact (localized higher doses may be case-approved by the TWPC).

7.3 Size/Volume of Waste Containers

Acceptable Drum Sizes and Configurations (nominal gallon)

Standard Drums

55 gallon

Overpack Drums

30 gallon in a 55 gallon

55 gallon in a 79 gallon

55 gallon in an 85 gallon

Incoming waste boxes shall not exceed the maximum length, width, or height dimensions of boxes identified in the contractual references. These dimensions are approximately:

Box sizes (max. dimensions)

8 ft x 6 ft x 10 ft
(L x W x H)

Box sizes (min. volume)

Standard B12 waste box or equivalent OR
21 cubic foot in volume

7.4 Loose Surface Contamination (exterior surface of container)

Beta Gamma

$< 1{,}000$ dpm/100 cm^2

Alpha

≤ 20 dpm/100 cm^2

7.5 Waste Matrix

Wastes shall be classified as either soils or debris.

7.6 Adequate Acceptable Knowledge or Process Knowledge

Incoming waste containers shall be identifiable as part of a waste stream for which adequate AK/PK has been accumulated, reviewed, and summarized. Wastes shall be of defense-origin as defined by the DOE-ORO.

If the container is not on an approved AK/PK list, the containers may be approved on a case by case basis by the Acceptable Knowledge Expert/Process Knowledge Expert using generator documents, such as 2109 forms or other equivalent documents.

7.7 Waste Container Identification

Incoming waste containers shall exhibit a unique container identification number consistent with contractual references.

7.8 Waste Container Integrity

Wastes shall be packaged in securely lidded metal boxes and drums. Incoming containers shall demonstrate the integrity defined in the DSA, which is verified by inspecting each container upon receipt using the following general criteria:

- no denting, deformation, breaches, creasing, cracking, or gouging that might reasonably compromise container integrity, expose the internal contents, or affect the closure of the container
- no significant rusting or a readily observable loss of metal due to oxidation (e.g., flaking, bubbling, pitting, or perforation) that causes perforation of the container
- no bulging or distortion indicative of over pressurization
- closure devices properly installed and secure

7.9 Vented Containers

Incoming drums shall either have a securely installed drum lid restraint, or be equipped with a securely installed WIPP approved filter vent with headspace gas sample results that do not exceed 32,000 ppm hydrogen equivalent content and 6,000 ppm total volatile organic compounds.

In some cases, incoming drums were previously processed at the TWPC and returned to DOE for temporary storage. These drums were properly vented with an approved filter during repack operations at the TWPC. When these previously processed drums are requested for transfer back to the TWPC, headspace gas sample results are not required for acceptance, as justified in T-CH-FW-C-WP-001, Maximum Plutonium Equivalent Curies for Drum with One NFT-019DS Filter Vent.

External shipping containers or overpacked containers, which are welded closed or fitted with a tight sealing closure device, are considered unvented containers. Containers (boxes) which are not fitted with tight sealing closure devices and incorporate metal to metal sealing surfaces or are fitted with closure gaskets are considered self-venting containers, and are not required to be mechanically vented.

7.10 Hazardous Wastes

All RCRA Hazardous Codes are allowed at the TWPC.

Additionally, incoming waste containers shall not be known to contain:

- regulated concentrations of polychlorinated biphenyl (PCB) (e.g., ≥ 50 ppm PCBs) – EXCEPTION: PCB bulk products and remediation wastes, e.g., ballasts, wiring, paint chips, are allowable
- dangerous constituents such as explosives, pyrophorics, etiologic agents, biological waste, or beryllium except for encased beryllium sources
- classified materials

8.0 WASTE ACCEPTANCE

Acceptance of waste is accomplished in accordance with approved TWPC procedures. The first steps for acceptance of transferred wastes are accomplished through the waste container request and authorization process. Transferred waste containers are verified as being consistent with the request for transfer document upon receipt of the conveyance. The unique container numbers are verified, as the waste is off-loaded. Waste packaging integrity, dose rates, surface contamination levels, sizes, venting, and hazardous waste labeling of the waste containers are verified at various points in the receipt process.

Some or all of the following techniques are used to confirm that WAC are satisfied for individual waste containers:

- Weighing
- Non-Destructive Assay
- Non-Destructive Examination
- Headspace Gas Sampling

9.0 NON-COMPLIANT WASTE

Waste containers or waste articles discovered to be non-compliant with this WAC shall be segregated from the waste stream as appropriate to maintain worker and public safety. The non-compliant condition shall be reported to DOE and Tennessee Department of Environment and Conservation, as appropriate. Disposition of non-compliant wastes shall be completed as promptly and safely as the DSA and permits require and may include return transfer to DOE.

10.0 RECORDS

The documents generated as a result of activities may be considered Quality Assurance records. Quality Assurance records are identified, classified, and maintained in accordance with CM-P-AD-049, Records Management, and CM-X-AD-026, Records Inventory Disposition Schedule. There are no specific records created by this document.

11.0 ATTACHMENTS

Attachment A: Acronyms/Abbreviations, Terms, and Definitions

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Acronyms/Abbreviations:

AK – Acceptable Knowledge

CH – Contact Handled

DOE – U.S. Department of Energy

DSA – Documented Safety Analysis

FGE – Fissile Gram Equivalent

LLW – Low Level Waste

MLLW – Mixed Low Level Waste

ORO – Oak Ridge Office

PCB – polychlorinated biphenyl

PK – Process Knowledge

POC – Point of Contact (for waste transfers)

RCRA – Resource Conservation and Recovery Act

TRU – Transuranic

TWPC – TRU Waste Processing Center

WAC – Waste Acceptance Criteria

WIPP – Waste Isolation Pilot Plant

Terms and Definitions:

None

END OF DOCUMENT

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Contact Handled Waste Acceptance Criteria

Implementation Date: 5-8-09

APPROVAL:

RC McKay

Deputy General Manager

5/6/09

Date

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Revision Summary

Revision	Change Summary
0	Initial issue
1-5	Previously issued
6	Implement Criticality program.
7	Corrective Actions from IVR
8	Implement DSA/TSR Rev 15 changes
9	CH Clarifications to coincide with new RH WAC
10	Procedure updated to reflect corrections on PE Ci limit and removal of lid restraint requirement for overpack drums.
11	Document revised to allow for case by case acceptance of waste containers that are not on an approved AK/PK list and also to allow for waste containers that are classified as soil.
12	Revised to remove the prohibition of pressurized gases at TWPC.
13	Update for incoming previously processed drums

Current Revision Specific Changes

Location	Description	Reason
7.9	Update for incoming previously processed drums	

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1.0 PURPOSE

This document establishes the Transuranic (TRU) Waste Processing Center (TWPC) Waste Acceptance Criteria (WAC) for the acceptance of Contact Handled (CH) waste (hereinafter, waste) at the TWPC for characterization and processing.

By establishing and implementing this WAC the TWPC:

- ensures the safe and compliant processing of contracted waste materials in accordance with the applicable permits and authorizations
- protects TWPC personnel, co-located workers, and the environment from chemical and radiological hazards associated with the contracted waste in compliance with applicable federal, state, and local laws and regulations

Subject to the terms and conditions of the contract, the TWPC accepts waste material for processing that meets this WAC. The WAC has been developed to capture the requirements of the TWPC permits, Documented Safety Analysis (DSA) and other requirements as determined applicable.

The TWPC revises the WAC as determined appropriate to reflect changes to the contract, additional or alternate administrative controls, temporary physical controls, or other appropriate actions to ensure a safe and regulatory-compliant handling of the waste.

NOTE: This document is not used to determine acceptability of waste or waste packages for shipment to the Waste Isolation Pilot Plant (WIPP) or Nevada Test Site.

The CH WAC applies to the CH waste stream described in the current U.S. Department of Energy (DOE) Contract governing waste processing activities at the TWPC. The portion of these wastes that are Resource Conservation and Recovery Act (RCRA) wastes are stored by the TWPC in accordance with the facility Hazardous Waste Management Permit TNHW-097. The gaseous effluents from these wastes are permitted to be released to the environment by the facility Air Operating Permit Number #057077P.

2.0 REFERENCES

- "TRU Waste Baseline Inventory Report for Oak Ridge," Revision 3, June 14, 1996
- DOE Facility CH-TRU Inventory, Revision 1, March 18, 1998
- TNHW-097, Hazardous Waste Management Permit
- Air Operating Permit Number #057077P
- CM-R-AD-001, Documented Safety Analysis
- T-CH-FW-C-WP-001, Maximum Plutonium Equivalent Curies for Drum with One NFT-019DS Filter Vent

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3.0 MAINTENANCE

The Director of Waste Management is designated the document owner and is responsible for updating this document. Approval authority rests with the Deputy General Manager. Submit suggestions for revisions or improvement to the Director of Waste Management.

4.0 GENERAL ACCEPTANCE

Waste containers are authorized onto the TWPC for the purposes of verifying Acceptable Knowledge (AK)/Process Knowledge (PK), characterization, treatment, packaging, or repackaging. Accordingly, certain conditions or characteristics of the waste may not be known prior to receipt of wastes at the TWPC. Initial waste receipt and/or the conduct of other preliminary characterizations shall not be construed as unqualified acceptance of the waste or portions thereof. The TWPC reserves the right, in accordance with its contract, Memoranda of Understanding, permits, and approved DSA, to segregate and/or return to the DOE wastes determined at any point in the process to exhibit non-compliant characteristics. This is particularly the case for the wastes packaged in boxes or in numerous layers of confinement in drums. The constituents therein may only be revealed or determined by Non-Destructive Examination, and successive disassembly and dissection during Repackaging.

5.0 WASTE TYPES

The TWPC accepts radioactive wastes, that once fully characterized by the TWPC meets one of the following definitions:

5.1 Contact Handled Waste

Waste that is less than 200mR/hr contact dose rate.

5.2 Low Level Waste (LLW)

Waste that contains at least a regulatory threshold concentration of radioactivity and is not classified as high-level waste, TRU waste or spent nuclear fuel or by-product material. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium may be classified as LLW provided the concentration of TRU is less than or equal to 100 nCi/g.

5.3 Mixed Low Level Waste (MLLW)

MLLW that contains hazardous constituents as defined by the RCRA. All RCRA Hazardous Codes are allowed.

5.4 Transuranic (TRU) Waste

Waste that is contaminated with alpha-emitting TRU radionuclides with half-lives greater than 20 years, at concentrations greater than 100 nCi/g at the time of assay. The origin of the waste must be designated as defense waste as defined by the DOE-Oak Ridge Operations (ORO).

5.5 Mixed Transuranic Waste

TRU waste that contains hazardous constituents as defined by the RCRA. All RCRA Hazardous Codes are allowed. The origin of the waste must be designated as defense waste as defined by the DOE-ORO.

6.0 NOTIFICATIONS

6.1 Waste Transfers

The transfer of waste (i.e., delivery of waste containers to the TWPC site) is controlled by approved TWPC procedures using transfer authorization forms submitted by the TWPC to the DOE or DOE designated Point of Contact (POC), such as the appropriate Management and Integration Contractor subcontractor. This authorization form serves as a formal request to DOE for container transfer. When completed by DOE and approved by the TWPC, it serves to notify the TWPC of incoming transfers. A just-in-time approach for the receipt of waste is utilized by the TWPC. Transfers may be cancelled or suspended due to severe weather, mutual agreement between the parties, other transfer route concerns, or inventory limits at the TWPC.

6.2 Packaging Changes

The contract references identify several characteristics of individual waste containers to be received (e.g., weight, volume, dimensions, etc.). Significant discrepancies identified during receipt inspection and initial processing shall be formally recorded by the TWPC and reflected during update of the waste stream AK report. However, if overpacking or other packaging changes are made prior to transfer, or discrepancies from the contract description are observed by the POC prior to transfer, these changes should be brought to the attention of TWPC management prior to the transfer to the TWPC of the affected containers (with as much advance notice as possible). Containers that are delivered to the TWPC without prior approval are returned to DOE if they cannot be accepted.

No formal pre-approval for packaging changes is required, assuming the changes are bounded by the contract documents.

The following information shall be communicated via the transfer authorization form, as applicable:

- date and time of intended transfer
- descriptions of atypical configurations for package loading
- extra packaging applied to original waste containers at the time of loading

6.3 Transfer Paperwork

6.3.1 Per the Hazardous Waste (RCRA) regulations and TWPC, no further manifesting of the waste transferred is expected.

6.3.2 The POC will provide a record of the transferred inventory that lists the individual unique numbers of the containers in each transfer.

7.0 WASTE ACCEPTANCE CRITERIA

7.1 Radioactive Material Content

Waste accepted by the TWPC is limited by the DSA such that criticality concerns are not credible.

Each container is evaluated based on best available generator and/or AK/PK information to ensure that the individual container Pu-239 Fissile Gram Equivalent (FGE) values (as calculated in accordance with CH-P-OP-014, Waste and Activity Inventory Control) are within the limits established in the DSA.

Incoming waste containers shall not exceed 309 PE Ci individually. Incoming waste containers shall not exceed 200 FGE (Pu-239) individually.

7.2 Dose Limits

The TWPC DSA limits contact dose rates for individual waste containers acceptable for receipt and characterization to < 200 mR/hr.

The TWPC administratively limits contact dose rates for individual waste containers acceptable for receipt and characterization to < 40 mR/hr contact (localized higher doses may be case-approved by the TWPC).

7.3 Size/Volume of Waste Containers

Acceptable Drum Sizes and Configurations (nominal gallon)

Standard Drums

55 gallon

Overpack Drums

30 gallon in a 55 gallon

55 gallon in a 79 gallon

55 gallon in an 85 gallon

Incoming waste boxes shall not exceed the maximum length, width, or height dimensions of boxes identified in the contractual references. These dimensions are approximately:

Box sizes (max. dimensions)

8 ft x 6 ft x 10 ft
(L x W x H)

Box sizes (min. volume)

Standard B12 waste box or equivalent OR
21 cubic foot in volume

7.4 Loose Surface Contamination (exterior surface of container)

Beta Gamma

$< 1{,}000$ dpm/100 cm^2

Alpha

≤ 20 dpm/100 cm^2

7.5 Waste Matrix

Wastes shall be classified as either soils or debris.

7.6 Adequate Acceptable Knowledge or Process Knowledge

Incoming waste containers shall be identifiable as part of a waste stream for which adequate AK/PK has been accumulated, reviewed, and summarized. Wastes shall be of defense-origin as defined by the DOE-ORO.

If the container is not on an approved AK/PK list, the containers may be approved on a case by case basis by the Acceptable Knowledge Expert/Process Knowledge Expert using generator documents, such as 2109 forms or other equivalent documents.

7.7 Waste Container Identification

Incoming waste containers shall exhibit a unique container identification number consistent with contractual references.

7.8 Waste Container Integrity

Wastes shall be packaged in securely lidded metal boxes and drums. Incoming containers shall demonstrate the integrity defined in the DSA, which is verified by inspecting each container upon receipt using the following general criteria:

- no denting, deformation, breaches, creasing, cracking, or gouging that might reasonably compromise container integrity, expose the internal contents, or affect the closure of the container
- no significant rusting or a readily observable loss of metal due to oxidation (e.g., flaking, bubbling, pitting, or perforation) that causes perforation of the container
- no bulging or distortion indicative of over pressurization
- closure devices properly installed and secure

7.9 Vented Containers

Incoming drums shall either have a securely installed drum lid restraint, or be equipped with a securely installed WIPP approved filter vent with headspace gas sample results that do not exceed 32,000 ppm hydrogen equivalent content and 6,000 ppm total volatile organic compounds.

In some cases, incoming drums were previously processed at the TWPC and returned to DOE for temporary storage. These drums were properly vented with an approved filter during repack operations at the TWPC. When these previously processed drums are requested for transfer back to the TWPC, headspace gas sample results are not required for acceptance, as justified in T-CH-FW-C-WP-001, Maximum Plutonium Equivalent Curies for Drum with One NFT-019DS Filter Vent.

External shipping containers or overpacked containers, which are welded closed or fitted with a tight sealing closure device, are considered unvented containers. Containers (boxes) which are not fitted with tight sealing closure devices and incorporate metal to metal sealing surfaces or are fitted with closure gaskets are considered self-venting containers, and are not required to be mechanically vented.

7.10 Hazardous Wastes

All RCRA Hazardous Codes are allowed at the TWPC.

Additionally, incoming waste containers shall not be known to contain:

- regulated concentrations of polychlorinated biphenyl (PCB) or other Toxic Substances Control Act of 1976 regulated materials (e.g., ≥ 50 ppm PCBs and asbestos) – EXCEPTION: PCB bulk products and remediation wastes, e.g., ballasts, wiring, paint chips, are allowable
- dangerous constituents such as explosives, pyrophorics, etiologic agents, biological waste, or beryllium except for encased beryllium sources
- classified materials

8.0 WASTE ACCEPTANCE

Acceptance of waste is accomplished in accordance with approved TWPC procedures. The first steps for acceptance of transferred wastes are accomplished through the waste container request and authorization process. Transferred waste containers are verified as being consistent with the request for transfer document upon receipt of the conveyance. The unique container numbers are verified, as the waste is off-loaded. Waste packaging integrity, dose rates, surface contamination levels, sizes, venting, and hazardous waste labeling of the waste containers are verified at various points in the receipt process.

Some or all of the following techniques are used to confirm that WAC are satisfied for individual waste containers:

- Weighing
- Non-Destructive Assay
- Non-Destructive Examination
- Headspace Gas Sampling

9.0 NON-COMPLIANT WASTE

Waste containers or waste articles discovered to be non-compliant with this WAC shall be segregated from the waste stream as appropriate to maintain worker and public safety. The non-compliant condition shall be reported to DOE and Tennessee Department of Environment and Conservation, as appropriate. Disposition of non-compliant wastes shall be completed as promptly and safely as the DSA and permits require and may include return transfer to DOE.

10.0 RECORDS

The documents generated as a result of activities may be considered Quality Assurance records. Quality Assurance records are identified, classified, and maintained in accordance with CM-P-AD-049, Records Management, and CM-X-AD-026, Records Inventory Disposition Schedule. There are no specific records created by this document.

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FGE – Fissile Gram Equivalent

LLW – Low Level Waste

M&I – Management and Integration Contractor

MLLW – Mixed Low Level Waste

ORO – Oak Ridge Office

PCB – polychlorinated biphenyl

PK – Process Knowledge

POC – Point of Contact (for waste transfers)

RCRA – Resource Conservation and Recovery Act

TRU – Transuranic

TWPC – TRU Waste Processing Center

WAC – Waste Acceptance Criteria

WIPP – Waste Isolation Pilot Plant

Terms and Definitions:

None

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Contact Handled Waste Acceptance Criteria

Implementation Date: 5/12/08

Approved by:

RC McKy

Deputy General Manager

5/7/08

Date

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9	CH Clarifications to coincide with new RH WAC
10	Procedure updated to reflect corrections on PE Ci limit and removal of lid restraint requirement for overpack drums.
11	Document revised to allow for case by case acceptance of waste containers that are not on an approved AK/PK list and also to allow for waste containers that are classified as soil.

Current Revision Specific Changes

Specific Changes

Location	Description	Reason
7.5	Add waste containers that are classified as soil.	Update
7.6	Add case by case approval of containers that are not on an approved AK/PK list.	Update

1.0 PURPOSE

This document establishes the Transuranic (TRU) Waste Processing Center (TWPC) Waste Acceptance Criteria (WAC) for the acceptance of Contact Handled (CH) waste (hereinafter, waste) at the TWPC for characterization and processing.

By establishing and implementing this WAC the TWPC:

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The TWPC accepts radioactive wastes, that once fully characterized by the TWPC meets one of the following definitions:

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Waste that is less than 200mR/hr contact dose rate.

5.2 Low Level Waste (LLW)

Waste that contains at least a regulatory threshold concentration of radioactivity and is not classified as high-level waste, TRU waste or spent nuclear fuel or by-product material. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium may be classified as LLW provided the concentration of TRU is less than or equal to 100 nCi/g.

5.3 Mixed Low Level Waste (MLLW)

MLLW that contains hazardous constituents as defined by the RCRA. All RCRA Hazardous Codes are allowed.

5.4 Transuranic (TRU) Waste

Waste that is contaminated with alpha-emitting TRU radionuclides with half-lives greater than 20 years, at concentrations greater than 100 nCi/g at the time of assay. The origin of the waste must be designated as defense waste as defined by the DOE-Oak Ridge Operations (ORO).

5.5 Mixed Transuranic Waste

TRU waste that contains hazardous constituents as defined by the RCRA. All RCRA Hazardous Codes are allowed. The origin of the waste must be designated as defense waste as defined by the DOE-ORO.

6.0 NOTIFICATIONS

6.1 Waste Transfers

The transfer of waste (i.e., delivery of waste containers to the TWPC site) is controlled by approved TWPC procedures using transfer authorization forms submitted by the TWPC to the DOE or DOE designated Point of Contact (POC), such as the appropriate Management and Integration Contractor subcontractor. This authorization form serves as a formal request to DOE for container transfer. When completed by DOE and approved by the TWPC, it serves to notify the TWPC of incoming transfers. A just-in-time approach for the receipt of waste is utilized by the TWPC. Transfers may be cancelled or suspended due to severe weather, mutual agreement between the parties, other transfer route concerns, or inventory limits at the TWPC.

6.2 Packaging Changes

The contract references identify several characteristics of individual waste containers to be received (e.g., weight, volume, dimensions, etc.). Significant discrepancies identified during receipt inspection and initial processing shall be formally recorded by the TWPC and reflected during update of the waste stream AK report. However, if overpacking or other packaging changes are made prior to transfer, or discrepancies from the contract description are observed by the POC prior to transfer, these changes should be brought to the attention of TWPC management prior to the transfer to the TWPC of the affected containers (with as much advance notice as possible). Containers that are delivered to the TWPC without prior approval are returned to DOE if they cannot be accepted.

No formal pre-approval for packaging changes is required, assuming the changes are bounded by the contract documents.

The following information shall be communicated via the transfer authorization form, as applicable:

- date and time of intended transfer
- descriptions of atypical configurations for package loading
- extra packaging applied to original waste containers at the time of loading

6.3 Transfer Paperwork

6.3.1 Per the Hazardous Waste (RCRA) regulations and TWPC, no further manifesting of the waste transferred is expected.

6.3.2 The POC will provide a record of the transferred inventory that lists the individual unique numbers of the containers in each transfer.

7.0 WASTE ACCEPTANCE CRITERIA

7.1 Radioactive Material Content

Waste accepted by the TWPC is limited by the DSA such that criticality concerns are not credible.

Each container is evaluated based on best available generator and/or AK/PK information to ensure that the individual container Pu-239 Fissile Gram Equivalent (FGE) values (as calculated in accordance with CH-P-OP-014, Waste and Activity Inventory Control) are within the limits established in the DSA.

Incoming waste containers shall not exceed 309 PE Ci individually. Incoming waste containers shall not exceed 200 FGE (Pu-239) individually.

7.2 Dose Limits

The TWPC DSA limits contact dose rates for individual waste containers acceptable for receipt and characterization to < 200 mR/hr.

The TWPC administratively limits contact dose rates for individual waste containers acceptable for receipt and characterization to $\leq$ 40 mR/hr contact (localized higher doses may be case-approved by the TWPC).

7.3 Size/Volume of Waste Containers

Acceptable Drum Sizes and Configurations (nominal gallon)

Standard Drums

55 gallon

Overpack Drums

30 gallon in a 55 gallon

55 gallon in a 79 gallon

55 gallon in an 85 gallon

Incoming waste boxes shall not exceed the maximum length, width, or height dimensions of boxes identified in the contractual references. These dimensions are approximately:

Box sizes (max. dimensions)

8 ft x 6 ft x 10 ft
(L x W x H)

Box sizes (min. volume)

Standard B12 waste box or equivalent OR
21 cubic foot in volume

7.4 Loose Surface Contamination (exterior surface of container)

Beta Gamma

$< 1{,}000$ dpm/100 cm^2

Alpha

≤ 20 dpm/100 cm^2

7.5 Waste Matrix

Wastes shall be classified as either soils or debris.

7.6 Adequate Acceptable Knowledge or Process Knowledge

Incoming waste containers shall be identifiable as part of a waste stream for which adequate AK/PK has been accumulated, reviewed, and summarized. Wastes shall be of defense-origin as defined by the DOE-ORO.

If the container is not on an approved AK/PK list, the containers may be approved on a case by case basis by the Acceptable Knowledge Expert/Process Knowledge Expert using generator documents, such as 2109 forms or other equivalent documents.

7.7 Waste Container Identification

Incoming waste containers shall exhibit a unique container identification number consistent with contractual references.

7.8 Waste Container Integrity

Wastes shall be packaged in securely lidded metal boxes and drums. Incoming containers shall demonstrate the integrity defined in the DSA, which is verified by inspecting each container upon receipt using the following general criteria:

- no denting, deformation, breaches, creasing, cracking, or gouging that might reasonably compromise container integrity, expose the internal contents, or affect the closure of the container
- no significant rusting or a readily observable loss of metal due to oxidation (e.g., flaking, bubbling, pitting, or perforation) that causes perforation of the container
- no bulging or distortion indicative of over pressurization
- closure devices properly installed and secure

7.9 Vented Containers

Incoming drums shall either have a securely installed drum lid restraint, or be equipped with a securely installed WIPP approved filter vent with headspace gas sample results that do not exceed 32,000 ppm hydrogen equivalent content and 6,000 ppm total volatile organic compounds.

External shipping containers or overpacked containers, which are welded closed or fitted with a tight sealing closure device, are considered unvented containers. Containers (boxes) which are not fitted with tight sealing closure devices and incorporate metal to metal sealing surfaces or are fitted with closure gaskets are considered self-venting containers, and are not required to be mechanically vented.

7.10 Hazardous Wastes

All RCRA Hazardous Codes are allowed at the TWPC.

Additionally, incoming waste containers shall not be known to contain:

- regulated concentrations of polychlorinated biphenyl (PCB) or other Toxic Substances Control Act of 1976 regulated materials (e.g., ≥ 50 ppm PCBs and asbestos) – EXCEPTION: PCB bulk products and remediation wastes, e.g., ballasts, wiring, paint chips, are allowable
- dangerous constituents such as explosives, pyrophorics, pressurized gases, etiologic agents, biological waste, or beryllium except for encased beryllium sources
- classified materials

8.0 WASTE ACCEPTANCE

Acceptance of waste is accomplished in accordance with approved TWPC procedures. The first steps for acceptance of transferred wastes are accomplished through the waste container request and authorization process. Transferred waste containers are verified as being consistent with the request for transfer document upon receipt of the conveyance. The unique container numbers are verified, as the waste is off-loaded. Waste packaging integrity, dose rates, surface contamination levels, sizes, venting, and hazardous waste labeling of the waste containers are verified at various points in the receipt process.

Some or all of the following techniques are used to confirm that WAC are satisfied for individual waste containers:

- Weighing
- Non-Destructive Assay
- Non-Destructive Examination
- Headspace Gas Sampling

9.0 NON-COMPLIANT WASTE

Waste containers or waste articles discovered to be non-compliant with this WAC shall be segregated from the waste stream as appropriate to maintain worker and public safety. The non-compliant condition shall be reported to DOE and Tennessee Department of Environment and Conservation, as appropriate. Disposition of non-compliant wastes shall be completed as promptly and safely as the DSA and permits require and may include return transfer to DOE.

10.0 RECORDS

The documents generated as a result of activities may be considered Quality Assurance records. Quality Assurance records are identified, classified, and maintained in accordance with CM-P-AD-049, Records Management, and CM-X-AD-026, Records Inventory Disposition Schedule. There are no specific records created by this document.

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POC – Point of Contact (for waste transfers)

RCRA – Resource Conservation and Recovery Act

TRU – Transuranic

TWPC – TRU Waste Processing Center

WAC – Waste Acceptance Criteria

WIPP – Waste Isolation Pilot Plant

Terms and Definitions:

None

END OF DOCUMENT

DIVIDER PAGE ONLY

Not part of page count

P255

Contact Handled Waste Acceptance Criteria

Implementation Date: 10/19/06

Approved by:

Tom Daniels for B. McKay
Project Manager

10/11/06
Date

ORIGINAL

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Revision Summary

Revision Purpose (overall)

Implement DSA page change

Specific Changes

Location	Description	Reason
8.1	Add exception to description of free liquids	Revised DSA
8.11	Add exception to description of prohibited PCBs	Revised DSA
Page 3	Added Revision Summary	TWPC requirement

1.0 PURPOSE

This document establishes the Transuranic (TRU) Waste Processing Center (TWPC) Waste Acceptance Criteria (WAC) for the acceptance of Contact Handled (CH) waste (hereinafter, waste) at the TWPC for characterization and processing.

By establishing and implementing this WAC the TWPC:

- ensures the safe and compliant processing of contracted waste materials in accordance with the applicable permits and authorizations
- protects TWPC personnel, co-located workers, and the environment from chemical and radiological hazards associated with the contracted waste in compliance with applicable federal, state, and local laws and regulations

Subject to the terms and conditions of the contract, the TWPC accepts waste material for processing that meets this WAC. The WAC has been developed to capture the requirements of the TWPC permits, Documented Safety Analysis (DSA) and other requirements as determined applicable.

The TWPC revises the WAC as determined appropriate to reflect changes to the contract, additional or alternate administrative controls, temporary physical controls, or other appropriate actions to ensure a safe and regulatory-compliant handling of the waste.

NOTE: This document is not used to determine acceptability of waste or waste packages for shipment to the Waste Isolation Pilot Plant (WIPP) or Nevada Test Site.

2.0 SCOPE

The WAC applies to the CH waste stream described in the current U.S. Department of Energy (DOE) Contract governing waste processing activities at the TWPC. The portion of these wastes that are Resource Conservation and Recovery Act (RCRA) wastes are stored by the TWPC in accordance with the applicable facility RCRA Hazardous Waste Management Permit. The gaseous effluents from these wastes are permitted to be released to the environment by the Tennessee Department of Environment and Conservation (TDEC) Permit Number #057077P, Operating Permit Issued Pursuant to Tennessee Air Quality Act.

3.0 REFERENCES

- "TRU Waste Baseline Inventory Report for Oak Ridge," Revision 3, June 14, 1996.
- DOE Facility CH-TRU Inventory, Revision 1, March 18, 1998.
- Applicable facility RCRA Hazardous Waste Management Permit.

- Operating Permit Issued Pursuant to Tennessee Air Quality Act, Tennessee Air Pollution Control Board, Department of Environment and Conservation, Number # 057077P.
- Documented Safety Analysis, T-CM-FW-R-AD-001.
- Contact Handled Transuranic Waste Acceptance Criteria for Waste Isolation Pilot Plant, DOE/WIPP-02-3122.
- Nevada Test Site, Waste Acceptance Criteria, DOE/NV-325.

4.0 ATTACHMENTS

Attachment A: Acronyms

5.0 GENERAL ACCEPTANCE

Waste containers are authorized onto the TWPC for the purposes of verifying Acceptable and Process Knowledge (AK/PK), characterization, packaging or repackaging. Accordingly, certain conditions or characteristics of the waste may not be known prior to receipt of wastes at the TWPC. Initial waste receipt and/or the conduct of other preliminary characterizations shall not be construed as unqualified acceptance of the waste or portions thereof. The TWPC reserves the right, in accordance with its contract, Memoranda of Understanding, permits, and approved DSA, to segregate and/or return to the DOE wastes determined at any point in the process to exhibit non-compliant characteristics. This is particularly the case for the wastes packaged in boxes or in numerous layers of confinement in drums. The constituents therein may only be revealed or determined by Nondestructive Examination (NDE), and successive disassembly and dissection during Visual Examination.

6.0 WASTE TYPES

The TWPC accepts radioactive wastes, that once fully characterized by the TWPC meets one of the following definitions:

6.1 Low Level Waste (LLW)

Waste that contains at least a regulatory threshold concentration of radioactivity and is not classified as high-level waste, TRU waste or spent nuclear fuel or by-product material. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium may be classified as LLW provided the concentration of TRU is less than or equal to 100 nCi/g.

6.2 Mixed Low Level Waste (MLLW)

MLLW that contains hazardous constituents as defined by the RCRA. The hazardous constituents shall be limited to F001, F002, F004, F005, D004, D005, D006, D007, D008, D009, D010, D011, and D022.

6.3 Transuranic Waste (TRU Waste)

Waste that is contaminated with alpha-emitting TRU radionuclides with half-lives greater than 20 years, at concentrations greater than 100 nCi/g at the time of assay. The origin of the waste must be designated as defense waste as defined by the DOE-Oak Ridge Operations (ORO).

6.4 Mixed Transuranic Waste

TRU waste that contains hazardous constituents as defined by the RCRA. The hazardous constituents shall be limited to F001, F002, F004, F005, D004, D005, D006, D007, D008, D009, D010, D011, and D022. The origin of the waste must be designated as defense waste as defined by the DOE-Oak Ridge Operations (ORO).

7.0 NOTIFICATIONS

7.1 Waste Transfers

The transfer of waste (i.e., delivery of waste containers to the TWPC site) is controlled by approved TWPC procedures using transfer authorization forms submitted by the TWPC to the DOE or DOE designated Point of Contact (POC), such as the appropriate Management and Integration Contractor (M&I) subcontractor. This authorization form serves as a formal request to DOE for container transfer. When completed by DOE and approved by the TWPC, it serves to "notify" the TWPC of incoming transfers. A just-in-time approach for the receipt of waste is utilized by the TWPC. Transfers may be cancelled or suspended due to severe weather, mutual agreement between the parties, other transfer route concerns, or inventory limits at the TWPC.

7.2 Packaging Changes

The contract references identify several characteristics of individual waste containers to be received (e.g., weight, volume, dimensions, etc.). Significant discrepancies identified during receipt inspection and initial processing shall be formally recorded by the TWPC and reflected during update of the waste stream AK report. However, if overpacking or other packaging changes are made prior to transfer, or discrepancies from the contract description are observed by the POC prior to transfer, these changes should be brought to the attention of TWPC management prior to the transfer to the TWPC of the affected containers (with as much advance notice as possible). Containers that are delivered to the TWPC without prior approval will be returned to DOE if they cannot be accepted.

No formal pre-approval for packaging changes is required, assuming the changes are bounded by the contract documents (e.g., a 55-gallon waste drum may be overpacked in a 79-gallon drum prior to transfer and both drums are vented and sampled as required by Section 8.10).

The following information shall be communicated via the transfer authorization form, as applicable:

- date and time of intended transfer
- descriptions of atypical configurations for package loading
- extra packaging applied to original waste containers at the time of loading

7.3 Transfer Paperwork

7.3.1 As per agreement between Foster Wheeler Environmental Corporation and DOE, no further manifesting of the waste transferred is expected.

7.3.2 The POC will provide a record of the transferred inventory that lists the individual unique numbers of the containers in each transfer.

8.0 WASTE ACCEPTANCE CRITERIA

8.1 Free Liquids

No containerized/confined free liquids greater than 1 percent of container volume are allowed. Free liquids greater than 1 percent of container volume in the waste shall not be known to exist in the containers to be transferred (e.g., to have been previously detected by NDE). The term liquid, as used in this criteria, does not include gelatinous materials such as absorbed or solidified liquids as long as the material can be determined not to flow under it's own weight. Drums of suspected TRU waste that are known to be non-compliant because they contain liquids greater than 1% are allowed only in the Contact Handled Staging Area (CHSA) for screening by Non-Destructive Assay (NDA) to determine if the waste is TRU or LLW, which is an exception to the TWPC WAC. If such a drum is determined to be TRU with less than 1% liquids, it can be processed in the Contact Handled Glove Box (CHGB). However, if it is greater than 1% liquids, it is staged in the CHSA pending return to DOE (introduction into the CHGB is not analyzed). If the NDA shows the non-compliant drum is LLW, it is further analyzed by NDE. If the LLW drum shows less than 1% free liquids, it is staged in the CHSA pending disposition (introduction into the CHGB is allowable). Otherwise, LLW waste with greater than 1% liquids is staged in the CHSA for return to DOE. If the LLW is determined to be mixed waste, it is staged in the CHSA pending disposition. If a drum of MLLW is less than 1 % liquids, introduction into the CHGB is allowable, but if greater than 1% liquids, introduction into the CHGB is not analyzed. MLLW cannot be returned to DOE.

This criteria does not apply to free flowing or gelatinous liquids that are introduced by the TWPC as a part of the waste processing operations, so long as compliance with WIPP criteria are achieved.

8.2 Radioactive Material Content

Waste accepted by the TWPC is limited by the DSA such that criticality concerns are not credible.

Each container is evaluated based on best available generator and/or AK information to ensure that the individual container Pu-239 Fissile Gram Equivalent (FGE) and Plutonium Equivalent Curie (PE-Ci) values (as calculated in accordance with T-CH-FW-P-OP-014, Contact Handled Waste and Activity Inventory Control) are within the limits established in the DSA.

Incoming waste containers shall not exceed 308 PE-Ci individually (or less if the TWPC's established administrative limit of PE-Ci is lower). High Material at Risk containers (greater than 200 PE-Ci per container), shall be overpacked after receipt.

Incoming waste containers shall not exceed 200 FGE (Pu-239) individually (or less if the TWPC's established administrative limit of FGE (Pu-239) is lower).

The above limits, as of the issue date of this document, are summarized below. The TWPC has additional limits for containers going into the CHGB for sorting, segregating, and repackaging.

The DSA must be reviewed to determine the current values:

Receipt Limits:

FGE $\leq$ 200/container – $\leq$ 85 gal drums

< 10/container – > 85 gal drums and boxes going into BBA

PE-Ci $\leq$ 308/container – individual containers

< 25/container – containers going into the CHGB

Processing Limits (CHGB):

FGE < 200/container – $\leq$ 85 gal drums

< 10/container – > 85 gal drums and boxes going into BBA

PE-Ci < 25/container

8.3 Dose Limits

The TWPC DSA limits contact dose rates for individual waste containers acceptable for receipt and characterization to < 200 mR/hr.

The TWPC administratively limits contact dose rates for individual waste containers acceptable for receipt and characterization to ≤ 40 mR/hr contact (localized higher doses may be case-approved by the TWPC).

8.4 Size/Volume of Waste Containers

Drum sizes (nominal gal.)

55 – 110

Incoming waste boxes shall not exceed the maximum length, width, or height dimensions of boxes identified in the contractual references. These dimensions are approximately:

Box sizes (max. dimensions)

8 ft x 6 ft x 10 ft
(L x W x H)

8.5 Loose Surface Contamination (exterior surface of container)

Beta Gamma

< 1,000 dpm/100 cm^2

Alpha

≤ 20 dpm/100 cm^2

8.6 Waste Matrix

Wastes shall be classified as debris as defined by the WIPP Waste Acceptance Plan.

8.7 Adequate Acceptable or Process Knowledge

Incoming waste containers shall be identifiable as part of a waste stream for which adequate Acceptable Knowledge (per WIPP and Environmental Protection Agency requirements) has been accumulated, reviewed, and summarized by the TWPC. Wastes shall be defense-origin based on this information as defined by the DOE-ORO.

8.8 Waste Container Identification

Incoming waste containers shall exhibit a unique container identification number consistent with contractual references.

8.9 Waste Container Integrity

Wastes shall be packaged in securely lidded metal boxes and drums. Incoming containers shall demonstrate the integrity defined in the DSA, which is verified by inspecting each container upon receipt using the following general criteria:

- no denting, deformation, breaches, creasing, cracking, or gouging that might reasonably compromise container integrity, expose the internal contents, or affect the closure of the container
- no significant rusting or a readily observable loss of metal due to oxidation (e.g., flaking, bubbling, pitting, or perforation) that causes perforation of the container
- no bulging or distortion indicative of over pressurization
- closure devices properly installed and secure

8.10 Vented Containers

Incoming drums shall be equipped with a securely installed or fastened filtered vent, including overpacked inner containers (drum overpacks shall not be used to obviate venting of the waste containers).

Prior to acceptance by the TWPC, incoming drums shall either be headspace gas sampled, by direct method, or analyzed by calculation to ensure that headspace gases do not exceed 32,000 ppm Hydrogen equivalent content, and 6,000 ppm Volatile Organic Compounds.

Boxes that contain unvented drums or drums that do not have headspace gas sampling results below above limits established herein will not be accepted onto the TWPC.

External shipping containers or overpacked containers, which are welded closed or fitted with a tight sealing closure device, are considered unvented containers. Containers which are not fitted with tight sealing closure devices and incorporate metal to metal sealing surfaces or are fitted with closure gaskets are considered self-venting containers, and are not required to be mechanically vented.

8.11 Non-Compliant Hazardous Wastes

Characteristic or listed RCRA wastes other than those identified in Section 6 of this document are not acceptable and will not be authorized onto the TWPC.

Additionally, incoming waste containers shall not be known to contain:

- regulated concentrations of polychlorinated biphenyl (PCB) or other Toxic Substances Control Act of 1976 (TSCA)-regulated materials (e.g., ≥ 50 ppm PCBs and asbestos) – EXCEPTION: PCB bulk products and remediation wastes, e.g., ballasts, wiring, paint chips, are allowable.
- dangerous constituents such as explosives, pyrophorics, pressurized gases, etiologic agents, biological waste, or beryllium except for encased beryllium sources
- classified materials

9.0 WASTE ACCEPTANCE

Acceptance of waste is accomplished in accordance with approved TWPC procedures. The first steps for acceptance of transferred wastes are accomplished through the waste container request and authorization process. Transferred waste containers are verified as being consistent with the request for transfer document upon receipt of the conveyance. The unique container numbers are verified, as the waste is off-loaded. Waste packaging integrity, dose rates, surface contamination levels, sizes, venting, and hazardous waste labeling of the waste containers are verified at various points in the receipt process.

Some or all of the following techniques are used to confirm that WAC are satisfied for individual waste containers:

- Weighing
- NDA
- NDE
- Visual Examination
- Headspace Gas Sampling

10.0 NON-COMPLIANT WASTE

Waste containers or waste articles discovered to be non-compliant with this WAC shall be segregated from the waste stream as appropriate to maintain worker and public safety. The non-compliant condition shall be reported to DOE and TDEC, as appropriate. Disposition and return transfer to DOE of non-compliant wastes shall be completed as promptly and safely as the DSA and permits require.

ATTACHMENT A: ACRONYMS

AK	Acceptable Knowledge
BBA	Box Breakdown Area
CH	Contact Handled
CHGB	Contact Handled Glove Box (includes Box Breakdown Area)
CHSA	Contact Handled Staging Area
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
FGE	Fissile Gram Equivalent
LLW	Low Level Waste
M&I	Management and Integration Contractor
MLLW	Mixed Low Level Waste
PCB	polychlorinated biphenyl
PE-Ci	Plutonium Equivalent Curie
PK	Process Knowledge
POC	Point of Contact (for waste transfers)
RCRA	Resource Conservation and Recovery Act
SB	Safety Basis
TDEC	Tennessee Department of Environment and Conservation
TRU	Transuranic
TWPC	TRU Waste Processing Center
WAC	Waste Acceptance Criteria
WIPP	Waste Isolation Pilot Plant

END OF DOCUMENT

DIVIDER PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	**Source Document Tracking Number:** P1316
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	**Category:** ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☑ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Safety Analysis Report for The Radioisotope Development Laboratory Building 3047	
Source Document Reference Information (author(s), document and revision number, date, publisher): W. J. Armento; R. D. Nipper, Jr.; S. N. Storch; D. W. Malkemus; H. X. Phillips, ORNL/CTD/SAR/3047/F/RT-16, Rev. 0, ~1999, Lockheed Martine Energy Research C	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR1, PR3, WS2, WS5, WS8, WS9, WS11, S3	E-1; 2-10; 3-10; 3-11; 3-23; Matrixes	The Research Development Laboratory (RDL) is operated by the Chemical Technology Division (CTD) for ORNL Building 3047 was designed, built, and utilized for the production of radioisotopes, application of radioisotope research, shipment of radioisotopes to customers throughout the world, and the study of chemical processes involving tracer-level activities. This work was performed using "bench-top", hood enclosures, glove boxes and hot cells. At the time of this document (date unknown) 3047 was used for receipt, purification, research and storage of radioactive materials. (Page E-1) Room 110 contains a single "alpha hot cell". This hot cell is specifically utilized for the handling and processing of transuranic alpha-emitting isotopes. A Thorium Processing Glovebox is attached to the west face of the hot cell. Room 212 is also used for the alpha-emitting isotopes. (Page 2-10) Room 212 contains 4 gloveboxes and a hood. Room 211 contains furnaces and vacuum/inert-atmosphere gloveboxes utilized in support of higher temperature radioisotope operations. Materials present in 3047 may consist of the following: Th; Sr-90; Cs-124; Cs-137; Ce-144; Pm-147; Co-60; Gd-153; Eu-155; Ge-67; Te-123m; I-131; Ir-192; Os-191; W-181; W-185. (Page 3-10) Pu-239; Sr-90 (Page 3-23)..."[s]ince the LPHA-Handling Area is the source of the Pu-239..." Hazard identification Matrixes identified the following isotopes: Pu-239; Pu-241; and Sr-90. Chemicals: nitric acid; sulfuric acid (sodium hydroxide); hydrochloric acid; mercury, chromium oxide; compressed gases. Quantities of chemicals are limited. Flammable materials are stored in fire-proof cabinets. Flammables and combustibles such as gasoline, propane oil, cleaners, solvents, etc, will not exceed a combined total of 50 gallons. (Page 3-10) The most prominent hazard is from chemicals utilized only infrequently for such maintenance activities as hot-cell window cleaning include: glacial acid (toxic and flammable); isoproponal (or isopropyl alcohol) (flammable); toluene (toxic and flammable) and mineral oil. (Page 3-11) There are numerous sources or streams of radioactive and limited sources of hazardous wastes

CCP RECORDS ORIGINAL
DATE REC'D 12/30/2013

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: P1316
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		in 3047. The stream of waste originate from in-process and shut-down operations, decontamination and associated activities, monitoring or personnel and equipment and the facility and general maintenance. Solid waste, radioactive and/or hazardous waste, is collected and packaged appropriately to facility and site procedures. There is routine personal protection equipment (PPE) that includes shoe covers, mops, etc. All wastes including PPE are low-level or contact handled (CH) TRU (transuranic) wastes are handled in full accordance with all approved procedures.

Source Document Data Limitations (if any):

1. Document is missing Chapters 4 and 5. There is no approval date and the document is unsigned.

Acceptable Knowlege Expert:

Travis Smith / [signature] Date: 12/02/2013
Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

DIVIDER PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: P1312
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☑ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Phase I Safety Documentation The Radioisotope Development Laboratory - Building 3047	
Source Document Reference Information (author(s), document and revision number, date, publisher): D. W. Ramey; H. X. Phillips; D. W. Malkemus; W. J. Armento, HS/3047/F/RT-16, Rev. 1, 08/07/1995, FSET	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR1, PR2, WS2, WS8, WS11, S3		This document is the Phase I Safety Documentation for the Radioisotope Development Laboratory (RDL) Building 3047. Building 3047 is an operating facility and was utilized at the time of the document for processing, temporary storage, packaging and disposal of radioactive materials. Operations conducted in the RDL included: receipt, processing, and shipment of source materials; packaging and repackaging waste and other shipments; and "trans-loading" (transfer of packages from one shipping container or vehicle to another). The containment of RDL was kept separate from Building 3047-A, which contained only administrative offices. RDL houses four high-level beta/gamma hot cells, one alpha hot cell, seven laboratories for handling low-level materials, a decontamination room, a RS area, offices and service areas. The hot cells were lined with stainless steel and each had a mineral-oil-filled, lead-glass window. "In addition to continued processing, a legacy of many past programs and processes previously conducted in the facility since its construction remains as inventory and residual surface contamination of cells and process equipment." (Page 6) Chemicals: No significant hazards were attributed to the small quantities (less than 29 CFR 1910.1000 laboratory quantities) of chemicals used in the facility. Limited quantities of nitric acid (8 gallons), citric acid powder (4 kg), oxalic acid powder (10 kg) and potassium permanganate (5 kg) are stored in the facility. Chemicals used for decontamination and operations included sulfuric acid, hydrochloric acid, ammonium hydroxide, and acetone, but no more than 1 gallon of each was in use at one time. Only two hazardous chemicals were present in the laboratory in major quantities they included chloroform and benzene. Both chemicals were there in quantities below the 29 CFR 1910,119 limits. (Page 7) A few potentially explosive chemicals were utilized, alkali chlorates and ammonium nitrate, but these were stored in special chemical cabinets and quantities were below one pound each. (Page 7) Table 1: Characteristics f residual contamination and inventory in RDL included:

SPF
CCP RECORDS ORIGINAL
DATE REC'D 12/30/2013

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: P1312
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		Remaining Items in Inventory: Pu-238 Pu-239 Pu-240 Am-241 SAR/FMCL Inventory Sr-90, Cs-137, Ce-144, Eu-155, Os-191, Pu-238, Am-241, Am-243, Cm-242, Cm-244, Cf-252 Chemicals: chloroform; benzene

Source Document Data Limitations (if any):

1. None

Acceptable Knowlege Expert:

Travis Smith _____ Date: 12/02/2013

Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

0003913 RTS-DMC

P132

Document No.: HS/3047/F/RT-16
Revision No.: 1
Date: August 7, 1995

PHASE I SAFETY DOCUMENTATION

THE RADIOISOTOPE DEVELOPMENT LABORATORY

BUILDING 3047

HAZARD SCREENING

APPROVAL

PHASE I SAFETY DOCUMENTATION

THE RADIOISOTOPE DEVELOPMENT LABORATORY

BUILDING 3047

HAZARD SCREENING

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ACRONYMS, REFERENCES, AND ABBREVIATIONS

ACGIH	-	American Conference of Governmental Industrial Hygienists
CFR	-	Code of Federal Regulations
Ci	-	Curie(s)
CSET	-	Central Safety Evaluation Team
CSET-1,2	-	The Safety Analysis Report Update Program: Overview and Phase I Implementation (Revision 2), Report No. ES/CSET-1/R2, August 1991; The Safety Analysis Report Update Program: Hazard Screening Application Guide, Report No. ES/CSET-2/R1, June 1992.
DOE-EM-STD-5502-94	-	DOE Limited Standard, DOE-EM-STD-5502-94, Hazard Baseline Documentation, August 1994.
DOE-STD-1027	-	DOE Standard, DOE-STD-1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports, December 1992, US Department of Energy, Washington, D.C., 20585
DOE-5480.11	-	DOE Order 5480.11, Radiation Protection for Occupational Workers, December 1988
FSET	-	Facility Safety Evaluation Team
HAZOP	-	hazard and operability
HFIR	-	High-Flux Isotopes Reactor
HSRD	-	Health Sciences Research Division
IFDP	-	Isotopes Facilities Deactivation Program
IPDP	-	Isotope Production and Distribution Program
IH	-	Industrial Hygiene
ORNL	-	Oak Ridge National Laboratory
OSHA	-	Occupational Safety and Health Administration

ACRONYMS AND ABBREVIATIONS (cont'd)

RDL	-	Radioisotope Development Laboratory
Rem	-	Roentgen-equivalent-man, a radiation dose measurement as applied to human beings
RS	-	radiological surveillance
S&M	-	surveillance and maintenance
SAR	-	Safety Analysis Report
SIH	-	standard industrial hazards

PHASE I SAFETY DOCUMENTATION
THE RADIOISOTOPE DEVELOPMENT LABORATORY
BUILDING 3047

HAZARD SCREENING

1. INTRODUCTION

This is a revised version of the Hazard Screening Document originally approved on March 16, 1992. This revision is based on changes in the nuclear material inventory and continuing facility operations in the hot cells and laboratories.

The Radioisotope Development Laboratory (RDL)[1] (Building 3047) is an operating facility and is presently being utilized for processing, temporary storage, and packaging and disposal of radioactive materials. Discrete items of inventory do remain within the facility, and inventory items will be added or removed in the future as operations warrant. Operations that are conducted within RDL include: receipt, processing, and shipment of source materials; packaging and repackaging waste and other shipments; and 'trans-loading' [transfer of packages from one shipping container or vehicle to another]. Laboratory research activities are continuing. All surveillance and maintenance (S&M) and operations and research activities are covered by approved, written procedures.

The Nuclear Medicine Group of Health Sciences Research Division (HSRD) is responsible for development of radiopharmaceuticals in laboratory facilities at RDL. Radioactive materials and potentially hazardous chemicals are handled in hoods and hot cell facilities. Small amounts of both are utilized in bench-top experiments. All activities follow approved, written procedures.

2. SUMMARY

The major non-industrial hazard identified in RDL is the presence of radioactive materials and subsequent surface contamination from the operations and research activities that are continuing within the facility. The facility has been secured and access to any portion of the operations areas is restricted. The presence of radioactive contamination is addressed by isolation of the affected areas and good RS (radiological surveillance) practice. There is potential for radiation exposure to personnel from the radioactive source material present and involved in operations and from any potential subsequent radioactive contamination. The radioactive inventory source material does represent a major potential for exposure of personnel working within and in the immediate vicinity of RDL. There is also significant risk to other on-site personnel. The major risk is from inhalation of material that might be released from the facility during a natural phenomenon or other major facility upset.

The storage and use of chemicals that have been classified as carcinogenic by the Occupational Safety and Health Administration (OSHA) or the American Conference of Governmental Industrial Hygienists (ACGIH) is also recognized as a hazard. The primary hazard is limited to two common laboratory solvents. In the case of an accidental spill, the amounts of these chemicals are sufficiently low that the only results would be of minor consequences to laboratory personnel. This hazard is minor when compared to that from the radioactive materials.

Based on the nuclear material inventory, the Nuclear Hazard Categorization for this facility is "Category 2." This classification has been determined from the DOE Standard, DOE-STD-1027-92 (hereafter referred to as DOE-STD-1027), DOE Limited Standard DOE-EM-STD-5502-94 (hereafter referred to as DOE-EM-STD-5502-94), and guidelines from DOE Order 5480.11 (hereafter referred to as DOE-5480.11). The chemical inventory does not influence this categorization.

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[1]A list of acronyms and abbreviations will be found at the beginning of this report.

3. FACILITY INFORMATION

3.1 FACILITY LOCATION AND DESCRIPTION

3.1.1 Site

The facility is located within the central region of the Oak Ridge National Laboratory (ORNL) main boundary. (See Figs. 1 and 2). It is in the north-central area of Isotopes Circle.

3.1.2 Description

RDL contains facilities (see Fig. 3) that are utilized for storage, processing, conversion, and disposal of radioactive isotopes. It is a three-story, structural-steel-frame building with concrete block exterior and interior walls. RDL is joined to the later addition, the Isotopes Technology Building, designated 3047-A. They have individual ventilation systems that are not connected in any way. They are separated by heavy walls and at least two sets of doors in series. The containment of RDL is kept separate from Building 3047-A, which contains only administrative offices. Traditionally, they have been structurally, functionally, physically [ventilation, containment, etc.], operationally, and administratively separate. Thus, they are considered as totally separate buildings.

RDL houses four high-level beta/gamma hot cells, one alpha hot cell, seven laboratories for handling low-level materials, a decontamination room, a RS area, offices, and service areas. Utilities include electrical power, steam, and plant air.

The four beta-gamma manipulator hot cells (Cells A, B, C, and D), the operating area (Room 109), the cell access area (rear doors, Room 113), and the decontamination room (Room 105) are all located on the first floor of the facility. The cell roof hatches are in Room 215 on the second floor. The cells are lined with stainless steel; and each has a mineral-oil-filled, lead-glass window. Equipment and materials are transferred into and out of Rooms 113 and 215 through gasketed hatches.

A manipulator hot cell for alpha materials is located in Room 110 on the first floor. The cell is shielded by water-filled, steel tanks. It has a stainless-steel liner and a water-filled, viewing window. A glovebox provides air-tight access to the cell.

The west end of the building contains three low-level laboratories: Room 110 on the first floor and Rooms 211 and 212 on the second floor. The middle section of the facility consists of hot cell operating and access areas (Rooms 109 and 113 on the first floor and Room 215 on the second floor); the decontamination room (Room 105) on the first floor; and three low-level laboratories on the second floor (Rooms 208, 209, and 210). The east end of the building includes one low-level laboratory on the second floor (Room 207) that is currently not being utilized.

3.2 PRINCIPAL PROCESSES

3.2.1 Operational History

RDL was constructed about 1962 for research and development and production of radioisotopes. The Medical Isotopes Section (now the Nuclear Medicine Group) of the HSRD has utilized several laboratories for nuclear medicine research.

No specific descriptions can be given for past processing performed in RDL because of frequent changes not only in the processes themselves but also in the materials, operating procedures and parameters, and program requirements. Special safety summaries and approved procedures were required for each new experiment and operation. Before an operation could begin, all pertinent paperwork had to be reviewed and approved. If any potential hazard were identified, additional reviews and approvals were needed. Reviews identified and analyzed potential hazards that might be different in degree or type from those previously approved.

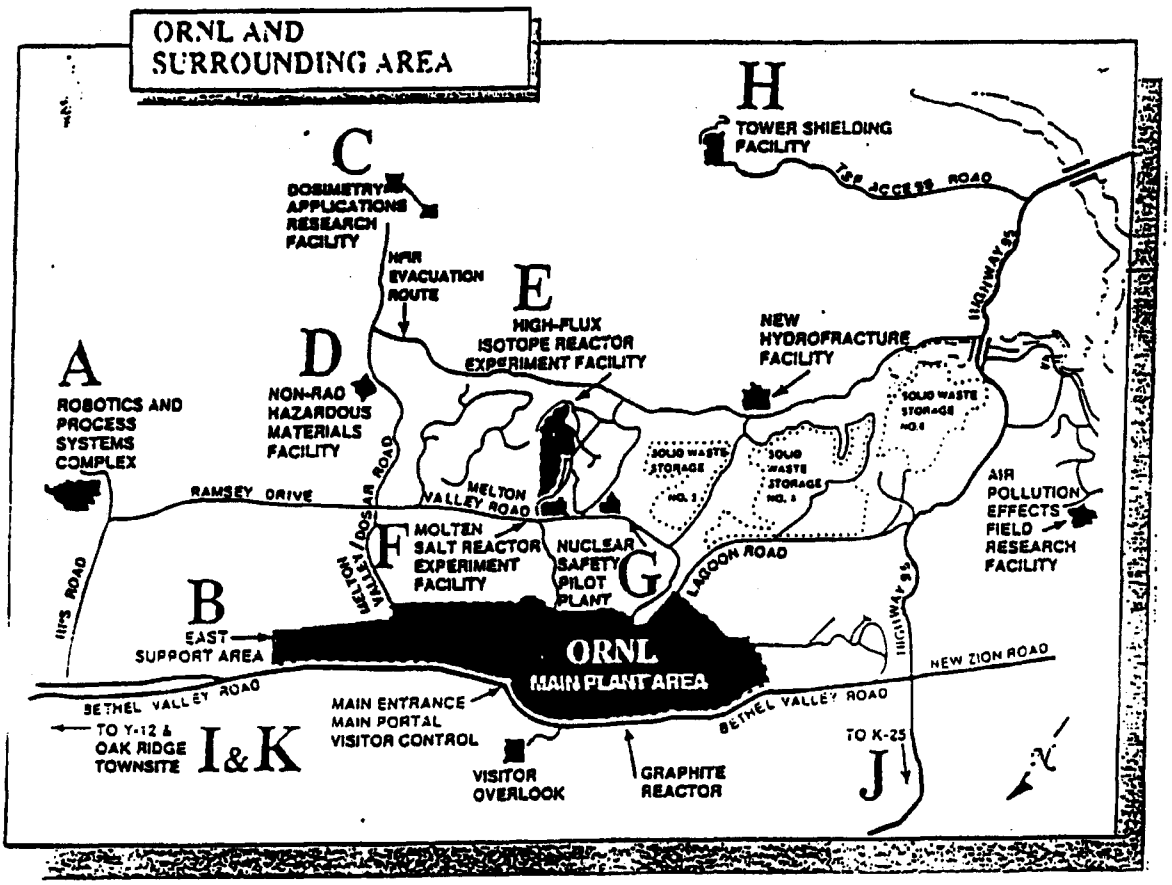


Fig. 1. Oak Ridge National Laboratory

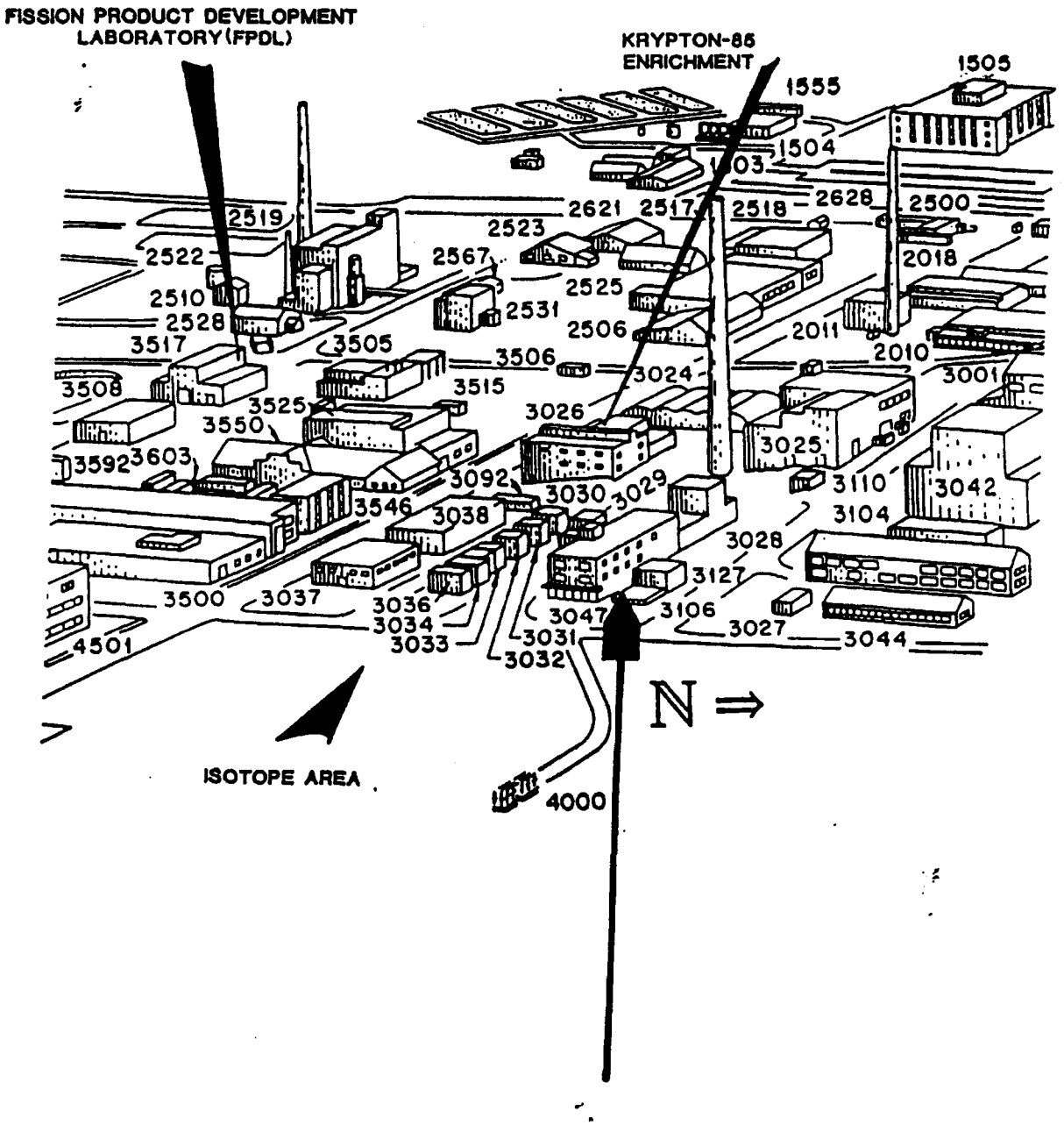
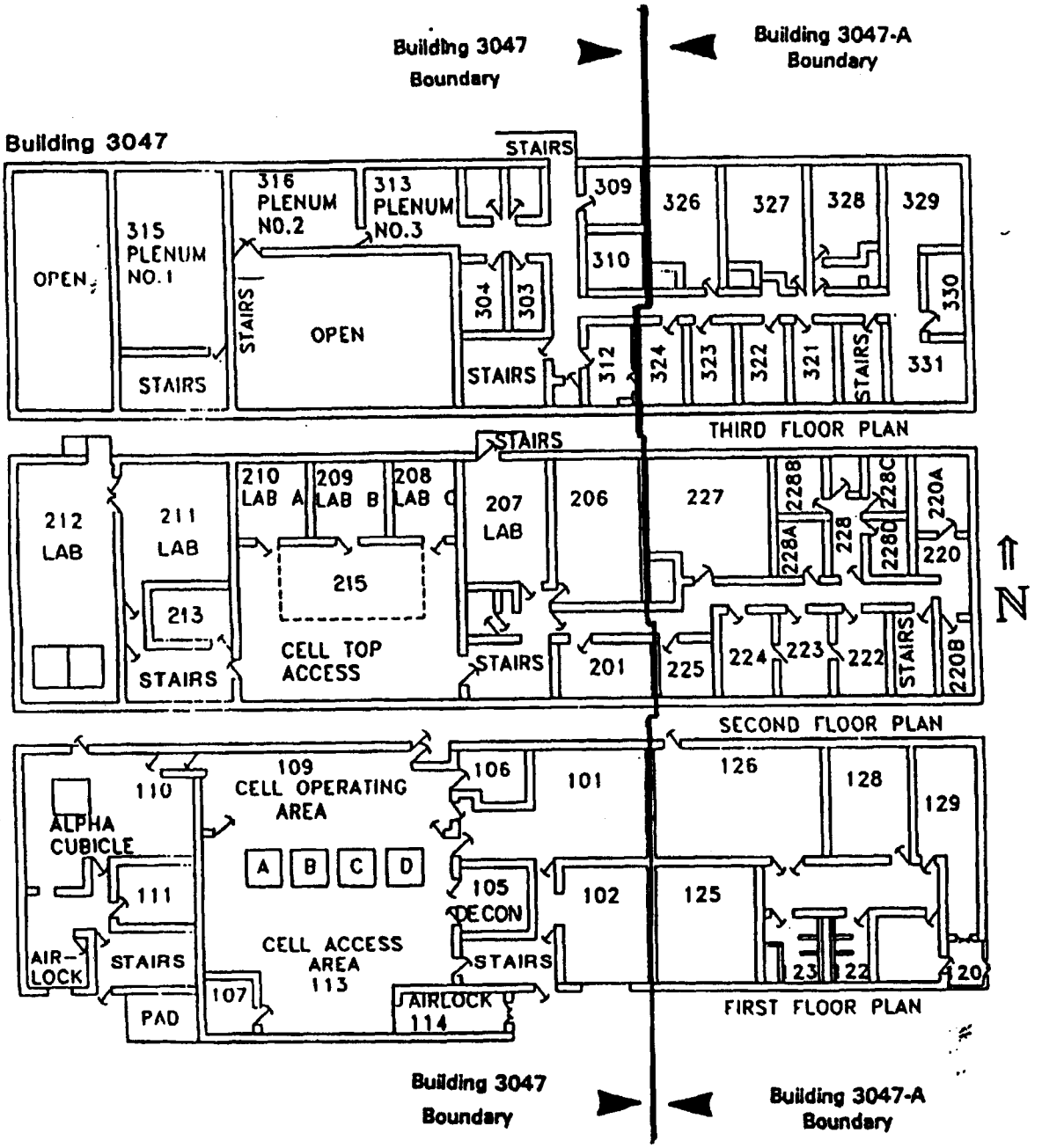


Fig. 2. Location of RDL



Layout of RDL

3.2.2 Present Processing

All process operations in RDL, including those required for inventory and source utilization, are covered by approved, written procedures. Nuclear medicine research continues in RDL.

Facility operations are continuing within RDL. Although it is not possible to define each individual work request because of the large number of different items of work, it is possible to place upper limits on the quantities of materials involved. Actual operations can involve temporary storage and movement of discrete items of inventory; trans-loading/shipment of items (transfer of items from on carrier or cask to another); receipt, packaging, repackaging, transfer, and shipment of radioactive material; and the unloading, opening, handling, repackaging, and shipment of liquid and solid radioactive materials including waste.

HSRD utilizes parts of this facility for processing medical radioisotopes and radiopharmaceutical research. The hot cells are used for opening HFIR [High-Flux Isotopes Reactor] target capsules and transloading highly radioactive materials. Laboratories 209 and 210 are currently not in use but are expected to be used by the IPDP (Isotope Production and Distribution Program). Laboratory 208 is used by HSRD staff as an analytical and research facility. Laboratory 207 may be used by IPDP.

3.3 HAZARD SOURCE INFORMATION

3.3.1 Nuclear Inventory

The upper limits for radioactive materials in RDL are defined by currently approved operational limits. [See Table B-1 in Appendix B.] All isotopes listed in the first part of Table B-1 can be present in the facility as storage or as operational/process quantitites. The second part of the table lists the limits for isotopes specified for glovebox operations.

The Nuclear Medicine Program generally studies radioisotopes with short half-lives. For any given cell process, less than 20 Ci of any radioisotope is used for any one process. Examples of radioisotopes under investigation in FY-1995 include ^{117m}Sn, $^{166}Dy/^{166}Ho$, ^{186}Re, and $^{188}W/^{188}Re$. A maximum upper limit to their total inventory is 100 Ci.

In addition to continued processing, a legacy of many past programs and processes previously conducted in this facility since its construction remains as inventory and residual surface contamination of cells and process equipment. A list of substances and hazardous materials that may be located within the facility (Table 1) was developed from historical information based on facility inventory records for all isotopes facilities and from operational information for RDL. Quantities of the residual materials present have been estimated from recent RS surveys, and individual inventory items are included in management audit records of the facility. (See Appendix A.) An estimated upper limit to possible inventory within RDL and the remaining individual items currently there and the residual contamination is attached in Appendix B. [Table 1 was developed from the data presented in Appendices A and B.]

A review of Table 1 resulted in the determination that the major non-industrial hazard identified in the facility is due to the potential operational inventory and the residual radioactive contamination present in the facility. The radioactive contamination is not considered as significant as the inventory.

The amount of residual surface radioactive material remaining within the facility (as stated in the inventory) has been estimated based on the RS average smearable levels of alpha and beta-gamma in the facility (see summary in Appendix A) over the entire free surface of the facility. Estimates of in-cell activity are included with those outside of the cell areas to obtain an overall value for residual material. The management audits provide the estimates of quantities of operational inventory within RDL.

3.3.2 Chemical Inventory

No significant hazards are attributed to the small quantities (less than the 29 CFR 1910.1000 laboratory quantities) of chemicals currently used in the facility except as noted below. [Limited quantities of nitric acid (8 gallons), citric acid powder (4 kg), oxalic acid powder (10 kg), and potassium permanganate (5 kg) are stored in the facility at one time. Chemicals utilized for decontamination and operations also include sulfuric acid, hydrochloric acid, ammonium hydroxide, and acetone; but, no more

than one gallon of each is in use at one time. Dry, flake sodium hydroxide is stored in a drum in the facility (about 50 pounds).] A number of solvents are utilized within the laboratory and hot-cell work. Only two hazardous chemicals are present in the laboratory in any major quantity (limited to hood use only while the containers are open): these chemicals, chloroform and benzene, are listed as human carcinogens by OSHA and ACGIH. Never more than 20 kg of each of these solvents is present in the facility at one time. The other hazardous chemicals present in the facility are no longer needed, are stored in chemical cabinets, and will be disposed of without research use as soon as practical. The two potentially hazardous chemicals that are present in larger quantities (chloroform and benzene), in an accident, would produce consequences (from either or both solvents) that have only minor effects on any personnel in the immediate vicinity of the solvents. Quantities of these chemicals in use at any time or in storage are limited by strict administrative controls. Both chemicals are below 29 CFR 1910.119 limits.

Flammable materials in use are limited to two 30-pound canisters of liquid propane [one in storage in a fireproof cabinet and one on a lift truck], one gallon of gasoline, the benzene and chloroform discussed above, and some miscellaneous spray/aerosol containers. All flammable materials, when not in use, are stored in a special fireproof cabinet. Two pressurized gas cylinders are present in the facility [non-flammable P-10 gas (mainly argon) in one 20-pound cylinder and one 40-pound cylinder].

A few potentially explosive chemicals are utilized, such as alkali chlorates and ammonium nitrate, but these are stored in special chemical cabinets. Quantities are limited to one pound or less of each.

3.3.3 Other Potential Hazards

Facility utilities include steam for heating (less than the screening criteria of 3,000 psig and 250°C), plant air (less than the screening criterion of 3,000 psig), and electrical power (less than the screening criterion of 600 V); thus, these are equivalent to any utilities found on any industrial site. There are laboratory furnaces, ovens, and hot plates; overhead cranes/hoists; one lift truck; numerous electric motors; and a conveyor. No fans or pumps are unique; these are equivalent to those found in any industrial area. All utility and equipment hazards have been classified as SIHs; and, therefore, no significant hazards are attributed to these items.

Table 1. Characteristics of residual contamination and inventory in RDL

Radioisotope(s)/Chemicals	Quantity (as a percent of Category 2 Threshold Limits)
Residual Contamination	
Alpha - not identified by individual isotope (but includes ^{239}Pu, ^{241}Am, ...)	Minimal (< < 1 percent; treated as ^{239}Pu equivalent)
Fission products - including ^{137}Cs	Minimal (< < 1 percent; treated as ^{90}Sr equivalent)
Maximum Equivalent Material Processed	
^{90}Sr	1,600 percent
Remaining Items of Inventory	
^{237}Np	0 percent
^{238}Pu	4,400 percent
^{239}Pu	5 percent
^{240}Pu	2 percent
^{241}Pu	0 percent
^{241}Am	1 percent
^{242}Pu	0 percent
SAR*/FMCL* Allowable Inventory (Items > 100 percent)	[values in brackets are FMCL quantities as percent of Category 2 Threshold Limits]
^{90}Sr	4,550 percent
^{137}Cs	560 percent
^{144}Ce	1,220 percent
^{155}Eu	140 percent
^{191}Os	230 percent
^{238}Pu	[30,400 percent]
^{241}Am	3,300 percent [35,500 percent]
^{243}Am	[3,230 percent]
^{242}Cm	2,350 percent
^{244}Cm	60,000 percent [162,000 percent]
^{252}Cf	3,300 percent
Mixed fission products	2,500 percent
Chemicals	
chloroform, benzene	Not Applicable (20 kg maximum each)

*Safety Analysis Report (SAR) limits; fissionable material control limits (FMCLs) as defined by ORNL Procedure NCS 1.0.

4. HAZARD SCREENING

This hazard screening has been developed using the following reports for guidance. Specific internal references are: The Safety Analysis Report Update Program: Overview and Phase I Implementation (Revision 2), Report No. ES/CSET-1/R2, August 1991; and The Safety Analysis Report Update Program: Hazard Screening Application Guide, Report No. ES/CSET-2/R1, June 1992 [hereafter referred to as CSET-1,2]. In addition, DOE-STD-1027, DOE-EM-STD-5502-94, and DOE-5480.11 have been utilized for inventory estimation and facility categorization. All information and data utilized for this screening have come from facility operators and management and the existing documentation for the facility.

Initial hazard classification was determined from criteria identified in CSET-1. The DOE standards and orders provided final categorization information. Since the facility inventory is the basis for categorization, there was no need for any subsequent accident analyses.

4.1 HAZARD IDENTIFICATION

4.1.1 Preliminary Hazard Identification Matrix

The completed Preliminary Hazard Identification Matrix can be found in Appendix C. The major non-industrial hazard identified is the residual radioactive contamination and operational nuclear material inventory. A second hazard identified was the two laboratory solvents listed as possible carcinogens. All other (non-radioactive) materials/hazards were evaluated and can be classified as Standard Industrial Hazards (SIHs). Examples of these SIHs are small quantities of acids, flammable materials, and other chemicals; vacuum pumps; utilities; a lift truck, hoists, and a conveyor; heat sources; and instrumentation.

4.1.2 Preliminary Hazards Analysis Worksheet

The completed Preliminary Hazards Analysis Worksheet will be found in Appendix D. The major hazard consists of radioactive contamination, operational inventory and activities, and the remaining items of nuclear inventory. The presence of this material can lead to significant consequences, which can result in the exposure of on-site personnel in the event that one or more containers are ruptured during a natural phenomenon or facility upset.

The presence of small quantities of two laboratory solvents, chloroform and benzene, is recognized as a hazard, but the effects are minor. No significant consequences to personnel within the facility or in the vicinity of the building would be expected.

4.2 INITIAL HAZARD CLASSIFICATION

Using the DOE-STD-1027 and DOE-5480.11 guidelines, RDL should be considered Category 2. There is significant potential for major impact to individuals on-site.

The operational inventory is the determining factor for classification of this facility. Decision-making evaluation (from DOE-EM-STD-5502-94) applied to DOE-STD-1027 inventory limits for the ^{238}Pu currently stored in RDL and the maximum operational limit estimated for ^{90}Sr define the category. The presence of carcinogenic materials is considered to be of much less significance to immediate personnel safety than the radiological inventory. Quantities are below 29 CFR 1910.119 limits, and exposure of personnel to the solvents would produce only minor consequences.

5. SAFETY DOCUMENTATION REQUIREMENTS

No further hazards evaluation is planned for this facility until operations within RDL change. All source and past operational information for the building is currently well documented.

6. MATERIALS AND HAZARDS THAT COULD AFFECT OTHER FACILITIES

An accident in RDL could affect adjacent facilities. The source of any consequences is from the inventory and operations within RDL. The impact on adjacent facilities would be from contamination and radiation. An accident triggered by a natural phenomenon would be likely to severely harm adjacent facilities as well as RDL. Subsequent access to the adjacent facilities would have to be restricted regardless. What facilities would be affected depends on wind and weather conditions at the time of the accident and immediately following and the extent of damage to RDL. No adjacent facilities would be expected to impact RDL.

APPENDIX A

SUPPORTING RADIOLOGICAL SURVEILLANCE SURVEY INFORMATION

Supporting Radiological Surveillance Survey Information

October, November, December 1994, and January 1995 and other Reports

A.1 REMAINING INVENTORY

There is inventory as 'discrete' or 'individual' items remaining within RDL (Building 3047). There are other sources of radioactive material, including waste, left in RDL as operations continue. The Nuclear Medicine Group does experimental work within the facility laboratories, hot cells, and hoods. There is some fixed and transferable radioactive material surface contamination remaining in the facility. The 'inventory', as defined in Appendix B, includes five parts: discrete inventory from Isotopes storage; continuing Isotopes operations; allowable limits, by isotope, within the facility for Isotopes work; the inventory from the Nuclear Medicine Group's storage and research; and worst case contamination within the facility.

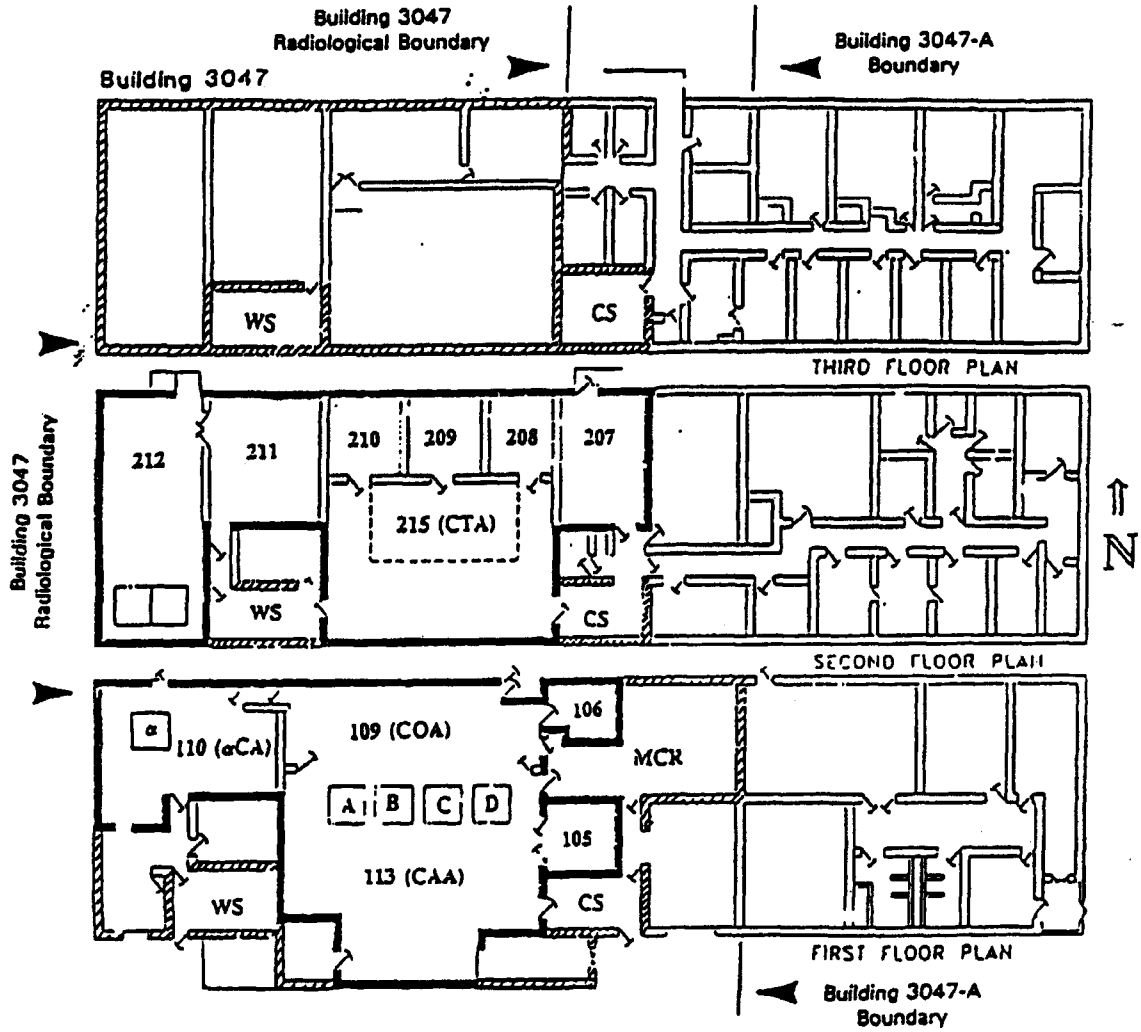
A.2 CONTAMINATION LEVELS

Overall contamination levels within RDL have been determined. The results are updated with new surveys at least once a quarter except for the hot cells. Smears give the levels of transferable surface radioactive material, and radiation surveys give the levels of transferable plus fixed surface radioactive material as a total. Smears generally are reported as disintegration count rates that are easily converted into Curies (Ci) of radioactive material. Radiation surveys are normally reported as dose rates that are easily converted into Roentgen-equivalent-man (Rem) of radiation dose to humans. [See Fig. A-1 for those areas considered to be potentially contaminated.]

The hot-cell interiors have very high alpha and/or beta/gamma radiation levels and pose a great potential hazard for exposure and contamination of individuals if they enter the hot cells. As a result, attempts to obtain quantitative and representative information on contamination levels and resulting inventories in these hot cell are difficult even with the utilization of manipulators since the smears must be transferred out of the hot cell to personnel. Smears from the same area could differ by a factor of five to ten (or more), and the resulting inventory calculations could differ by an order of magnitude or more. Smears from a hot cell can be so contaminated with radioactive material that only a dose rate can be determined from them: they cannot be counted if too hot. Significant decontamination efforts in the hot cells have reduced radiation and contamination levels substantially.

Total Radiation Levels. Fixed and transferable contamination, as a total, give radiation survey levels that remain relatively constant over time if no decontamination work is done within the facility. There is little variance in the results for the overall facility or in any specific area with time although some areas may be more contaminated with radioactive material than others. The results by area in RDL for radiation levels (fixed plus transferable contamination) are as follows:

Room 105 --	< 1.0 mRem/h @ 30 cm
Room 106 --	< 0.1 mRem/h @ 30 cm
Room 109 --	< = 2.5 mRem/h @ 30 cm; < = 12 mRem/h @ contact
Room 110 --	< = 2.0 mRem/h @ 30 cm
Room 113 --	< = 2.2 mRem/h @ 30 cm
Alpha hot cell in Room 110 --	No data
Hot Cell A --	< = 405 mRem/h of beta/gamma @ 30 cm
	< = 73 mRem/h of gamma @ 30 cm
Hot Cell B --	100 to 300 mRem/h of beta/gamma @ 30 cm
Hot Cell C --	< 5,000 mRem/h @ contact
Hot Cell D --	No data
Men's Change Room --	< 0.1 mRem/h @ 30 cm
West Stairwell	
(all three floors) --	< 0.1 mRem/h @ 30 cm



Potentially contaminated areas of RDL as defined by HP survey requirements:

First floor –

Rooms 105 (Decontamination Room), 106, 109 (cell operating area, designated as COA), 110 (alpha cubicle area, designated as αCA), 113 (cell access area, designated as CAA), and the men's change room (normally a clean area designated as MCR)

Second floor –

Rooms and laboratories 207, 208, 209, 210, 211, 212, and 215 (cell top access area, designated as CTA)

General –

Stairwells in the west (designated WS) and central (designated CS) portions of RDL

Hot cells –

alpha hot cell in Room 110 (designated as α) and the four hot cells in the Rooms 109/113 area (designated as A, B, C, and D)

Fig. A-1. Contaminated Areas of RDL

Table A-1. Summary of facility contamination for RDL

Smear Results (transferable, dpm/100 cm^2)	Location and Comments
alpha - < 20 beta/gamma - < 200	Room 105
alpha - < 20 beta/gamma - < 200	Room 106
alpha - < 20 beta/gamma - < 200	Room 109
alpha - < 20 beta/gamma - < 200	Room 110
alpha - < 20 beta/gamma - < 200	Room 113
alpha - 3,000,000	Alpha hot cell in Room 110; no beta/gamma data
alpha - < 1,500 beta/gamma - < 50,000; fixed >5,000 mr/h @ contact and 1,500 mr/h gamma; total contamination estimated at 10^5	Hot Cell A; beta/gamma estimated from radiation levels of hot spots
alpha - < 20 beta/gamma - < 60,000; fixed < = 70 mr/h @ contact one hot spot at 3,000 mr/h @ contact; total contamination estimated at 10^5	Hot Cell B; beta/gamma estimated from radiation levels of hot spots
alpha - no data; total contamination estimated < = 1,500 beta/gamma - < 30,000; total contamination estimated at 10^5	Hot Cell C; alpha estimated from Cell A data; beta/gamma estimated from radiation levels of hot spots
alpha - no data; total contamination estimated < = 1,500 beta/gamma - no data; total contamination estimated at 10^5	Hot Cell D; alpha estimated from Cell A data; beta/gamma estimated from other cell levels of hot spots
alpha - < 20 beta/gamma - < 200	Men's Change Room
alpha - < 20 beta/gamma - < 200	West Stairwell (3 floors)
alpha - < 20 beta/gamma - < 200	Central Stairwell (3 floors)
alpha - < 20 beta/gamma - < 200	Room 207 [includes ^{125}I]
alpha - < 20 beta/gamma - < 200	Room 208
alpha - < 20 beta/gamma - < 200	Room 209 [includes ^{125}I]
alpha - < 20; < 300 beta/gamma - < 200; <1000	Room 210 [includes ^{125}I]
alpha - < 20 beta/gamma - < 200; < 1,000	Room 211 [includes ^{14}C; some values specific for ^{14}C are < 10,000]
alpha - < 20 beta/gamma - < 200	Room 212
alpha - < 20 beta/gamma - < 200	Room 215

Table A-1. Summary of facility contamination for RDL (cont'd)

Radiation Results (mr/h @ 30 cm)	Location and Comments
< 1.0	Room 105
< 0.1	Room 106
<= 2.5 (one hot spot 12 mr/h @ contact)	Room 109
<= 2.0	Room 110
< 2.5	Room 113
no data	Alpha hot cell in Room 110
<= 405 [beta/gamma] and < 75 [gamma]	Hot Cell A
100 to 300	Hot Cell B
< 5,000 [@ contact]	Hot Cell C
no data	Hot Cell D
< 0.1	Men's Change Room
< 0.1	West Stairwell (3 floors)
< 0.1	Central Stairwell (3 floors)
< 0.1	Room 207
<= 1.5 (one hot spot 22 @ contact and 10 @ 30 cm)	Room 208
<= 0.1 [<= 1.0 @ contact]	Room 209
< 0.1	Room 210
<= 2 [<= 7 @ contact]	Room 211
< 1.5	Room 212
< 2 [<=18 @ contact]	Room 215

Central Stairwell (all three floors) --	< 0.1 mRem/h @ 30 cm
Room 207 --	< 0.1 mRem/h @ 30 cm
Room 208 --	< = 1.5 mRem/h @ 30 cm; one hot spot 10 mRem/h @ 30 cm and 22 mRem/h @ contact
Room 209 --	< 0.1 mRem/h @ 30 cm; < 1.0 mRem/h @ contact
Room 210 --	< 0.1 mRem/h @ 30 cm
Room 211 --	< = 2.0 mRem/h @ 30 cm; < = 7.0 mRem/h @ contact
Room 212 --	< 1.5 mRem/h @ 30 cm
Room 215 --	< = 2.0 mRem/h @ 30 cm; < = 18 mRem/h @ contact

Smear Results. Transferable contamination results, although relatively stable while no decontamination work is done in the facility, do tend to vary 'up and down', especially small, isolated, individual hot spots (a hot spot is defined as a small area that shows much greater contamination than the surrounding areas). The variances are due to such uncontrollable variables as how 'hard' a person presses when obtaining a smear, the adherence of the contamination to the surface, how closely the smeared area corresponds to exactly 100 cm^2 (more or less), uneven distribution of the contamination over the surface, etc. It is not unreasonable to expect significant variations in areas of greater contamination. Results for RDL are as follows (transferable contamination only):

Alpha Contamination

All areas, except as follow --	< 20 dpm/100 cm^2
Alpha Hot Cell --	3,000,000 dpm/100 cm^2
Hot Cells A, C, and D --	No data; estimated to be 1,500 dpm/100 cm^2 based on smear data from behind Cell A door
Room 210 --	< 20 or < 300 dpm/100 cm^2

Beta/Gamma Contamination

All areas, except as follow --	< 200 dpm/100 cm^2
Alpha Hot Cell --	No data (no significant beta/gamma sources handled within)
Hot Cell A --	< = 50,000 dpm/100 cm^2; > 5,000 mRem/h beta/gamma @ contact; 1,500 mRem/h gamma @ contact
Hot Cell B --	< 60,000 dpm/100 cm^2; < = 70 mRem/h beta/gamma @ contact; one hot spot 3,000 mRem/h beta/gamma @ contact
Hot Cell C --	< 30,000 dpm/100 cm^2
Hot Cell D --	No data
Estimates for all hot cells --	[A - D] < 10^5 dpm/100 cm^2 based on hot spot and radiation levels
Room 207 --	< 200 dpm/100 cm^2; no ^{125}I
Room 209 --	< 200 dpm/100 cm^2; no ^{125}I
Room 210 --	< 200 and < 1,000 dpm/100 cm^2; no ^{125}I
Room 211 --	< 200 and < 1,000 dpm/100 cm^2 Some ^{14}C results < 10,000 dpm/100 cm^2

Individual Isotopes. Tentative identification of the individual isotopes present in the facility as residual surface radioactive contamination has been determined from the operational history of the facility. [It is not feasible to identify the isotopes from the RS smears or contaminated areas due to the low levels of contamination generally found throughout the facility.] Most, if not all of the short-lived fission products have decayed away; $^{152 \text{ and } 154}$Eu predominate in at least one hot cell (56 percent the former and 44 percent the latter in Hot Cell B). The Nuclear Medicine Group utilizes small amounts of a large number of different isotopes. The prominent remaining beta/gamma activities, including those from the Nuclear Medicine Group, can be estimated on a worst case basis for beta/gamma activity with ^{90}Sr probably representing as descriptive a typical contaminant as can be found throughout this facility. Therefore, beta/gamma residual surface radioactive contamination is represented by one category:

^{90}Sr; beta/gamma (including the hot cell activity)

There is no significant alpha contamination in most of the facility except in the hot cells, especially the alpha cell. The Nuclear Medicine Group utilizes virtually no alpha materials. Based on the RS data, alpha contamination is included in the isotopic inventory listing for the residual surface radioactive contamination. One alpha activity is included as typical of what would represent a worst case:

^{239}Pu; alpha (including all hot cell activity)

A.3 INVENTORY ESTIMATE FROM CONTAMINATION

Facility (Including the Hot Cells). The surface area of each floor of the facility is about 500 m^2 [estimated as 4,000 ft^2]. The height of each floor in the facility is 3 to 5 m. Those areas that consistently show smears and radiation readings below the normal RS limits have been assumed to be contaminated at the minimum level (relatively uncontaminated). [This assumption is also considered prudent due to the much larger relative contribution from the more highly contaminated areas, especially the hot cells, that do not fit this criterion.] The hot cell areas are assumed to have significant residual surface radioactive contamination (as indicated above). Most of the hot cells have been partially decontaminated and are assumed to have the lower residual surface contamination levels noted above. Once the individual area contamination levels have been calculated, an overall estimate of the total facility contamination has been calculated by summing the individual area contributions. Small individual fixed hot spots have *not* been included in the facility contamination total.

The surface areas of the contaminated portions of the facility have been estimated. A relative level of overall contamination has been assumed; but, as will be shown below, historical data indicate a few hot spots. These hot spots are relatively unimportant when compared to the cell areas. The alpha contamination levels in Cells B, C, and D have been estimated from hot spot values and similar radiation levels among all four hot cells in the cell bank. The beta/gamma contamination in the alpha hot cell is assumed from the historical information that indicates no significant primary beta/gamma sources have been handled in the hot cell. The estimated floor and total surface areas along with the average contamination levels are as follows:

Facility area	Floor area, m^2	Surface area, m^2	Alpha, dpm/100 cm^2	Beta/gamma, dpm/100 cm^2
Alpha Hot Cell	(2 x 3) ~ 6	(x 2) ~ 30	~ 3 x 10^6	~ 0
Each Hot Cell; A, B, C, and D	(2 x 3) ~ 6	(x 2) ~ 30	~ 1,500	~ 10^5
Balance of Facility	(30 x 15) ~ 500	2 floors, 6 times the wall areas for cubicles (x 3) ~ 3,500	20	200

The surface contamination levels, after being converted to dps/m^2 [by being divided by 60 s/min, divided by 100 cm^2, and multiplied by (100 cm/m)^2], are multiplied by the surface area and divided by 3.7×10^{10} dps/Ci.

The facility contamination levels are estimated to be as follows:

Facility Area	Alpha, mCi	Beta/Gamma, mCi
Alpha Hot Cell	~ 4 as ^{239}Pu	~ 0
Each Hot Cell; A, B, C, and D	~ 0.002 as ^{239}Pu ~ 0.008 as ^{239}Pu (total of 4)	~ 0.14 as ^{90}Sr ~ 0.54 as ^{90}Sr (total of 4)
Balance of Facility	~ 0.003 as ^{239}Pu	~ 0.032 as ^{90}Sr

The facility totals are estimated to be (from residual surface radioactive contamination):

Beta/gamma as ^{90}Sr -- < 1 mCi

Alpha as ^{239}Pu -- < 5 mCi

[Additional contamination problems that cannot be quantified are discussed in Section A.7.]

Individual Items of Inventory and Operations. The individual items of inventory are from the audit list for the Isotopes Area Facilities. The most hazardous items of remaining inventory consist of a few containers of primarily ^{238}Pu (with impurities) that contain the following total quantities:

Isotope	Quantity, Ci	Quantity, g
^{237}Np	0.0047	6.66
^{238}Pu	2770.	162.0
^{239}Pu	2.7	44.3
^{240}Pu	1.31	5.7
^{241}Pu	13.9	0.133
^{241}Am	0.43	21.1
^{242}Pu	0.003	1.0

The Nuclear Medicine Group usually has < 5 Ci of beta/gamma materials present as inventory. Their normal maximum inventory is 10 to 20 Ci and they would never exceed a limiting maximum of 100 Ci. They utiilize virtually no alpha-emitting material.

Total Facility. The total facility inventory and operational levels for alpha and beta/gamma are then estimated to be about:

Alpha -- ~ 10,000 Ci (as mixed isotopes)

Beta/gamma -- ~ 10,000,000 Ci (as mixed isotopes)

Category 2 Threshold Limits. The Category 2 Threshold Limits for ^{238}Pu as applied to the inventory, for ^{244}Cm as a potential maximum allowable inventory limit, and for ^{90}Sr as applied to operational limits have been exceeded as follows:

Total facility at ~ 4,400 percent of (more than 40 times) the ^{238}Pu limit,
Total facility at ~ 60,000 percent of (more than 600 times) the ^{244}Cm limit, and
Total facility at ~ 5,000 percent of (more than 50 times) the ^{90}Sr limit.

A.4 HISTORICAL RESULTS FOR THE PAST TWO YEARS

Total Radiation Levels. By area, the following historical perspectives are available.

Room 105 --	< 1.0 mRem/h @ 30 cm
Room 106 --	< 0.1 mRem/h @ 30 cm
Room 109 --	< = 4.0 mRem/h @ 30 cm; < = 16 mRem/h @ contact
Room 110 --	< = 18 mRem/h @ 30 cm; < = 14 mRem/h @ contact
Room 113 --	< = 2.2 mRem/h @ 30 cm; < = 6 mRem/h @ 30 cm and < = 90 mRem/h @ 30 cm for a one-time container; < = 40 mRem/h @ 30 cm and < = 400 mRem/h @ contact with the Cell C window
Alpha hot cell in Room 110 --	No data
Hot Cell A --	< = 405 mRem/h of beta/gamma and < = 73 mRem/h of gamma @ 30 cm; > 5,000 mRem/h of beta/gamma and < = 1,500 mRem of gamma @ contact; < = 150 mRem/h of beta/gamma and < = 30 mRem/h of gamma @ cell-door threshold
Hot Cell B --	100 to 300 mRem/h of beta/gamma @ 30 cm; 19 mRem/h of beta/gamma and 9 mRem/h of gamma @ cell-door threshold
Hot Cell C --	< 5,000 mRem/h @ contact
Hot Cell D --	No data
Men's Change Room --	< 0.1 mRem/h @ 30 cm; < = 0.3 mRem/h @ contact
West Stairwell (all three floors) --	< = 0.2 mRem/h @ 30 cm
Central Stairwell (all three floors) --	< = 0.1 mRem/h @ 30 cm
Room 207 --	< = 0.7 mRem/h @ 30 cm; one hot spot at 2.0 mRem/h @ 30 cm and 4.5 mRem/h @ contact
Room 208 --	< = 2.5 mRem/h @ 30 cm; hot spots < = 70 mRem/h @ 30 cm and < = 300 mRem/h at contact
Room 209 --	< 1.4 mRem/h @ 30 cm; < 2.5 mRem/h @ contact
Room 210 --	< 0.1 mRem/h @ 30 cm
Room 211 --	< = 25 mRem/h @ 30 cm; < = 6.0 mRem/h @ contact
Room 212 --	< = 1.7 mRem/h @ 30 cm; < = 2.5 mRem/h @ contact
Room 215 --	< = 3 mRem/h @ 30 cm and < 20 mRem/h @ contact; one hot spot < = 7 mRem/h @ 30 cm; < = 200 mRem/h @ contact

Smear Results. By area, the following historical perspective has been evaluated for the facility.

Alpha Contamination

All areas, except as follow --	< 300 dpm/100 cm^2
Room 110 --	< 3,000 dpm/100 cm^2
Alpha Hot Cell --	3,000,000 (more or less) dpm/100 cm^2
Hot Cells A, C, and D (Cell B clean of alpha)--	No data (inside of Cell A door = 1,500 dpm/100 cm^2); estimated to be 1,500 dpm/100 cm^2 for all four hot cells

Beta/Gamma Contamination

All areas, except as follow --	< 1,000 dpm/100 cm^2
Room 105 --	< 1,200 dpm/100 cm^2
Room 109 --	< = 1,200 dpm/100 cm^2
Room 113 --	< 2,100 dpm/100 cm^2
Alpha Hot Cell --	No data; estimated as none, based on historical operations
Hot Cell A --	< = 50,000 dpm/100 cm^2; > 5,000 mRem/h beta/gamma @ contact; 1,500 mRem/h gamma @ contact
Hot Cell B --	< 60,000 dpm/100 cm^2; < = 70 mRem/h beta/gamma @ contact; one hot spot 3,000 mRem/h beta/gamma @ contact
Hot Cell C --	< 30,000 dpm/100 cm^2
Hot Cell D --	No data
Estimates for all hot cells --	[A - D] < 10^5 dpm/100 cm^2, based on hot spots and similar radiation levels
Room 209 --	< 2,300 dpm ^{125}I/100 cm^2
Room 210 --	< 1,700 dpm ^{125}I/100 cm^2
Room 211 --	< 10,000 dpm ^{14}C/100 cm^2

Older data have not been averaged with newer data in determining surface-radioactive-material-contamination levels for several reasons. First, some hot spots, especially the worst ones outside the hot cells, have been cleaned and contamination levels reduced. Second, repetitive hot spot smears are not consistent. Third, the overwhelming surface area of the facility outside the hot cells has much less contamination than the hot spots would indicate.

A.5 RS REPORTS: DATA UTILIZED IN THIS REPORT

The latest reports were utilized for calculation and reporting purposes. The sources of data were from RS reports on file in the RDL Field Office and are as follows:

Room 105 --	smears - 1/27, 11, 4/95; 12/28/94 radiation - 1/27/95; 12/28/94 historical - 12/20, 14, 7; 11/30, 23, 18, 14, 11, 2; 10/27, 19, 13, 4; 9/29, 22, 16, 7, 2; 8/26, 19, 12, 9, 4; 7/29, 21, 14, 8; 6/30, 23, 17, 13, 6; 5/13; 4/8; 3/11; 2/4; 1/7/94; 12/6; 10/29; 9/27; 8/27; 6/25, 10; 5/21; 4/30, 20, 8, 2; 3/30, 23, 16, 4; 2/22, 12; 1/27, 22, 15, 8/93
Room 106 --	smears - 1/12, 4/95; 12/29, 19, 14, 7/94 radiation - 12/19/94 historical - 11/30, 22, 17, 11, 4; 10/27, 19, 14, 5; 9/28, 22, 15, 7, 1; 8/26, 17, 12, 1; 7/29, 20, 13, 7; 6/30, 23, 15, 9, 3, 5/27, 13; 4/13; 3/23, 11; 2/25; 1/21/94; 12/22; 11/16; 10/19; 9/27; 8/27; 6/24; 5/21; 4/20, 8, 2; 3/30, 23, 16; 2/26, 22, 12; 1/27, 22, 15, 8/93
Room 109 --	smears - 1/27, 11, 4/95 radiation - 1/27, 11, 4/95

historical - 12/28, 19, 13, 7; 11/30, 22, 17, 10, 3; 10/19, 13, 4; 9/28, 21, 16, 6, 1; 8/26, 16, 12, 9, 5; 7/29, 21, 13, 7; 6/30, 23, 15, 9, 3; 5/27, 17, 10; 4/19; 3/31, 11; 2/3; 1/10/94; 12/6; 10/29,6; 9/27; 8/27; 6/30; 5/28; 4/30; 2/25; 1/26/93

Room 110 -- smears - 1/10, 4/95; 12/29, 21, 12, 6, 1/94
radiation - 12/21/94
historical - 11/22, 17, 8, 4; 10/25, 19, 13, 5; 9/28, 21, 16, 6; 8/31, 26, 16, 12, 9, 2; 7/29, 19, 15, 7; 6/30, 23, 16, 9, 6; 5/27, 16, 13; 4/14, 12, 11; 3/21, 11; 1/31/94; 12/22; 11/24; 10/29; 9/27; 8/26; 6/25; 5/28; 4/30, 7; 2/25; 1/25/93

Room 113 -- smears - 1/5/95
radiation - 1/5/95
historical - 12/30, 20, 14, 9, 2; 11/22, 21, 18, 7, 3; 10/27, 24, 19, 13, 10; 9/28, 21, 16, 6, 2; 8/26, 17, 12, 9, 5; 7/21, 18, 14, 7; 6/30, 23, 17, 3; 5/27, 10; 4/15, 11; 3/21; 2/9; 1/13/94; 12/8; 10/29, 6; 9/27; 8/27; 6/25; 5/28; 4/30, 6; 2/26; 1/26/93

Men's Change Room -- smears - 12/29/94
radiation - 4/22/94
historical - 11/30, 2; 10/4; 9/7; 8/8; 7/13; 6/15; 5/17; 4/18; 3/25; 1/31, 14/94; 10/28; 9/30; 8/11; 6/30, 7; 4/27, 2; 3/5; 1/20/93

West Stairwell -- smears - 10/20/94
radiation - 10/20/94
historical - 9/19; 6/21; 3/25/94; 12/9; 9/10; 4/26; 1/18/93

Central Stairwell -- smears - 12/20/94
radiation - 12/20/94
historical - 9/20; 6/21; 3/25/94; 12/9; 9/10; 4/26; 1/18/93

Alpha Hot Cell -- smears - unknown date (alpha only)
radiation - none
historical - unknown date (at least one more)

Hot Cell A -- smears - 1/26/95 (alpha and beta/gamma)
radiation - 1/26/95
historical - 3/31/93

Hot Cell B -- smears - 1/18/95 (alpha and beta/gamma)
radiation - 1/18/95
historical - 3/31/93

Hot Cell C -- smears - 1/20/92 (beta/gamma only)
radiation - 1/20/92
historical - none

Hot Cell D -- smears - none
radiation - none
historical - none

Room 207 -- smears - 1/25/95
radiation - 1/25/95
historical - 12/28; 11/30, 1; 10/19, 3; 8/31, 2; 7/1; 6/7; 5/11; 4/8; 3/7; 1/31/94; 12/28; 11/24; 10/25; 9/28; 8/27; 6/30, 4; 5/6; 4/1; 3/5; 1/21/93

Room 208 --	smears - 1/17/95 radiation - 1/17/95 historical - 12/20; 11/23; 10/27; 8/31, 2; 7/1; 6/7; 5/11; 4/8; 3/7; 1/31, 5/94; 11/24; 10/25; 9/28; 8/27; 6/30, 4; 5/6; 4/1; 3/5; 1/21/93
Room 209 --	smears - 1/18/95 radiation - 1/18/95 historical - 12/22; 11/16, 2; 9/1; 8/3; 5/11; 4/8; 3/7; 1/31/94; 12/28; 11/24; 10/25; 9/28; 8/27; 6/30, 4; 5/7; 4/1; 3/5; 1/21/93
Room 210 --	smears - 1/4/95 radiation - 1/4/95 historical - 12/6; 11/9, 2; 10/3; 9/1; 8/1; 5/11; 4/8; 3/7; 1/31/94; 12/28; 11/24; 10/25; 9/28; 8/27; 6/30; 5/7; 4/1; 3/5; 1/21/93
Room 211 --	smears - 1/25/95 radiation - 1/25/95 historical - 10/25; 7/26; 4/12; 1/14/94; 10/12; 7/27; 4/22; 1/19/93
Room 212 --	smears - 11/23/94 radiation - 11/23/94 historical - 8/26; 5/24; 2/16/94; 11/8; 8/10; 4/22; 1/19/93
Room 215 --	smears - 1/4/95 radiation - 1/4/95 historical - 12/7; 11/8; 10/27, 13; 9/13; 8/16; 7/18; 6/17; 4/19, 5; 3/21; 2/8; 1/6/94; 11/24; 10/28; 9/28, 21; 6/30, 7; 5/7; 4/2; 3/4; 1/20/93

A.6 RATIONALE FOR ASSUMPTIONS/CALCULATIONS

Isotope Identification. No attempt at specific isotope identification is feasible. Therefore, no particulate (alpha, beta) energy has been determined; and no specific gamma-ray energy is available. As a result, no radiation measurements can be converted into equivalent decay/Ci contents.

Surface Contamination Levels: Entire Facility: Alpha. Alpha contamination is not extensive; none of significance has been found in the balance of the facility or in Hot Cells A, B, C, and D; especially since major decontamination efforts have been initiated. The maximum alpha inventory can easily be estimated from that remaining in the Alpha Hot Cell in Room 110, an estimated amount in each of the other four hot cells, and a possible maximum amount in the balance of facility:

total surface area in each of the facility areas:
multiply by average dpm alpha/100 cm^2,
divide by 100 cm^2, and
multiply by $(100\ cm/m)^2$
= total dpm alpha in the facility area
converting to Ci by:
dividing by 60 s/min and
3.7×10^{10} dps/Ci
= total Ci content of the area

Thus, the maximum possible surface contamination as alpha inventory is about 4 to 5 mCi.

Surface Contamination Levels: Entire Facility: Beta/Gamma. The beta/gamma contamination for the facility is low enough for most of the facility that it can be categorized as negligible (< 200 dpm/100 cm^2). Even the few hot spots, such as in a couple of laboratories and on the exterior face of the equipment in the laboratories are not significant in contribution to the facility inventory. The results from average surface contamination levels for the balance of facility (excluding the hot cells)

is considered low when compared to the hot cells. The overall facility contamination level is < 1 mCi of ^{90}Sr equivalent.

Calculations: Accuracy and Precision. All calculations are to the nearest, single, significant digit. No estimates of accuracy or precision are possible. Based on the RS historical data, smear data maxima, for any given large surface area, may range over factors of from five to ten; but, the surface averages vary much less than a factor of two (usually by a factor of about 1.25 or less when the surveys cover the same area). Variability in radiation levels is low except in a location where radioactive waste material may be packaged and levels are compared when waste is present to after it has been removed. More historical data for an area enhance the confidence that an area is clean or, conversely, increase the confidence in the correctness of observed surface contamination levels.

Criticality. Criticality is *not* a hazard in RDL since administrative procedures prohibit more than the fissionable material control limit [FMCL] quantities as defined in the ORNL Nuclear Criticality Safety Procedure No. NCS-1.0 (February 18, 1994).

A.7 TWO ADDITIONAL CONTAMINATION PROBLEMS

There are two other contamination problems that are addressed separately below. They represent major, but unknown, additional inventory increments. The quantity they would add is very small in relation to the operational quantities and the overall transuranic (mainly plutonium) inventory already considered.

Intra-Facility Airborne Release. On November 22, 1966 at about 10:30 A.M., there was an airborne release of ^{241}Am, ^{242}Cm, and ^{243}Cm in Room 215. The release was contained within the building (none was released outside of Building 3047), but some of the airborne activity passed from Room 215 down to Rooms 109 and 113. The release was cleaned up, but the overheads (above the ceiling tiles) in Rooms 109, 113, and 215 and the pipe chases were not decontaminated. Signs and Radiation Tags indicate contamination levels under the paint are as great as 250,000 dpm alpha. There is no way to quantify how much contamination remains within these areas.

Cell D Sludge. The cell ventilation system consists of an underground central ventilation duct. All of the hot cells exhaust directly into the underground duct. Cell D contains the exhaust low point and a ventilation duct sump farther below grade. The sump is filled with sludge of unknown content (both isotopic makeup and total quantities are unknown). The maximum quantity will be estimated in the future from samples taken directly from the sump.

APPENDIX B

NUCLEAR MATERIAL INVENTORY

Nuclear Material Inventory

in Curies

Sheet 1 of 3

Facility Number: 3047 Facility Name: RDL

The following isotopic limits have been approved for the facility and are allowable as upper inventory limits for the Isotopes Program.

Table B-1. Nuclear Material Inventory [Part 1]

Isotope	Inventory (in Ci)	Cat 2 Threshold	Cat 3 Threshold	% of Cat 2 Threshold
^{3}H	<6.00 E +03	3.00 E +05	1.00 E +03	<2.00 E +00
^{14}C	1.33 E +01	1.40 E +06	1.60 E +03	<1.00 E +00
^{36}Cl	<1.00 E +00	1.40 E +03	3.40 E +02	<1.00 E +00
^{60}Co	6.00 E +04	1.90 E +05	2.80 E +02	3.20 E +01
^{67}Ga	1.00 E +06	4.30 E +06	---------	2.33 E +01
^{90}Sr	1.00 E +06	2.20 E +04	1.60 E +01	4.55 E +03
^{123m}Te	1.00 E +06	4.30 E +06	---------	2.33 E +01
^{129}Te	1.00 E +06	4.30 E +06	---------	2.33 E +01
^{125}I	4.00 E -03	2.40 E +03	5.60 E -01	<1.00 E +00
^{131}I	1.10 E +02	1.80 E +03	9.20 E -01	6.00 E +00
^{137}Cs	5.00 E +05	8.90 E +04	6.00 E +01	5.62 E +02
^{144}Ce	1.00 E +06	8.20 E +04	1.00 E +02	1.22 E +03
^{147}Pm	1.00 E +05	8.40 E +05	1.00 E +03	1.20 E +01
^{153}Gd	1.00 E +06	1.40 E +06	1.00 E +03	7.10 E +01
^{152}Eu	1.00 E +00	1.30 E +05	2.00 E +02	<1.00 E +00
^{155}Eu	1.00 E +06	7.30 E +05	9.40 E +02	1.40 E +02
^{188}W	5.00 E +00	4.30 E +05	---------	<1.00 E +00
^{191}Os	1.00 E +06	4.30 E +05	2.20 E +03	2.33 E +02
^{192}Ir	1.00 E +06	1.20 E +06	9.40 E +02	8.30 E +01
$^{233}U^{*}$	1.78 E +00	2.20 E +02	4.20 E +00	<1.00 E +00
$^{235}U^{*}$	5.40 E -04	2.40 E +02	4.20 E +00	<1.00 E +00
$^{237}Np^{*}$	5.00 E +00	5.80 E +01	4.20 E -01	8.63 E +00
$^{238}Pu^{*}$	1.88 E +04	6.20 E +01	6.20 E -01	3.04 E +04
$^{239}Pu^{*}$	9.93 E +00	5.60 E +01	5.20 E -01	1.77 E +01

$^{240}Pu^{*}$	5.45 E +01	5.50 E +01	----------	9.91 E +01
^{241}Pu	5.25 E +02	2.90 E +03	3.20 E +01	1.50 E +01
$^{242}Pu^{*}$	5.51 E +01	5.50 E +01	----------	1.00 E +02
^{244}Pu	1.70 E -03	5.50 E +01	----------	<1.00 E +00
$^{241}Am^{*}$	1.95 E +04	5.50 E +01	5.20 E -01	3.55 E +04
$^{243}Am^{*}$	1.78 E +03	5.50 E +01	5.20 E -01	3.23 E +03
^{244}Am	4.00 E +00	5.50 E +01	----------	7.50 E +00
^{242}Cm	4.00 E +04	1.70 E +03	3.20 E +01	2.35 E +03
$^{244}Cm^{*}$	8.90 E +04	5.50 E +01	1.00 E +00	1.62 E +05
^{252}Cf	1.00 E +04	3.00 E +02	3.20 E +00	3.33 E +03
Mixed Fission Products	2.50 E +04	1.00 E +03	1.00 E +02	2.50 E +03
Other Neutron/Particle Activated Products	<1.00 E +02	----------	----------	<1.00 E +00

* These values, as an upper limit for one isotope, represent the fissionable material control limits [FMCLs] defined by ORNL Procedure NCS 1.0 (February 18, 1994). When two or more isotopes are present, they are subject to the restrictions defined in the ORNL procedure.

For each Isotope, indicate the maximum amount that may be present within the facility in the foreseeable future (within 1 year of preparation of this report). Indicate on the worksheets the percentage of each quantity of the isotope compared to the highest threshold value. (This does not need to be performed for Category 1 facilities.) Indicate the highest category obtained (Cat 2, Cat 3, or RAD) and the isotope summation in the spaces provided below.

2 _____ Category

N/A _____ % of Next Higher Category

***Note:** All allowable limits for inventory as listed refer to individual items of inventory that could remain within the facility as part of the Isotopes Program. These could be discrete, individual "items" or "units" of inventory.*

Completed form will be maintained by Facility Manager. A copy will be sent to OORFS, 4500N, MS-6235.

Nuclear Material Inventory

in Curies

Sheet 3 of 3

Facility Number: 3047

Facility Name: RDL

The following isotopic limits have been approved for materials that can be present in the facility gloveboxes as part of the Isotopes Program.

Table B-1. Nuclear Material Inventory [Part 2]

Isotope	Inventory (in Ci)	Cat 2 Threshold	Cat 3 Threshold	% of Cat 2 Threshold
^{233}U	2.10 E +00	2.20 E +02	4.20 E +00	9.60 E -01
^{235}U	7.50 E -04	2.40 E +02	4.20 E +00	3.13 E -04
^{237}Np	1.00 E +00	5.80 E +01	4.20 E -01	1.75 E +00
^{239}Pu	1.34 E +01	5.60 E +01	5.20 E -01	2.40 E +01
^{240}Pu	2.30 E +01	5.50 E +01	----------	4.15 E +01
^{241}Pu	5.25 E +02	2.90 E +03	3.20 E +01	1.50 E +01
^{242}Pu	4.00 E -01	5.50 E +01	----------	7.50 E -01
^{244}Pu	1.70 E -03	5.50 E +01	----------	3.00 E -02
^{241}Am	3.00 E +01	5.50 E +01	5.20 E -01	5.50 E +01
^{243}Am	5.00 E +00	5.50 E +01	5.20 E -01	9.10 E +00
^{244}Am	4.00 E +00	5.50 E +01	----------	7.50 E +00
^{242}Cm	3.33 E +02	1.70 E +03	3.20 E +01	2.00 E +01
^{244}Cm	1.60 E +01	5.50 E +01	1.00 E +00	3.00 E +01
^{252}Cf	1.50 E -02	3.00 E +02	3.20 E +00	5.00 E -01

For each Isotope, indicate the maximum amount that may be present within the facility in the foreseeable future (within 1 year of preparation of this report). Indicate on the worksheets the percentage of each quantity of the isotope compared to the highest threshold value. (This does not need to be performed for Category 1 facilities.) Indicate the highest category obtained (Cat 2, Cat 3, or RAD) and the isotope summation in the spaces provided below.

2 _____ Category

N/A _____ % of Next Higher Category

Note: All material as listed refers to individual items utilized in research by the Isotopes Group. These isotopes may be present in any glovebox. The individual "items" or "units" of material remain and are used within the facility.

Completed form will be maintained by Facility Manager. A copy will be sent to ODRFS, 4500N, MS-6235.

APPENDIX C

PRELIMINARY HAZARD IDENTIFICATION MATRIX FORM

PRELIMINARY HAZARD IDENTIFICATION MATRIX

DATE: 2/95
FACILITY: RDL

HAZARD TYPE

Item No.	System/Subsystem Description	Special Nuclear Material	Radiation Sources	Toxic Corrosive/ Reactive Materials	Flammable Materials	Explosive/ Pyrophoric Materials	Electrical Energy	Thermal Energy	Kinetic Energy	Potential Energy	Other	REMARKS
1.	Alpha and four hot cells; laboratory hoods and gloveboxes		✓	✓	✓	✓	✓	✓				Remaining items of inventory; contamination fixed and transferable; continuing operations; some potentially carcinogenic compounds; flammable solvents used for extractions in hot cells and hoods; explosive materials stored in special cabinets.
2.	Balance of facility				✓	✓	✓	✓	✓	✓		No contamination; some limited operations; special outside storage of flammable solvents; explosive materials stored in special cabinets.

APPENDIX D

PRELIMINARY HAZARDS ANALYSIS WORKSHEET FORM

PRELIMINARY HAZARDS ANALYSIS WORKSHEET

DATE: 2/95
FACILITY: RDL

Item No.	System/Subsystem Description	Hazard Type	Consequence	Initiating Event	Standard Industrial Hazard Y or N	Justification for Std. Ind. Hazard and Comments
1.	Alpha and four hot cells; laboratory hoods and gloveboxes	Radiation sources	Personnel exposures	Human error or natural phenomenon	N	
		Toxic, Corrosive/Reactive materials	Personnel exposures to chemicals, burns, injury	Same	Y	All quantities less than 29 CFR 1910.1000 and 29 CFR 1910.119 amounts
		Flammable materials	Burns, injury	Same	Y	No excessive quantities; administrative controls
		Explosive materials	Shock, burns, physical injury	Same	Y	No excessive quantities; administrative controls
		Electrical energy	Shock, burns, physical injury	Same	Y	All sources < 600 V
		Thermal energy	Burns, physical injury	Same	Y	No excessive teperatures
2.	Balance of facility	Flammable materials	Burns, injury	Human error or natural phenomenon	Y	No excessive quantities; administrative controls
		Explosive Materials	Shock, burns, physical injury	Same	Y	No excessive quantities; administrative controls
		Electrical energy	Shock, burns, physical injury	Same	Y	All sources <600V
		Thermal energy	Burns, physical injury	Same	Y	No excessive temperatures
		Kinetic energy	Physical injury	Same	Y	No unique equipment
		Potential energy	Physical injury	Same	Y	No unique equipment

DIVIDER

PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: P933
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☐ Additional Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☑ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a] : Excerpts of Building Descriptions for Building Numbers 3026C, 3026D, 3028, 3029, 3030, 3031, 3032, 3033, 3033(Annex), 3038E, 3038M, 3038NW, 3038SW, 3047, 3517	
Source Document Reference Information (author(s), document and revision number, date, publisher): Unknown, NA, NA, After 1980, NA	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR2, PR6, WS2, WS7, WS11	Throughout	This document appears to be an excerpt from a larger document that provides a description for the buildings set out in the title. These description include the physical attributes of the facilities , the operations that were conducted in the buildings, the material handled and a diagram of each facility. Building 3026C:Chemical Separation Laboratory 4 manipulator hot cells, 4 process hot cells used for Kr-85 operations Isotopes/Chemicals handled: Kr-85, Tritium Building 3026D:Segmenting hot Cells Facility 3 cells Cells contain disassembly and cutting equipment such as a hacksaw, abrasive saws, a guillotine saw, and a magnifying periscope for viewing and photography. The facility was in standby and cleanout to allow decontamination and decommissioning. Building 3028: Alpha Powder Facility 7 hot cells isotopes/Chemicals: americium oxide, neptunium oxide,Pu-238O2, curium oxide alpha powders Building 3029: Source Development Laboratory Facility Subterrestrial Co-60 storage and irradiation garden, 4 hot cells, 2 glove boxes, 2 laboratory hoods Isotopes/chemicals: powdered Cs-137C1 9in shielded containers), Cs-137C1 (singly contained capsules), cesium source (outgoing), Sr-90 (heat source), ir-92 (metallic pellets), Ir-92 (special form capsules of Ir-92 pellets) Building 3030: Radioisotope Development Laboratory 1 manipulator hot cell, 1 hooded glove box, 2 hooded work benches Operations: Co-60, Co-57 (recovery), Gold-198 (solution prep), iron-55 (purification), Np-234 (separation), Se-75 (processing), Sr-90 (purification of standard grade), Tin 119M, tin 113m (processing), U-237 (processing), Ar-37 (recovery), Ytterbium-169, iridium-192 (source fabrication) Building 3031: Radioisotope development laboratory

CCP RECORDS ORIGINAL
DATE REC'D 12/30/2013

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: P933
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		1 manipulator hot cell, 3 hooded work benches Operations: Gd-153 (purification of solutions), gadolinium oxide Building 3032L Radioisotope Development Laboratory 5 hooded work benches, 1 glove box Operations: The facility is used for quality control for radioisotope production and radioisotope source fabrication. Building 3033: Radioactive Gas Facility Operations: Krypton processing, tritium processing Building 3033: Actinide fabrication laboratory (AFL) 3 glove boxes, 1 bench Operations packaging of actinide powders, fabrication of ceramic oxide wires, Building 3038E: isotopes research and Development Area Manipulator cell, shielded hoods, counting room operations: Incoming materials include transuranic isotopes. End products are fabricated targets, counted samples of various targets and capsules. Also recovery of Gallium-67 and Yttrium-90. Building 3038M: isotope Shipping Area Incoming products include product bottles of radionuclides. Building 3038NW: Low Level Laboratory Central laboratory table and laboratory hoods Incoming material: high-flux Isotope Reactor and Oak Ridge Research Reactor targets. Light tube preparation also is conducted. Building 3038SW: Alpha Handling Area Receiving room, alpha handling room and alpha handling annex Operations: recovery and purification of U-234 Incoming material: Am-243, Am-241, Pu-238, U-234, pa-131 Building 3047: Radioisotope Development laboratory Facility 4 labs, 5 manipulator cells, 3 alpha handling laboratories, 3 glove boxes, 4 glove boxes for processing C-14 Chemical processing: removal of europium waste product Outgoing materials: Gd-153, Carbon-14, Building 3517: Fission Product Development Laboratory manipulator cells used for Cs-137 and Sr-90 source fabrication Incoming materials: Cs-137, Sr-90

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: P933

Source Document Data Limitations (if any):

1. No page numbers.
2. This document appears to be an excerpt from a larger published document providing building specific descriptions.

Acceptable Knowlege Expert:

Travis Smith / _____ Date: 12/02/2013

Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

P933

Chemical Separation Laboratory
3026-C

Description

The laboratory is a two-story wooden structure; covered with aluminum siding.

Four manipulator hot cells are located in the facility.

Four process hot cells are used for Kr-85 operations.

The total operating floor space is 8376 sq. ft.

A counting room, laboratories for processing limited quantities of radioactive materials, and an instrument shop are located in the facility.

Operations

Krypton-85 Thermal Diffusion and Storage Facility

Incoming material:
Mixture of krypton gases of different isotope masses.

Processing:
Krypton-85 enrichment by the thermal diiffusion process.

Outgoing material:
Enriched K-85.

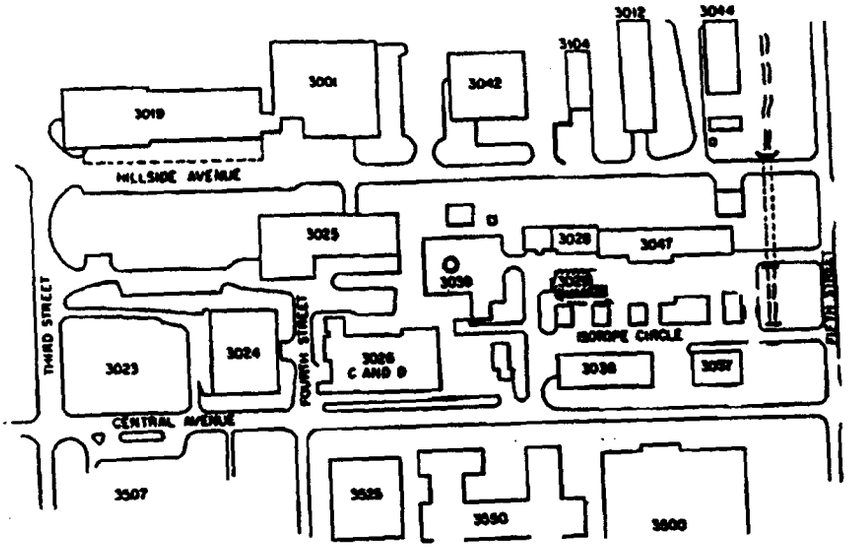
Tritium Handling

Incoming material:
Tritium-filled tubes from Building 3033.

Various processing:
Leak testing of tritium tubes; assembly of tritium lights; measuring tritium light intensity.

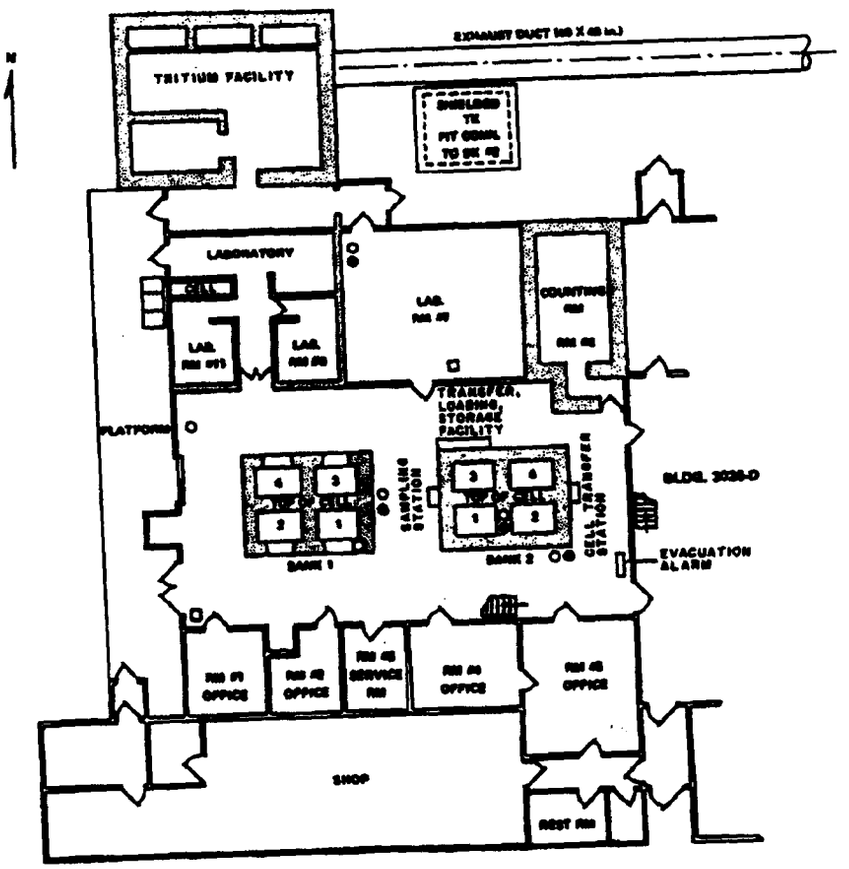
Outgoing material:
Assembled tritium lights.

Isotope Circle Facilities



ORNL-DWG 65-8726RR

Layout of Building
3026 C
First floor



Segmenting Hot Cells Facility
Building 3026-D

Description

Three-story wooden structure covered with aluminum siding.

Three cells with a total floor space of 410 sq. ft., the largest cell being 25 ft. wide by 10 ft. deep by 15 ft. high.

The cells are shielded by 5 ft. of normal concrete with zinc bromide viewing windows.

All of the cells have two master-slave manipulators at each window.

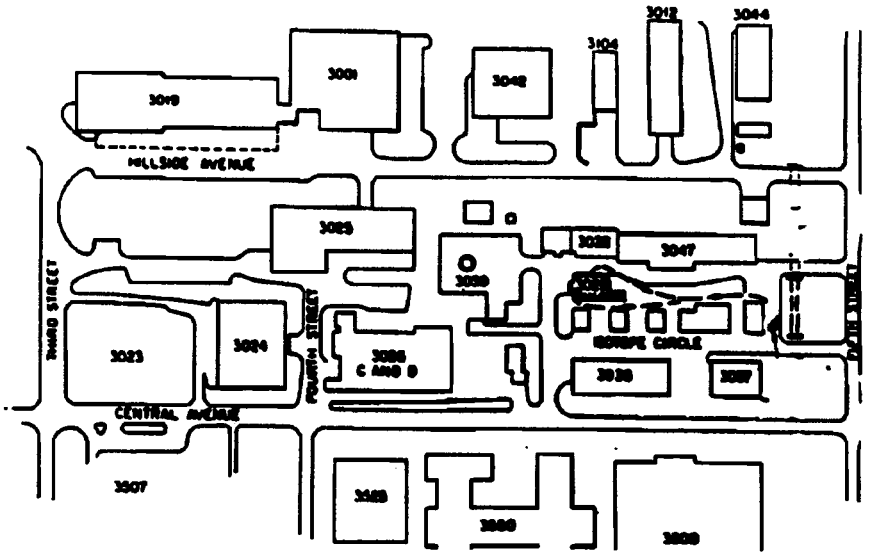
The total operating floor space is 16,110 sq. ft.

Operations

The cells contain disassembly and cutting equipment such as hacksaws, abrasive saws, a guillotine saw, and a magnifying periscope for viewing and photography.

Facility is in standby and cleanout to allow decontamination and decommissioning is planned.

Isotope Circle Facilities



Layout of Building 3026 D

Not available

Alpha Powder Facility
3028

Description

Four-story steel frame structure; covered with corrugated steel; built in 1950:

- Seven hot cells are located on the first floor; operating space is 4000 sq. ft.
- Laboratory facilities are located on the second and third floors and are on loan to the Safety Research Division.
- Fourth floor is used for equipment storage.

Material handling between upper floors facilitated by removable floor latches.

Two-man elevator and entrances on the building's north side allow personnel access to the upper floors and to the building interior respectively.

Sealed for air tightness by cocooning with polyurethane foam.

Automatic containment system, when activated, maintains 0.3-in. w.g. negative pressure with respect to the exterior of the building.

Operations

Actinide Powder Storage and Packaging Operations

Incoming material:

Americium oxide, neptunium oxide, $^{238}PuO_2$, and curium oxide alpha powders.

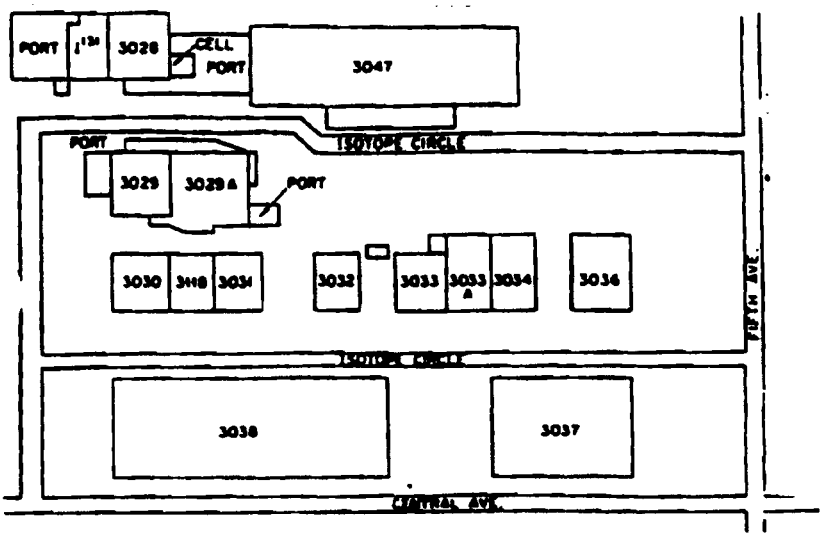
Inventory and packaging operations:

Conducted within hot cells; powder is weighed; enclosed in an inner capsule and outer capsule. (Only the outer capsule is sealed by TIG welding.)

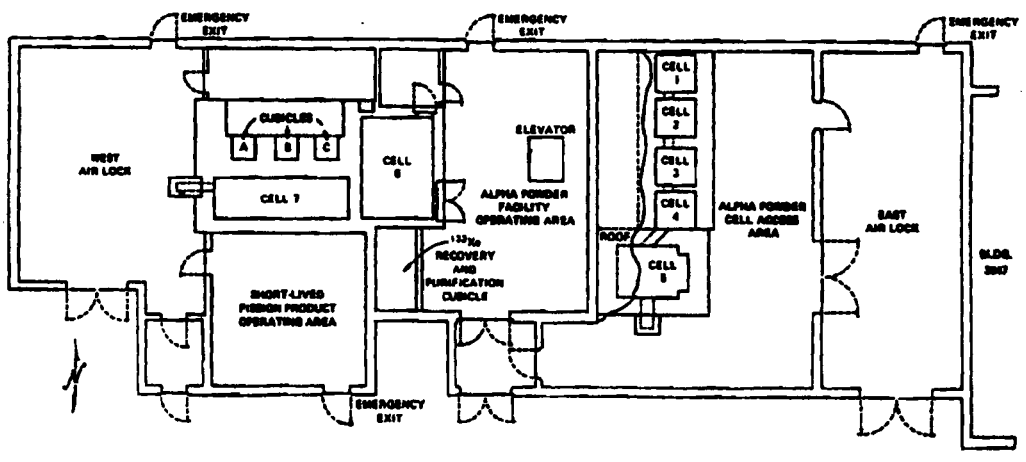
End products:

Sealed, welded container of actinide oxides for shipment and sealed containers of actinide oxides which are transferred to other facilities for loading or processing.

Isotope Circle Facilities



Layout of Building 3028



Source Development Laboratory Facility
3029

Description

One-story frame structure covered with corrugated metal siding. Operating floor space is 3000 sq. ft.

A subterrestial Co-60 storage and irradiation garden, four hot cells, two glove boxes, and two laboratory hoods adapted for use as glove boxes are located in the facility. Facility has been sealed for air tightness with polyurethane foam.

Operations

Incoming material:

(1) Powdered $^{137}CsCl$ in shielded containers.
(2) Singly contained $^{137}CsCl$ capsules.

Mechanical processing:

Conducted in hot cell: (1) remove powder from the container, press into pellets, and doubly encapsulate; (2) place capsule in outer capsule and weld; (3) perform leak tests of $^{137}CsCl$ sources.

Outgoing material:

Cesium source.

Strontium-90 Source Fabrication

Incoming material:

Vacuum hot pressed pellets in liners in shielded cask.

Mechanical processing:

Conduct in hot cell; remove liners, weld and leak test liners, doubly encapsulate, and load in thermoelectric generator.

Outgoing material:

Strontium-90 heat source.

Iridium-92 Pellet Processing

Incoming material:

Aluminum clad iridium-92 metallic pellets contained in shielded cask.

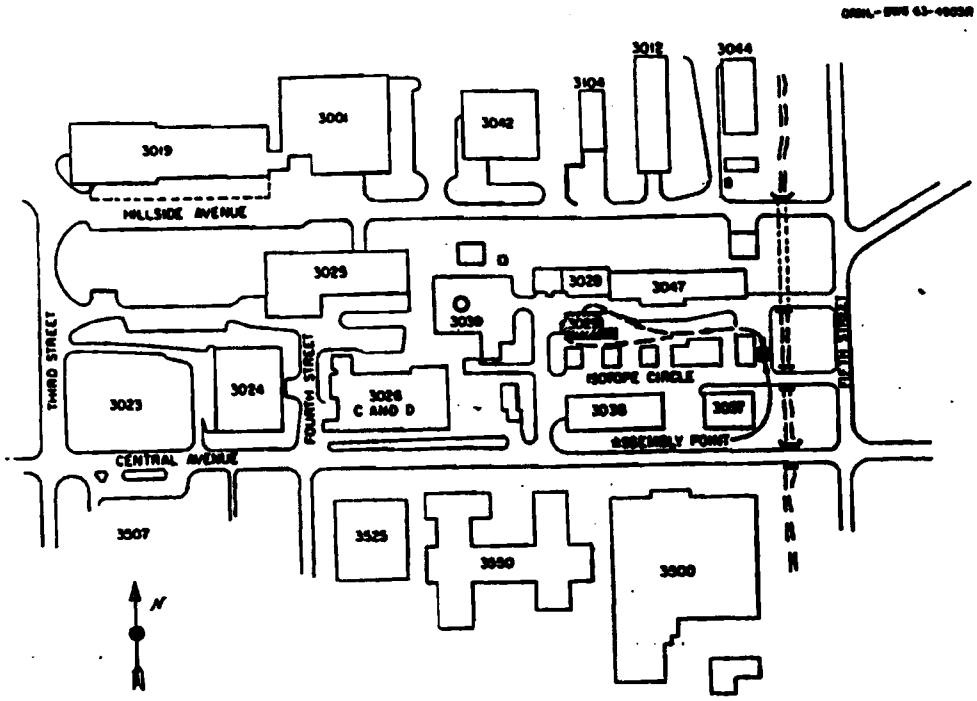
Cleaning process:

Conducted in hot cell; unpackage pellets, clean in sodium hydroxide and nitric acid solution, rinse with water, dry, smear, weigh and load into special form capsules.

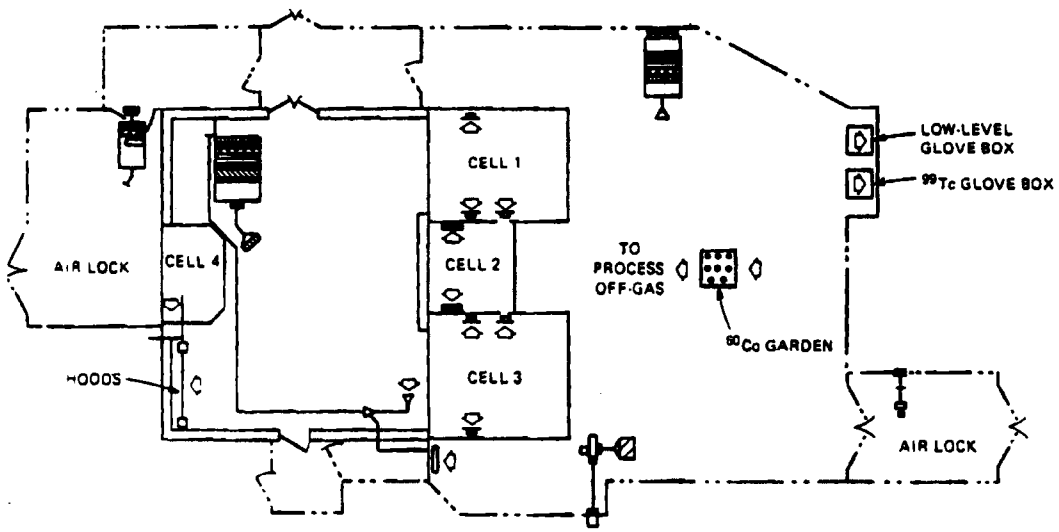
Outgoing material:

Special form capsules of iridium-92 pellets.

Isotope Circle Facilities



Layout of Facility 3029



Radioisotope Development Laboratory
3030

Description

Single-story steel frame structure covered with corrugated metal siding.

Operating floor space is 810 sq. ft.

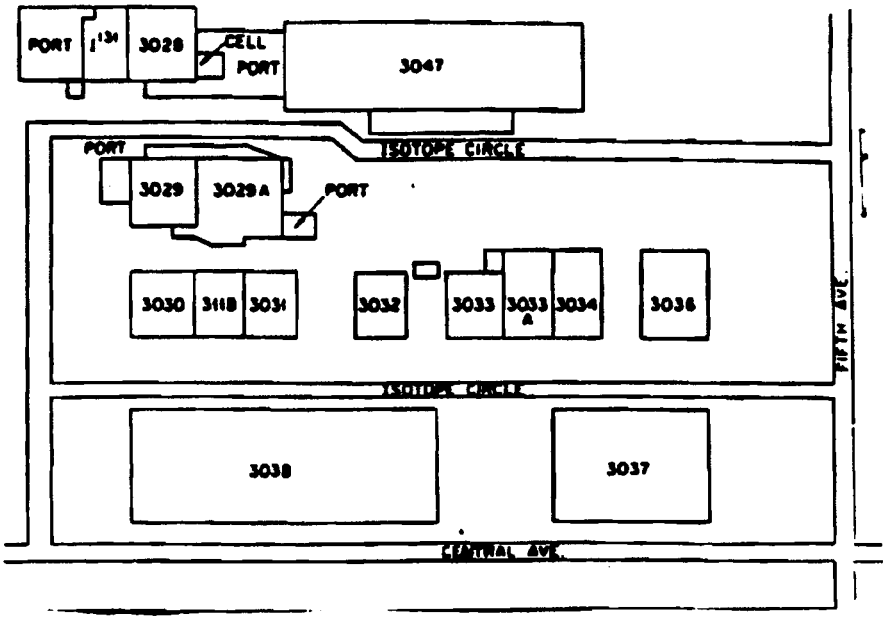
Laboratory contains one manipulator hot cell, one hooded glove box, and two hooded work benches.

The building is not sealed

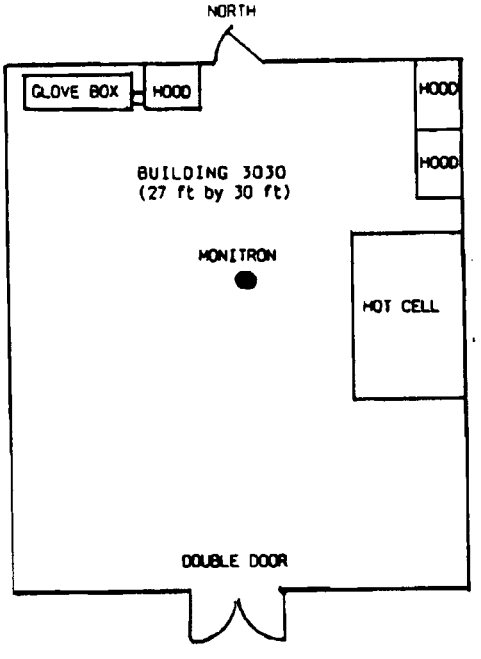
Operations

- Cobalt-56 Recovery
- Cobalt-57 Recovery
- Gold-198 Solution Preparation
- Iron-55 Purification
- Separation of Neptunium-234
- Selenium-75 Processing
- Purification of Standard Grade Strontium-90
- Tin 119m Processing
- Tin 113m Processing
- Uranium 237 Processing
- Recovery of Argon-37
- Fabrication of Ytterbium-169 Sources
- Fabrication of Iridium-192 Sources

Isotope Circle Facilities



Layout of Building 3030



Radioisotope Development Laboratory
3031

Description

Single-story steel frame structure covered with corrugated metal siding.

The facility's operating floor space is 825 sq. ft.

The laboratory contains one manipulator hot cell, and three hooded work benches.

Operations

Recovery and Chemical Processing of Gadolinium-153

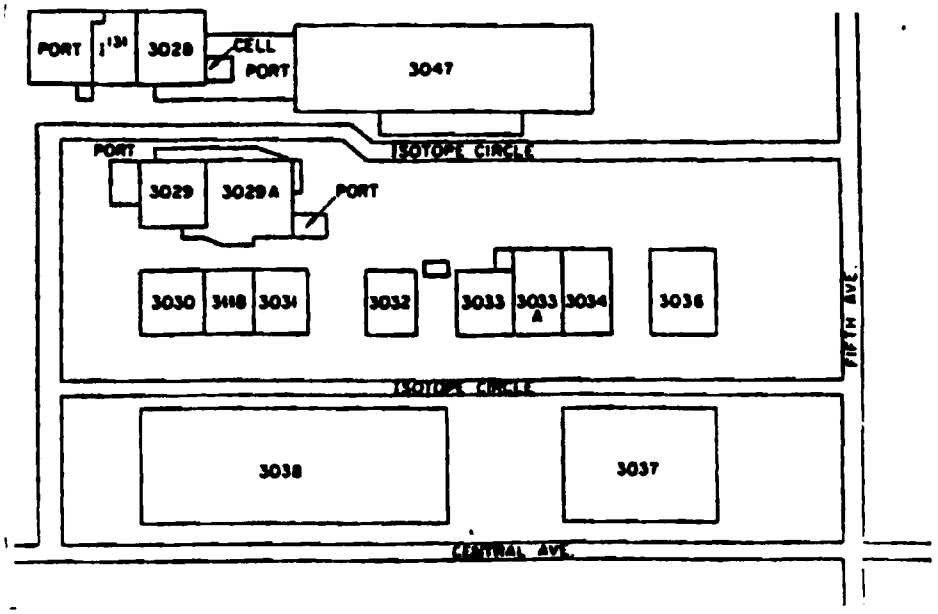
Incoming material:
Purified solutions of gadolinium 153.

Precipitation and fire to a oxide:
Precipitate from solution as hydroxide and fire in a crucible.

Outgoing material:
Gadolinium oxide.

Various Source and Package Tests

Isotope Circle Facilities



Layout of Building 3031

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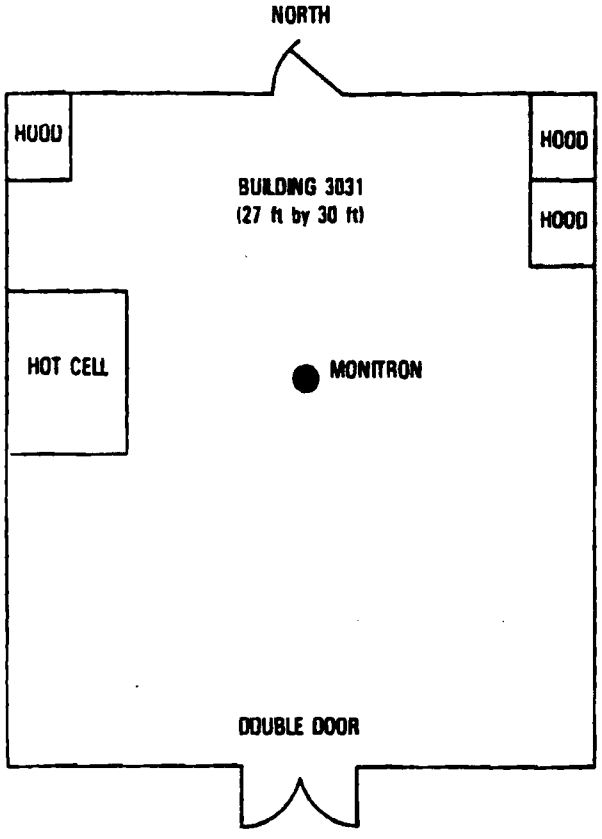


Radioisotope Development Laboratory
3032

Description

Single-story steel frame structure covered with corrugated metal siding.

The operating floor space of the facility is 825 sq. ft.

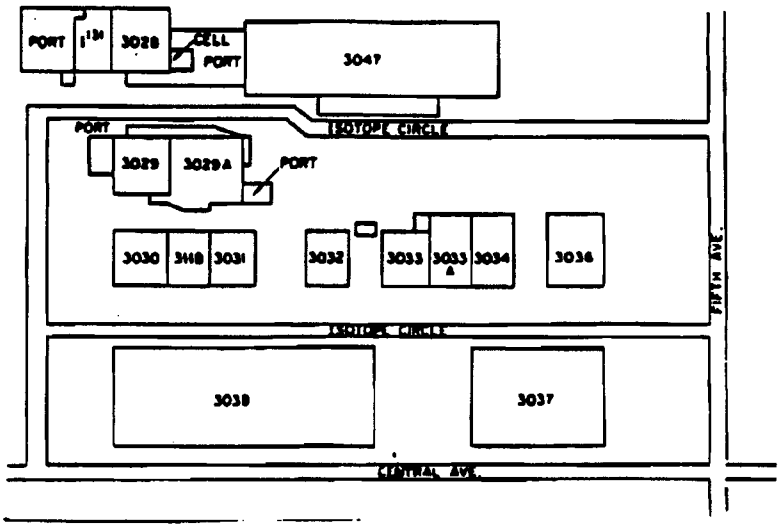
The laboratory contains five hooded work benches and a glove box.

The facility is operated at a slight negative pressure; secondary containment by the building is not currently achievable.

Operations

The facility is used for quality control for radioisotope production and radioisotope source fabrication.

Isotope Circle
Facilities



Layout of Facility
3032

Not Available

Radioacive Gas Facility
3033

Description

One-story steel frame structure covered with aluminum siding.

Facility's operating floor space is 1200 sq. ft.

The facility was built in 1950.

Facility shares a load bearing wall with 3033 Annex.

Operations

Krypton Process

Incoming material:
Fission gas obtained from Idaho Chemical Processing Plant contained in gas cylinders.

Process:
Removal of impurities (component gases) by absorption separation procedures.

Outgoing material:
Ninety-eight percent pure krypton gas shipped in glass ampules and lead shielded gas cylinders.

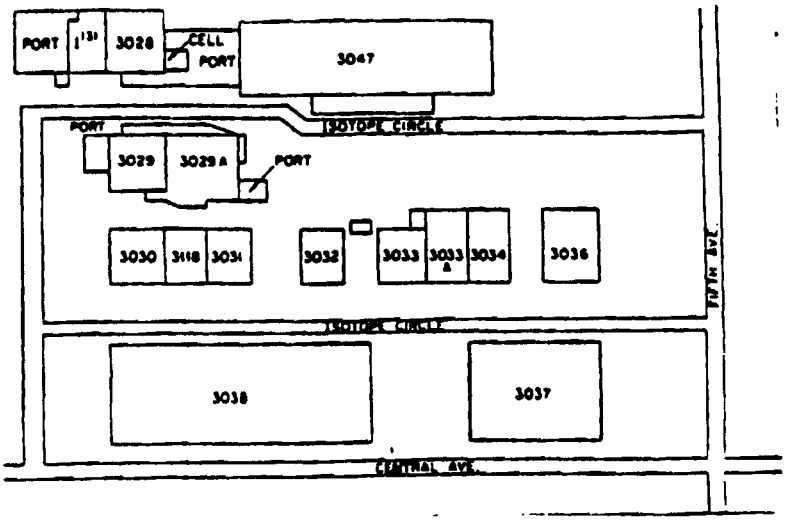
Tritium Process

Incoming material:
Tritium gas from Savannah River Laboratory which contains helium.

Chemical purification process:
Removal of helium gas.

Outgoing material:
Cylinders, uranium trap shipping containers or glass ampules containing purified tritium.

Isotope Circle Facilities



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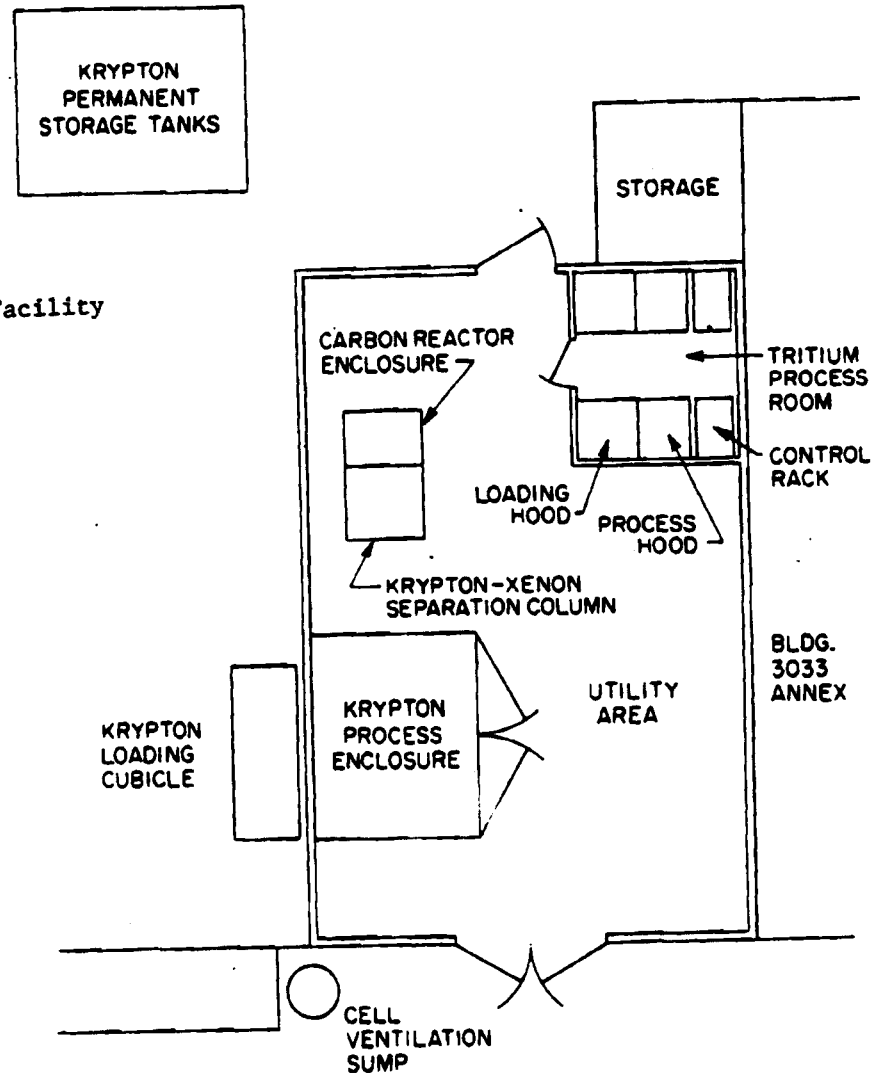
Layout of Radioactive Gas Facility
3033



Actinide Fabrication Laboratory (AFL)
3033 Annex

Description

Single-story steel frame structure; shares load bearing walls with adjacent buildings (3033 and 3034); built in 1960. The operating floor space of the facility is 242 sq. ft.

Three glove boxes, a hood, and a bench are located in the facility.

The facility operates at negative presure of >.25 w.g.

Operations

Packaging of Actinide Material

Incoming material:
Standard metal powder cans of actinide materials.

Processing:
Conducted in glove box; packaging of actinide powders.

Outgoing material:
Actinide powders packaged in appropriate containers.

Fabrication of Ceramic Oxide Wires

Incoming material:
Actinide oxide powder.

Processing;
Conducted in glove box: mix with wax, extrude through an orifice; wind on collecting spool; load into tubes heat in furnace to remove the wax and sinter the maerial.

Outgoing material:
Ceramic pieces used in dosimeter program.

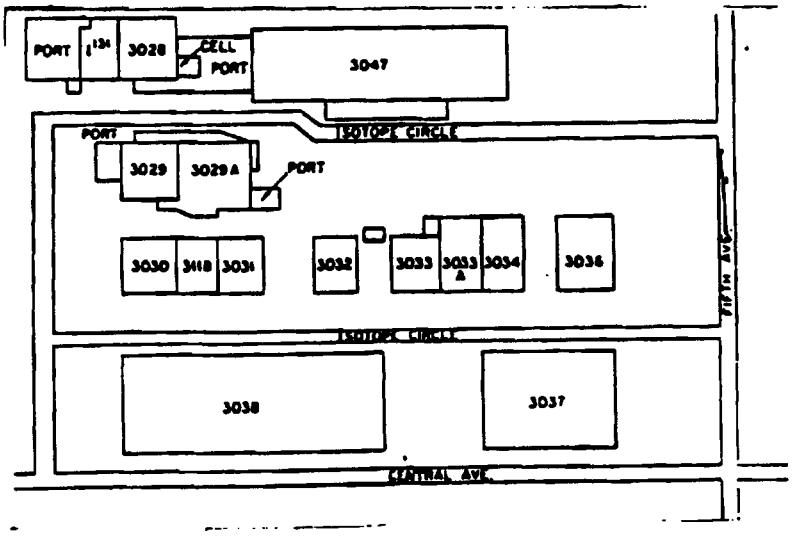
Fabrication and Decontamination of Neutron Dosimeters

Incoming material:
Ceramic pieces (oxide wires) or actinide oxide powders.

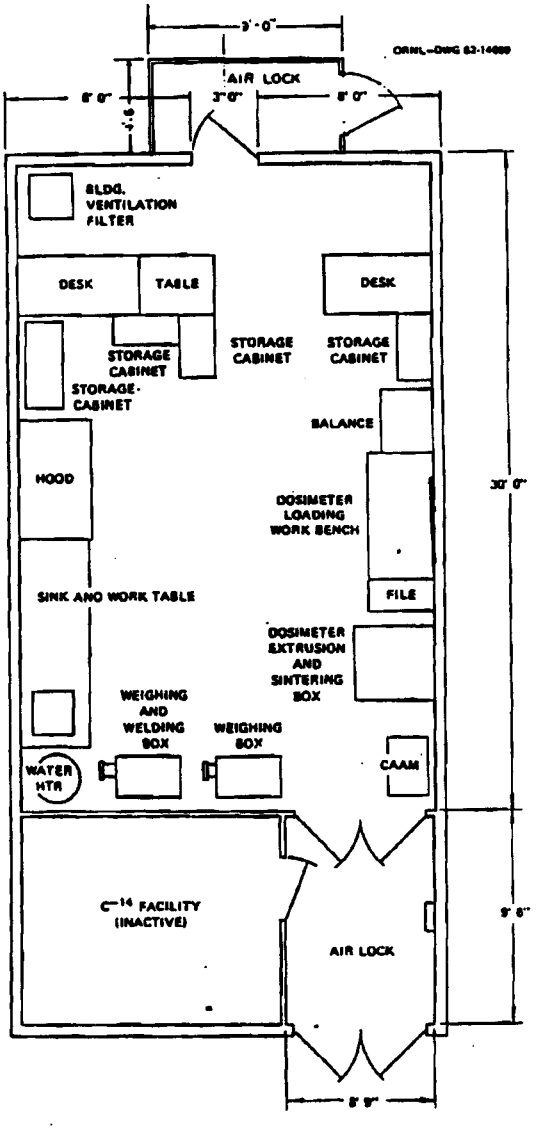
Processing:
Conducted in glove box; encapsulate into vanadium container seal by TIG welding.
Conducted in hood; decontaminate and leak test.

Outgoing material:
Dosimeters

Isotope Circle Facilities



Layout of Building 3033 Annex



Isotope Research and Development Area
3038-E

Description

Area is located in the eastern portion of 3038; bound on the west by the Isotope Shipping Area.

Area consists of Isotope Research Material Laboratory (IRML) and one of the Isotope Technology laboratories, the Manipulator Cell Laboratory.

Area is operated at negative pressure >3.0 in. w.g.

IRML consists of four glove boxes, hoods, and low geometry counting equipment.

Manipulator cell lab consists of work table with a sink, a manipulator cell, shielded hoods, and a counting room.

Operations

Target Fabrication (in the IRML)

Incoming material:
Transuranic isotopes

Fabrication of targets and radiometric counting:
Fabrication is conducted in glove boxes (welding, rolling); radiometric counting is conducted in a hood.

End products:
Fabricated targets, counted samples of various targets and capsules.

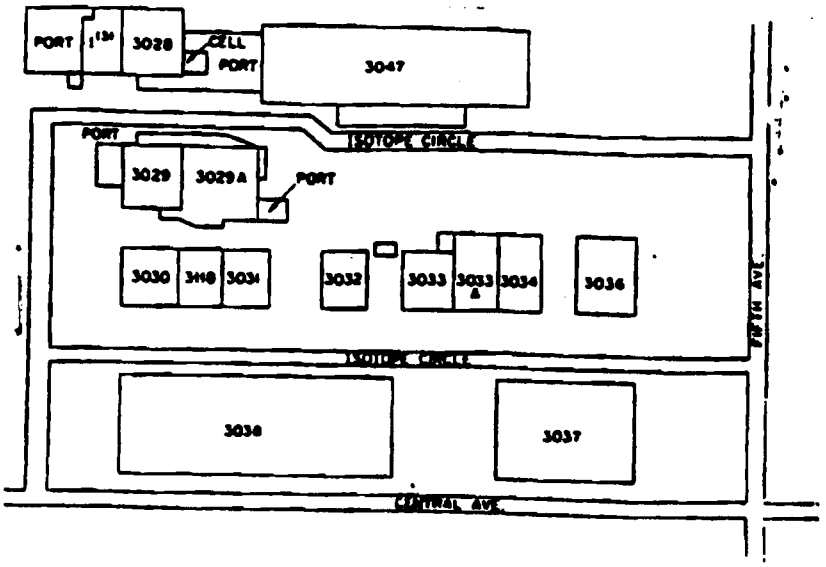
Recovery of Gallium-67 and Yttrium-90 (in the Manipulator Cell Laboratory)

Incoming material:
Cyclotron targets and Strontium-90.

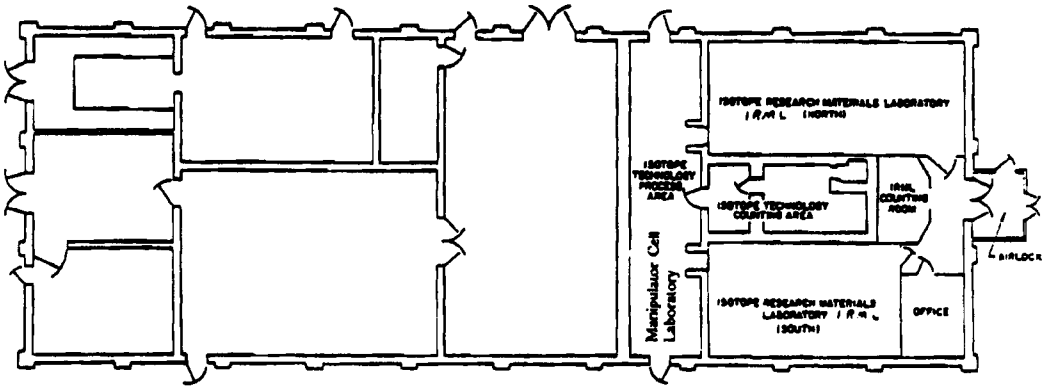
Chemical operations:
Conducted within the cell.

End products:
Gallium-67 and Yttrium-90.

Isotope
Circle
Facilities



Layout of Building 3038 E



N
W E
S

Isotope Shipping Area
3038-M

Description

The Isotope Shipping Area is located in the central portion of Building 3038 and consists of a barricaded area for the storage of liquid isotope products, a pipetting station, an air lock entry, and areas for the checking, boxing, labeling, and inspection of packages prior to their release to common carriers or customers.

Special features include: L-shaped concrete barrier and strategically positioned mirrors on the ceiling over the barricaded area.

Area is operated at low-negative pressure, high air flow conditions.

Operations

Packaging of Gas Cylinders

Incoming material:

Cylinders of radioactive gas.

Packaging and documentation operations:

Gas cylinders are packaged into Department of Transportation (DOT) and International Atomic Energy Agency (IAEA) approved containers and labeled.

End products:

Packaged containers of gas cylinders.

Packaging of Radionuclides in Solution

Incoming material:

Product bottles of radionuclides.

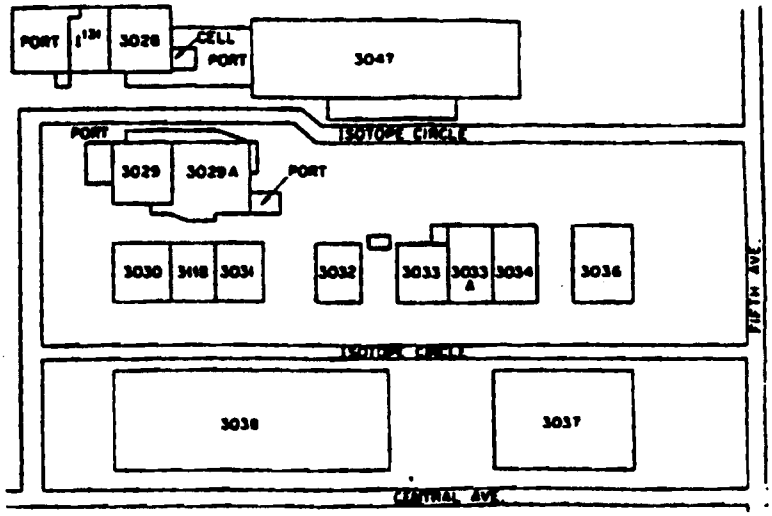
Packaging operations:

Behind the barricade in the pipetting station, radionuclides are remotely sampled and transferred into shipping bottles, canned, sealed, and shielded.

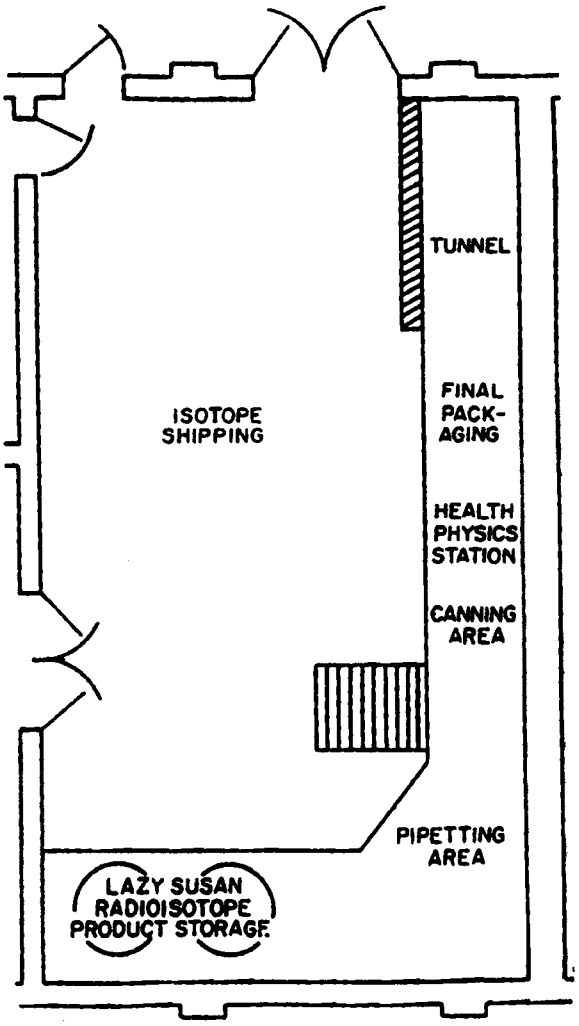
End products:

Packaged containers of shipping bottles of radionuclides which comply with applicable DOT, IAEA, and other agency requirements.

Isotope Circle Facilities



Layout of Building 3038 M



Low Level Laboratory
3038-NW

Description

Area is located in the northwest portion of 3038, between the Health Physics Office and a counting and test area room.

The laboratory consists of a central laboratory table and laboratory hoods.

Personnel access from the Low Level Lab to the counting and test room is facilitated by interior passageway.

Operations

Incoming material:
High Flux Isotope Reactor (HFIR) and Oak Ridge Research Reactor (ORR) targets.

Inspection of targets:
Conducted in counting room; leak test hydraulic pressure testing, furnace testing, and weighing.

End products:
Inspected HFIR and ORR targets and coated light tubes.

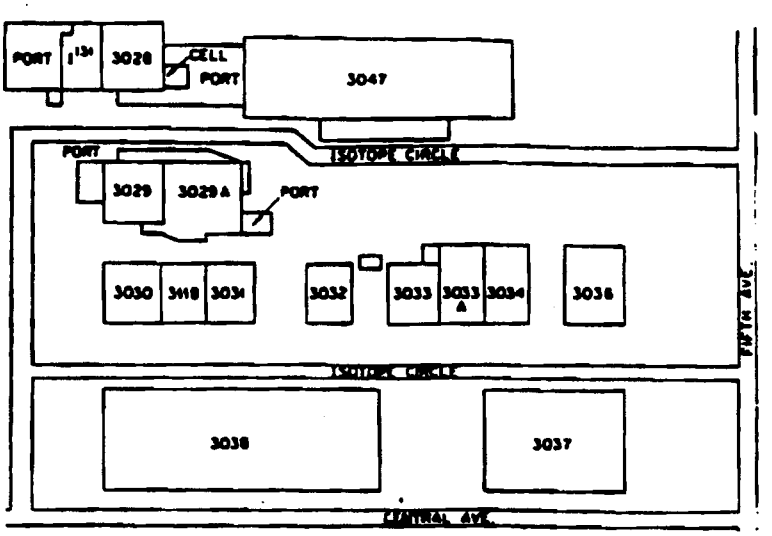
Light Tube Preparation

Incoming material:
Unassembled light tubes.

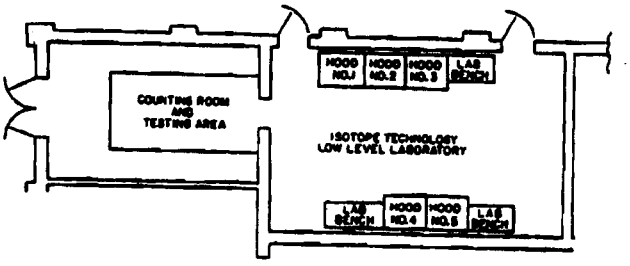
Preparing light tube subassembly:
Coating light tube with ZnS phosphor under a hood.

End products:
Coated light tubes.

Isotope Circle
Facilities



Layout of Building 3038 NW



Alpha Handling Area
3038-SW

Description

Area is located in the southwest portion of 3038; beside Isostope Shipping and south of the Low Level Laboratory. Area consists of a receiving room, an alpha handling room, and an alpha handling annex. Five hot cells and ten glove boxes are located in the area.

Personnel access is provided by a door from the Isotope Shipping Area and an exterior door located on the west exterior wall.

Material handling is facilitated by double doors on the west exterior wall which provide access to the receiving area.

Area is operated at negative pressure >3.0 in. w.g.

Operations

Recovery and Purification of Uranium-234

Incoming material:
Plutonium-238 cow.

Chemical operations:
Chemical separation conducted within hot cells.

End products:
Uranium-234

Encapsulating Isotopes

Incoming material:
Powdered isotopes such as Am-243, Am-241, Pu-238, U-234, and Pa-231.

Fabrication operations:
Conducted within glove box, weighing of isotope powder, encapsulating isotope powders, welding, and leak testing of stainles steel capsules.

End product:
Encapsulated isotopes.

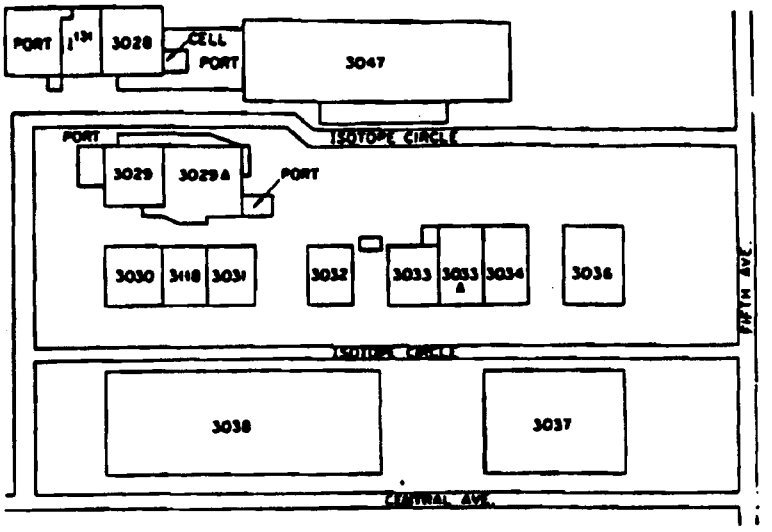
Plutonium and Neptunium Oxide Deposits

Incoming material:
Plutonium and neptunium oxide pellets.

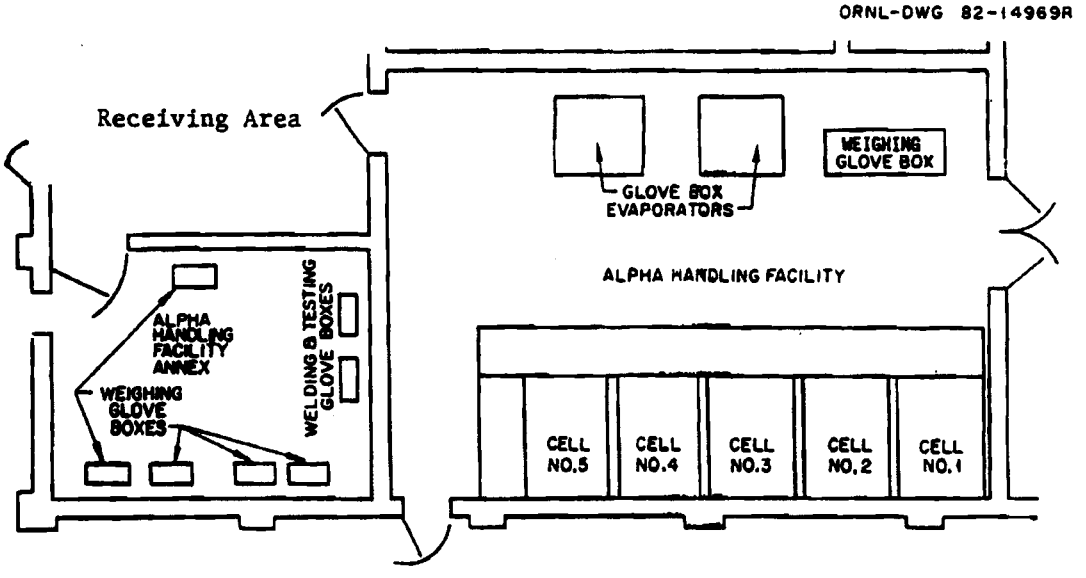
Fabrication operations:
Vacuum evaporation of plutonium and neptunium oxides in glove box vacuum evaporation systems.

End products:
Oxide deposits of plutonium and neptunium.

Isotope Circle Facilities



Layout of Building 3038 SW



Radioisotope Development Laboratory Facility
3047

Description

Three-story structural frame building; built in 1962; operating floor space is 25,630 sq. ft.

Four laboratories, five manipulator cells, and three alpha handling laboratories (AHL) are located in the facility.

Three glove boxes are located in AHL on the first floor.

On the second floor, the AHLs (rooms 211 and 212). Room 212 is being upgraded with the installation of new hoods and work benches. Room 211 contains four glove boxes, presently used for processing C-14.

Operations

Gadolinium Processing

Incoming material:
Encapsulated, irradiated europium oxide.

Chemical processing:
Conducted in hot cell; removal of waste product (europium).

Outgoing material:
Gadolinium-153

Carbon-14 Processing

Incoming material:
Irradiated aluminum nitride pellets.

Chemical processing:
Carbon-14 recovery in glove boxes.

Outgoing material:
Carbon-14

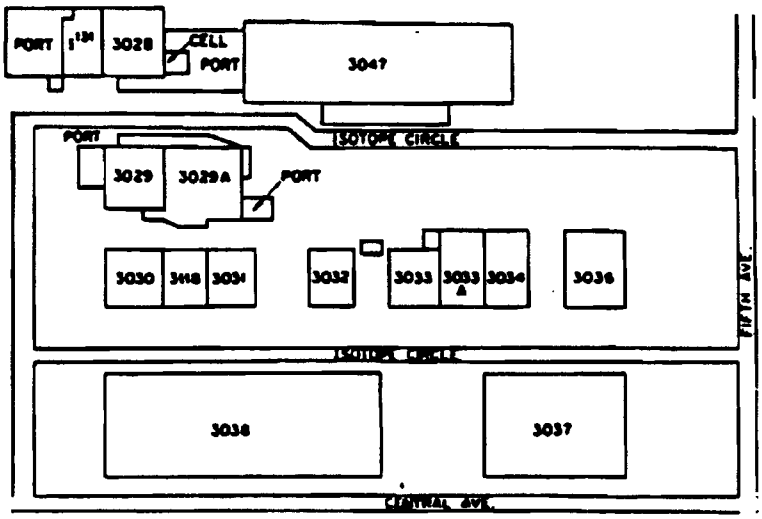
IRML Operations (Room 110)

Incoming material:
Actinide materials

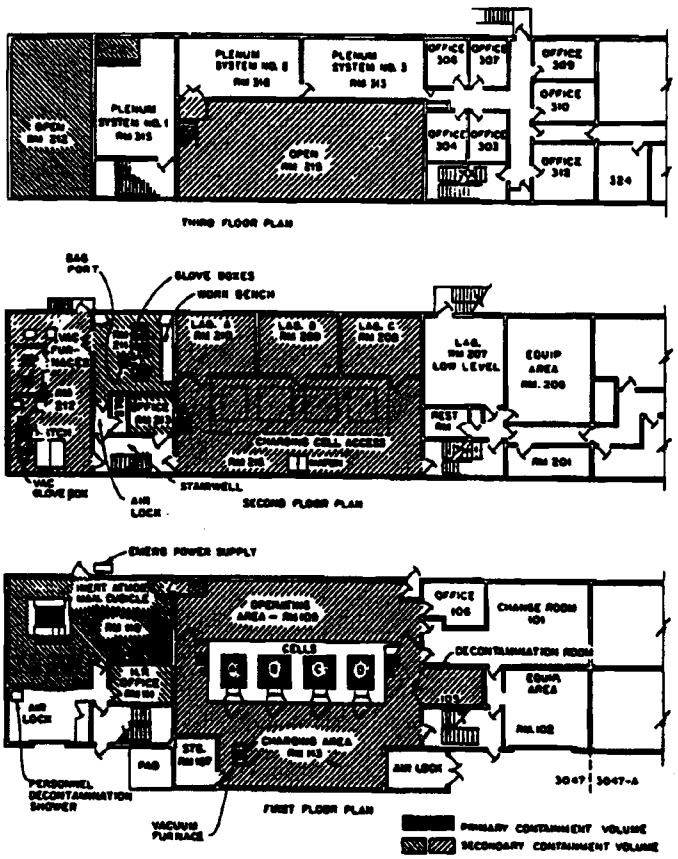
Fabrication operations:
Alloy and/or actinide sample fabrication.

Outgoing material:
Actinide sampling

Isotope Circle Facilities



Layout of Building 3047



Fission Product Development Laboratory
3517

Description

Two stories of the frame structure consists of a main operating area, service areas, and offices.

The operating floor space of the first and second floor is 9017 sq. ft. and 7691 sq. ft., respectively.

The number and type of cells are shown in the attached table.

The third story supports a 2-ton crane which services the operating cells.

The process cells are being decontaminated on the Surplus Facilities Management Program.

The manipulator cells (10-15) are being used for ^{137}Cs and ^{90}Sr source fabrication.

Facility is operated at negative .3 in. w.g.

Operations

Cesium-137 and Strontium-90 Source Fabrication

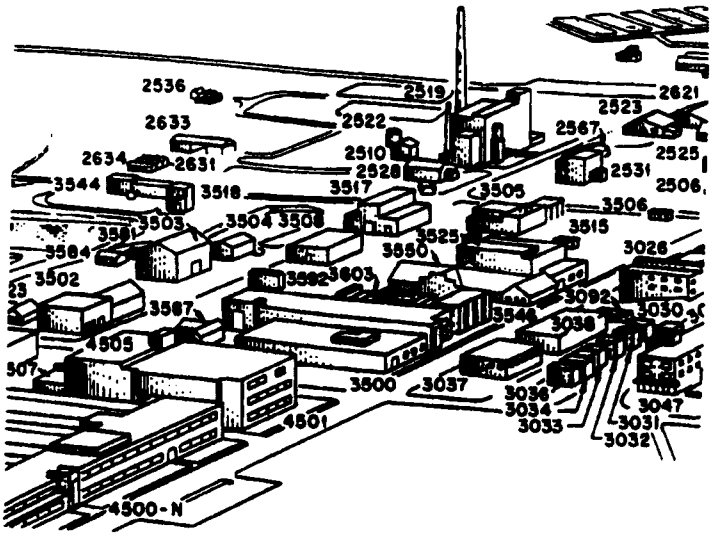
Incoming material:
Cesium-137 and Strontium-90 from Hanford.

Chemical processing:
Cesium-137 purification.

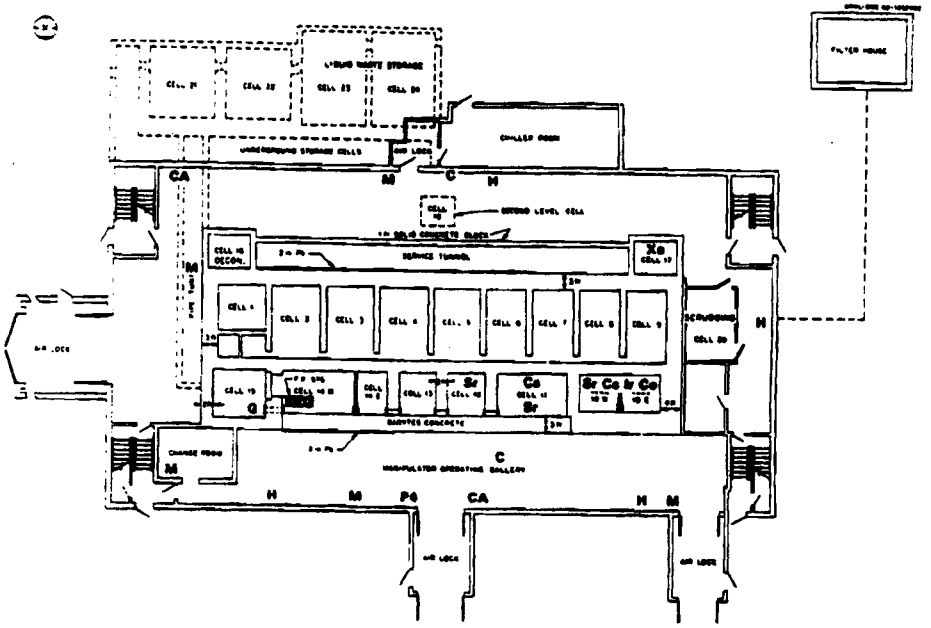
Fabrication operations:
Cesium-137 and Strontium-90 source fabrication. Includes hot pressing pellets and welding material in inner containers.

Outgoing material:
Inner containers loaded with Cesium-137 and Strontium-90.

Location of Building 3517 within ORNL



First floor layout of Building 3517



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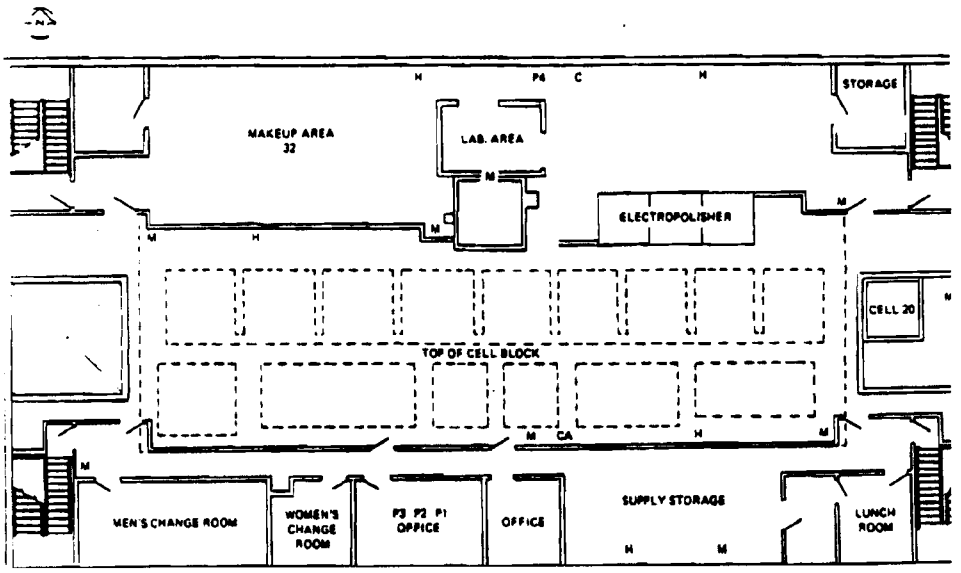
Second floor layout of Building 3517



Fission Product Development Laboratory (FPDL)
Cell Descriptions

Cell type	Cell no.	Cell contents	Dimensions (ft) L	W	D	Minimum equivalent standard concrete shielding (ft)	Cell Status
Process	1	All process equipment removed. Armor plate cell divider.	9	12.5	12	3	North side used for decontamination. South side inactive.
Process	2		9	12.5	12	4.5	Inactive
Process	3		9	12.5	12	4.5	Inactive
Process	4		9	12.5	12	4.5	Inactive
Process	5		9	12.5	12	4.5	Inactive
Process	6		7.5	12.5	12	4.5	Inactive
Process	7		7.5	12.5	12	4.5	Inactive
Process	8	All process equipment removed.	7.5	12.5	12	4	Available for reuse.
Process	9	All process equipment removed.	7.5	12.5	12	4.5	Available for reuse.
Manipulator	10	Curium storage capsules. Cell load-out equipment. Water cooled storage well.	7.5	7	14	4	Operating cell.
Manipulator	11	Cesium-137 purification equipment.	13	8	11	4	Operating cell.
Manipulator	12	Strontium-90 heat source fabrication equipment.	7	8	11	4	Operating cell.
Manipulator	13	Powder handling equip.	7	8	11	4	Inactive
Manipulator	14	Cesium precipitator. Water-cooled storage wells. Strontium powder storage equipment. Inoperative manipulator. Miscellaneous solid wastes.	6.5	8	12	4.5	Inactive
Manipulator	15	Waste transfer equip.	10	4	16	2	Inactive
Manipulator	16	Decontamination equipment.	8	6	14	1	Operating cell.

Fission Product Development Laboratory (FPDL)
Cell Descriptions

Cell type	Cell no.	Cell contents	Dimensions (ft) L	W	D	Minimum equivalent standard concrete shielding (ft)	Cell Status
Service	17	Fission product xenon	8	6	14	1	Operating cell.
Manipu-	18		6	6.5	10.5	1.5	Inactive
	19	None					Cell removed in 1980.
Service	20	Off-gas scrubbing system.	6.5	7.5	12	1	Operating cell
Tank Farm	21	Four 275-gal tanks. Two 520-gal tanks. Assorted piping and services. Instrument cubicle.	25	12	14	4	Inactive
Tank Farm	22	One 6000-gal tank. Assorted piping and services. Instrument cubicle.	25	12	14	4	Inactive
Tank Farm	23	ILW tankage and transfer system.	30	12	14	2	Operating cell.
Tank Farm	24	Process waste tankage and transfer system.	30	12	14	2.5	Operating cell.
Service	Fil- ter pit	Roughing ventilation filters.				1.5	Operating cell.
	Fil- ter house	HEPA filtration system.					Operating cell.
	Ser- vice tun- nel	Assorted valves, relays, and piping.				1	Inactive

DIVIDER

PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: P341
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☐ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☑ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Project Management Plan for the Isotopes Facilities Deactivation Project at ORNL	
Source Document Reference Information (author(s), document and revision number, date, publisher): NA, ORNL/ER-376, NA, 08/01/1996, Lockheed Martin Energy Systems, Inc.	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
WS2, S8	Throughout	Page xi: Executive Summary: The purpose of the Isotopes Facilities Deactivation Project was to place the former isotopes production facilities at ORNL in a safe, stable and environmentally sound conditions. Page 1-2: Buildings covered in this plan include: 3026-C; 3026-D; 3028; 3029; 3030; 3031; 3118; 3033; 3033-A; 3038-AHF; 3038-M;3038-E; 3047; 3517; 7025; 3032; 3034; 3093; 3099. Page 10: The work breakdown structure included: the following information: Building 3038: Yttrium cell cleanup; Pu vulnerability assessment Building 3047: Hot Cell Cleanup Building 3517: Hot Cell Cleanup

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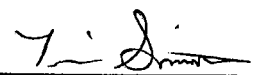
Acceptable Knowlege Expert: Travis Smith /  Date: 12/02/2013 Print /Sign	
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ENVIRONMENTAL RESTORATION PROGRAM

ORNL/ER-376

Project Management Plan for the Isotopes Facilities Deactivation Project at Oak Ridge National Laboratory, Oak Ridge, Tennessee

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ORNL/ER-376

Energy Systems Environmental Restoration Program

Project Management Plan for the Isotopes Facilities Deactivation Project at Oak Ridge National Laboratory, Oak Ridge, Tennessee

Date Issued—August 1996

Prepared for the
U.S. Department of Energy
Office of Environmental Management
under budget and reporting code EW 20

Environmental Management Activities at
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831-6285
managed by
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
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PREFACE

This project management plan for the Isotopes Facilities Deactivation Project was prepared to comply with the intent of U.S. Department of Energy Order 4700.1, "Project Management System." This work was performed under Work Breakdown Structure 1.6.6.2.10.2 (Activity Data Sheet 6504-IS, "ORNL Isotopes Facilities"). This management plan documents the objectives, defines organization relationships and responsibilities, and outlines the management control system to be used in the management of the project. In addition, this plan provides a road map for the quality assurance program and identifies other documents supporting the Isotopes Facilities Deactivation Project.

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ABBREVIATIONS

CTD	Chemical Technology Division
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
DOE-HQ	U.S. Department of Energy–Headquarters
DOE-ORO	U.S. Department of Energy–Oak Ridge Operations
EM&UE	Environmental Management and Uranium Enrichment Operations
EM-40	U.S. Department of Energy–Headquarters Office of Decontamination and Decommissioning
EM-60	Environmental Management and Uranium Enrichment Office of Nuclear Materials and Facility Stabilization
ER	Environmental Restoration (Program)
IFDP	Isotopes Facilities Deactivation Project
IFSP	Isotopes Facilities Shutdown Program
ITR	Independent Technical Review
LMER	Lockheed Martin Energy Research
LMES	Lockheed Martin Energy Systems
MCS	management control system
NM&FS	Nuclear Materials and Facility Stabilization
ORNL	Oak Ridge National Laboratory
QA	quality assurance
QAP	quality assurance plan
QAS	Quality Assurance Specialist
RTS	Radiochemical Technology Section
S&M	surveillance and maintenance
WBS	work breakdown structure

EXECUTIVE SUMMARY

The purpose of the Isotopes Facilities Deactivation Project (IFDP) is to place former isotopes production facilities at Oak Ridge National Laboratory in a safe, stable, and environmentally sound condition suitable for an extended period of minimum surveillance and maintenance (S&M) as quickly and economically as possible. Implementation and completion of the deactivation project will further reduce the already small risks to the environment and public safety and health. Furthermore, the project should result in significant S&M cost savings in the future. The IFDP management plan has been prepared to document the project objectives, define organizational relationships and responsibilities, and outline the management control systems to be employed in the management of the project. The project has adopted a strategy to deactivate the simple facilities first to reduce the scope of the project and gain experience before addressing more difficult facilities. A deactivation end-point determination process has been developed and utilized to identify end points. The *Work Plan for the Isotopes Facilities Deactivation Project at Oak Ridge National Laboratory*, ORNL/ER-249/R2 (Energy Systems 1994), defines the detailed plans of IFDP facilities as well as the technical methodology used in preparing the plans. The *Lifecycle Baseline Summary for ADS 6504IS Isotopes Facilities Deactivation Project at Oak Ridge National Laboratory, Oak Ridge, Tennessee*, ORNL/ER-325/R1 (LMES 1995), contains the technical cost and schedule baseline for the project.

1. INTRODUCTION

1.1 PURPOSE

This management plan documents the objectives, defines organizational relationships and responsibilities, and outlines the management control systems to be used in the management of the Isotopes Facilities Deactivation Project (IFDP). This plan has been developed by the Environmental Restoration (ER) Program of Lockheed Martin Energy Systems, Inc., (LMES) for the U.S. Department of Energy (DOE) Oak Ridge Operations Office (ORO).

This document complies with the intent of DOE Order 4700.1, "Project Management System." DOE concurrence of this document indicates agreement with its role in the management of IFDP and acceptance of the management control systems.

1.2 SCOPE

Nineteen facilities are currently in IFDP and are listed in Table 1. To complete its mission, IFDP must deactivate and place each facility in shutdown condition. A deactivated, shutdown facility is one in which (1) hazardous materials and waste have been removed from accessible areas, (2) transferrable radioactive contamination has been removed from accessible areas to the extent practical, (3) containment structures are in good physical condition, (4) energy sources in the facility have been de-energized to the extent practical, (5) regular personnel use and occupancy of the building have been terminated, and (6) the facility is structurally sound and weather tight. IFDP has identified all activities required to achieve these conditions in IFDP facilities and will manage the execution according to this plan. Existing building-specific procedures will be utilized and modified as required to conform to ER policy.

Table 1. Scheduled shutdown facilities

Facility	Building number
Krypton-85 Enrichment Facility	Building 3026-C
Metal Segmenting Facility	Building 3026-D
Alpha Powder Facility	Building 3028
Source Development Laboratory	Building 3029
Radioisotope Production Laboratory—C	Building 3030
Radioisotope Production Laboratory—D	Building 3031
Radioisotope Production Laboratory—H	Building 3118
Radioactive Gas Processing Facility	Building 3033
Radioactive Production Laboratory Annex	Building 3033-A
Alpha Handling Facility	Building 3038-AHF
Radioisotope Packaging and Shipping Facility	Building 3038-M

Table 1 (continued)

Facility	Building number
Isotope Materials Laboratory	Building 3038-E
Isotope Technology Building	Building 3047
Fission Product Development Laboratory	Building 3517
Tritium Target Preparation Facility	Building 7025
Radioisotopes Production Laboratory—E	Building 3032
Radioisotopes Area Services	Building 3034
Storage Cubicle	Building 3093
Storage Pad	Building 3099

1.3 PROJECT BACKGROUND

In 1989, DOE instructed Oak Ridge National Laboratory (ORNL) to prepare various isotopes production facilities for safe shutdown. In response, ORNL identified candidate facilities for shutdown and established the Isotopes Facilities Shutdown Program (IFSP). A program plan (Gibson, Patton, and Sears 1990) and management plan (Hill, Eversole, and Kibbe 1992) were prepared and approved by DOE. The objective of the program was to evaluate and execute all required tasks in the isotopes facilities required to place them in a radiologically and industrially safe condition and minimize the required surveillance and maintenance (S&M) of the facilities. The program was managed by the Office of Nuclear Energy and executed by the Chemical Technology Division (CTD) of ORNL. Implementation of the program began in FY 1991 and was to be concluded at the end of FY 1994. All facilities were to be transitioned into the Decontamination and Decommissioning (D&D) Program upon completion of IFSP. The program was executed as planned until mid-FY 1992 when a shortfall with anticipated FY 1993 funding was identified. DOE instructed IFSP to reduce activities to levels necessary for minimal S&M of the facilities. The program entered FY 1993 with no new appropriations but was subsequently funded by the DOE Office of Environmental Management and Uranium Enrichment Operations (EM&UE). It was determined in FY 1993 that the EM&UE Office of Facility Transition and Management (EM-60) would manage the program. Before acceptance of IFSP, EM-60 commissioned an Independent Technical Review (ITR) of the program. The scope of the ITR was to assess IFSP and make recommendations that might enhance facility safety, accelerate the deactivation of these facilities, and minimize deactivation costs.

The review was initiated in September 1993 and concluded with the issuance of a final report in January 1994. As a result of recommendations in the ITR report, DOE transferred local program oversight from the DOE ORNL site office to the Office of the Assistant Manager for EM&UE. The program was retitled IFDP, and implementation responsibility was transferred from CTD to ER. This document describes the management system for the project.

2. PROJECT OBJECTIVES

2.1 MISSION

The mission of IFDP is to deactivate former ORNL isotopes production facilities. Specifically, IFDP will

- place facilities into a safe, stable, inactive condition with the lowest practical S&M costs while maintaining safety envelopes adequate to ensure the safety and health of the workers, the public, and the environment;
- establish a baseline S&M program consistent with surplus and postdeactivation facility liabilities;
- ensure facility acceptance into DOE-Headquarters (HQ) Office of D&D (EM-40) D&D program; and
- minimize waste generation.

2.2 TECHNICAL OBJECTIVES

The objective of the shutdown project is to place 19 formerly utilized isotopes facilities at ORNL (Table 1) in a radiologically and industrially safe condition for routine, long-term S&M before eventual decommissioning. These facilities will be placed in a condition to meet the acceptance criteria for ER specified by the DOE Policy Memorandum for Acceptance of Facilities for the ER Program issued March 15, 1991, by L. P. Duffy (Duffy 1991). The project objectives are to

- establish a safe and environmentally secure configuration for these facilities, and ensure that this condition can be maintained for a 10-year period;
- establish an S&M program to maintain the secure configuration at minimum cost;
- implement cost-effective, innovative approaches to ensure that the required safety envelope is defined and maintained during deactivation;
- achieve compliance with environment, safety, and health codes and standards during deactivation;
- create a project organization capable of managing the deactivation of other ORNL facilities as they become surplus;
- apply lessons learned from commercial deactivation technology; and
- establish IFDP as a model for deactivation of hot cell facilities throughout the DOE complex.

2.3 COST AND SCHEDULE

Detailed cost, schedule, and funding baselines have been established for the project in accordance with the *Program Management Plan for the Martin Marietta Energy Systems, Inc., Oak Ridge National Laboratory Site Environmental Restoration Program* (Gilbert/Commonwealth 1994). These are contained in the IFDP work plan.

In accordance with the ER Program management plan, the following will be accomplished:

- Maintain internal cost and schedule performance measurement information to provide managers with timely, objective performance data.
- Track actual project progress against baseline budget estimates, and schedule milestones on a monthly basis (Cost and schedule status will be monitored using earned value techniques to determine work progress. Reports that describe the project cost and schedule status and identify undesirable variances will be reviewed by management. Appropriate corrective action will be initiated to rectify cost and schedule variances as they are identified.).
- Identify unfavorable trends that may require management review and action.
- Provide monthly reports based on a project tracking system.
- Analyze project variance by work breakdown structure (WBS) element Level 4, highlighting situations that exceed the established reporting thresholds (The analysis will be for incremental and cumulative data and will include a statement of the problem and the action taken or recommended for correction.).

With these systems, analyses and trends are developed to (1) analyze significant deviations from planned work, (2) develop any necessary work-around plans when the scope or estimate of a task changes, (3) develop revised estimates at completion, and (4) provide the data necessary for the ER Program and DOE reports.

2.4 PROJECT STRATEGY

IFDP has developed a three-phase strategy for the implementation of technical objectives. The three phases are:

- Phase I—project requirements determination;
- Phase II—project execution plan development; and
- Phase III—project execution.

IFDP is now in Phase III. All three phases are described in detail in the IFDP work plan.

2.5 ACTIVITIES AND PERFORMANCE MEASURES

Specific activities and associated performance measures are developed as a part of the project work plan. These activities and performance measures provide a qualitative basis to evaluate the movement toward objectives.

3. PROJECT ORGANIZATION AND RESPONSIBILITIES

3.1 INTRODUCTION

IFDP is one element of the Oak Ridge Nuclear Materials and Facility Stabilization (NM&FS) and is matrixed into the LMES NM&FS program manager. The project is part of the Facility Maintenance and Operations within the LMES ER Program, which is responsible for the implementation of deactivation activities. The project organization chart is shown in Fig. 1. A description of the roles and responsibilities of the key management positions follows.

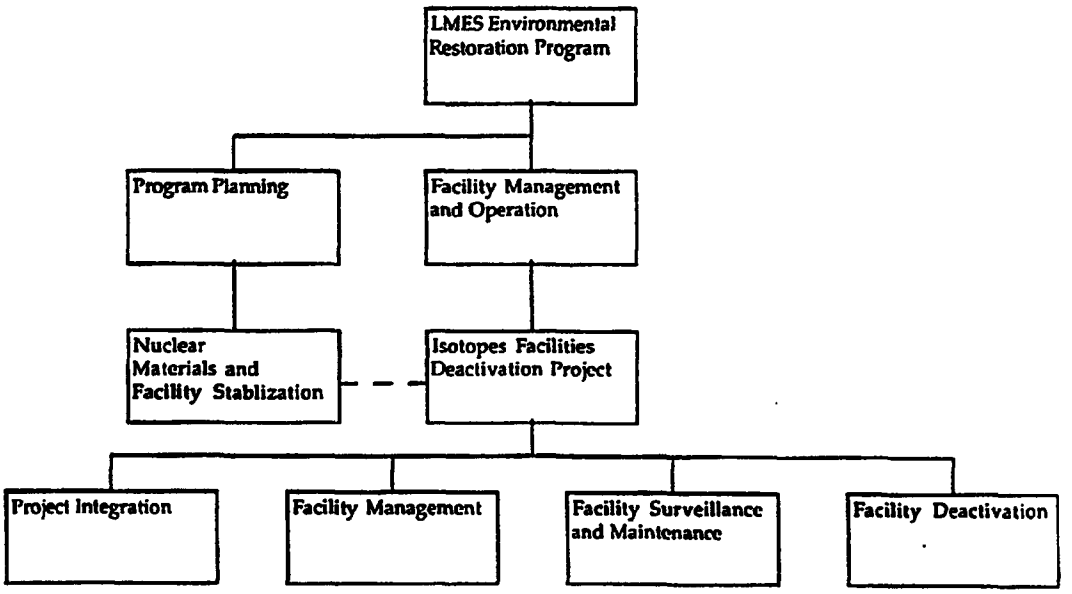

Fig. 1. Isotopes Facilities Deactivation Project organization chart.

3.2 NUCLEAR MATERIALS AND FACILITIES STABILIZATION PROGRAM MANAGER

The LMES Nuclear Materials and Facilities Stabilization Program (NM&FS) manager serving under the ER D&D program director is the primary interface for all EM-60 projects. The NM&FS manager develops budget planning and activity data sheet documents required by DOE-ORO and DOE-HQ. The NM&FS manager also coordinates these programmatic functions and responses to DOE requests for information with the LMES ER Program teams who carry out the work and interface with subcontractors on the ER site.

3.3 FACILITY MANAGEMENT AND OPERATIONS PROGRAM MANAGER

The ER Facility Management and Operations Program manager provides leadership, management, and programmatic direction for the management of facilities in the ER Program. The program manager, under the direction of the LMES ER Division Director, establishes appropriate

program goals, objectives, and project direction via site strategic planning with division management, DOE, regulators, and the public. The Facility Maintenance and Operations manager may represent the program in interactions within LMES; DOE-ORO; regulatory agencies (in association with DOE); other cooperating agencies (e.g., Tennessee Valley Authority, U.S. Geological Survey); and the general public.

3.4 ISOTOPES FACILITIES DEACTIVATION PROJECT MANAGER

The ER IFDP manager is responsible for the development, implementation, and completion of all DOE ER and Waste Management deactivation activities required for acceptance of designated ORNL isotopes facilities into the EM-40 D&D program. The project manager's responsibilities include defining the scope of the project, estimating project costs, developing project schedules, coordinating subcontractor work, maintaining a project budget and schedule, preparing progress reports, integrating the work of all DOE prime contractors, and preparing the project baseline. The project manager also is responsible for ensuring the adequacy of all procedures used in performing IFDP activities.

IFDP is matrixed to the LMES NM&FS manager to coordinate activities, report to DOE, share lessons learned, and provide consistency among transition activities across all DOE sites managed by LMES.

3.5 PROJECT ANALYST

The project analyst develops baseline reporting parameters; compiles, analyzes, monitors, and reports project manpower, schedule, cost, and status information; and assists the team with planning and project status reporting in accordance with LMES and DOE requirements.

The project analyst is also responsible for developing formal logic networks and schedules used to plan and monitor the project status.

3.6 QUALITY ASSURANCE SPECIALIST

The Quality Assurance Specialist (QAS) assists the project team in making quality assurance (QA) assessments and plans. Furthermore, the QAS monitors the documentation of all assessments and the implementation of actions and plans. The QAS participates in quality failure investigation and reporting and assists in scheduling QA audits and in implementing Corrective Actions in response to recommendations.

3.7 ENVIRONMENTAL COMPLIANCE COORDINATOR

The environmental compliance coordinator works with the project manager and serves as a regulatory specialist to ensure that all project-level activities are being performed in full compliance with the applicable state and federal regulations. In executing his duties, the environmental compliance coordinator will utilize the services of the ORNL Office of Environmental Compliance.

3.8 HEALTH AND SAFETY OFFICER

Assessments are required for health and safety based upon known conditions at the site. The project health and safety (H&S) officer is responsible for ensuring that all activities are conducted in accordance with applicable health and safety standards. The H&S officer ensures that the necessary permits, safety equipment, and procedures are in place before work begins. The H&S officer provides the appropriate review and approval for permits and procedures for experimental activities, operations, and maintenance to ensure that the hazards involved have been addressed. Also, the H&S officer is responsible for implementing the LMES as low as reasonably achievable program, ensuring that project personnel properly wear radiation dosimeters and other personal protective equipment and that personnel are trained in general radiation protection procedures.

3.9 DOCUMENT CONTROL MANAGER

The document control manager is responsible for the development, implementation, oversight, and control of publication activities. The document control manager ensures baseline document control and integration into applicable LMES, DOE, state, and U.S. Environmental Protection Agency documentation systems.

3.10 ENGINEERING PROJECT MANAGER

The engineering project manager is responsible for overseeing the design and construction activities. Specifically, the engineering project manager ensures that the full scope of design and construction activities is completed on schedule and within budgeted funds and is responsible for communications with all project team members for achieving timely decisions involving scope, cost, schedule, change proposals, and document flow of the design and construction activities.

The engineering project manager is also responsible for coordinating the development of cost estimates, cost and obligation authority schedules, and project schedules; preparing value engineering analyses; and coordinating revisions to cost estimates and schedules. This manager also provide support for procurement, architect-engineer estimate reviews, bid check reviews, project reviews, and special studies.

3.11 FACILITY MANAGER

The ER Program is responsible for all aspects of facility management of the buildings associated with IFDP, and all decisions and interfaces associated with the management of these buildings will be made by the ER Program. As directed by the ER Program manager, CTD will provide the necessary staff to manage and perform activities required for essential S&M of facilities. CTD will provide the primary interface with other ORNL organizations supporting essential S&M in IFDP facilities. Work direction is limited to performance of essential S&M. Any other activity must be approved by the ER Program manager.

The facility manager is responsible for all operations within IFDP facilities. The facility manager's responsibilities include performance of all required S&M activities, maintenance of all facility documentation, occurrence reporting, and training of facility personnel. In addition, the facility manager shall assure environment, safety, and health consistency in the implementation of activities under his purview.

The facility manager oversees all actions resulting in waste generation and approves documentation for all project-generated wastes that enter, leave, or are generated at the facility. The facility manager ensures that project personnel transport, store, and dispose of hazardous waste, radiological waste, and nonhazardous waste in accordance with all applicable federal, state, and local regulations and with project waste management plans.

4. PROJECT WORK PLAN

The intent of this project is to implement actions required to deactivate former isotopes production facilities, and place them in a safe, shutdown condition. The final condition of the facilities will allow for minimal S&M until D&D is initiated. All activities will be conducted in a manner to ensure the protection of human health and safety.

The detailed work plan for IFDP identifies all tasks and plans to be completed to achieve the project's objective. The IFDP baseline contains the schedule, milestones, and cost estimate. The IFDP work plan contains:

1. General and facility-specific end-point criteria based upon the draft EM-40 facility acceptance criteria.
2. A statement of baseline facility condition.
3. Baseline S&M activities required in each facility.
4. A facility-specific list of candidate deactivation activities.
5. An evaluation of each candidate activity against deactivation criteria, which will include the following points:
   - Is this activity consistent with the IFDP mission?
   - Does this activity mitigate an immediate environment, safety, and health vulnerability?
   - Is this action required by the EM-40 criteria?
   - Will this activity reduce the future liability of the facility?
   - Will this activity result in lower S&M costs?
6. Priorities for reducing environment, safety, and health vulnerabilities and the baseline S&M cost.

The current cost estimates, schedules, and milestones have been approved by DOE and are documented in the baseline document.

5. WORK BREAKDOWN STRUCTURE

The WBS defines the hierarchy between elements of IFDP and reflects the lowest level of work package necessary to complete the program. The WBS is illustrated in Table 2. The WBS work package will be used to

1. organize all work activities;
2. plan and schedule work;
3. prepare resource budgets to support work;
4. develop spending profiles;
5. contract for work; and
6. collect technical, schedule, and cost performance data.

All participants working on IFDP will be required to use this WBS to integrate the technical, schedule, and cost baseline.

Table 2. Isotopes Facilities Deactivation Project work breakdown structure

WBS	Name
1.6.6.2.10.2	Isotopes Facilities Deactivation Project
2.10.2.01	Project Integration
2.10.2.01.01	Project Management
2.10.2.01.02	Project Planning
2.10.2.02	Surveillance and Maintenance (S&M)
2.10.2.02.01	Utilities
2.10.2.02.04	Building 3026
2.10.2.02.06	Building 3028
2.10.2.02.08	Building 3029
2.10.2.02.10	Center Circle Buildings
2.10.2.02.12	Building 3038
2.10.2.02.14	Building 3047
2.10.2.02.16	Building 3517
2.10.2.02.18	Building 7025
2.10.2.02.20	Other S&M
2.10.2.04	Building 3026 Facility Deactivation
2.10.2.04.01	Contamination Control
2.10.2.04.02	Structural Stabilization
2.10.2.04.08	Radioluminescent Lights Removal
2.10.2.04.10	Final Facility Report
2.10.2.06	Building 3028 Facility Deactivation
2.10.2.08	Building 3029 Facility Deactivation

Table 2 (continued)

WBS	Name
2.10.2.10	Center Circle Deactivation
2.10.2.10.01	Contamination Control
2.10.2.10.02	Structural Stabilization
2.10.2.10.07	Reroof Buildings 3030, 3118, & 3031
2.10.2.10.10	Final Facility Report
2.10.2.12	Building 3038 Facility Deactivation
2.10.2.12.01	Contamination Control
2.10.2.12.02	Structural Stabilization
2.10.2.12.04	Yttrium Cell Cleanup
2.10.2.12.05	Glove Boxes and Hoods Removal
2.10.2.12.06	Barricade Cleanup
2.10.2.12.08	Plutonium Vulnerability Assessment
2.10.2.12.10	Final Facility Report
2.10.2.14	Building 3047 Facility Deactivation
2.10.2.14.01	Contamination Control
2.10.2.14.02	Structural Stabilization
2.10.2.14.03	Hot Cell Cleanup
2.10.2.14.05	Glove Boxes and Hoods Removal
2.10.2.14.10	Final Facility Report
2.10.2.16	Building 3517 Facility Deactivation
2.10.2.16.02	Structural Stabilization
2.10.2.16.03	Hot Cell Cleanup
2.10.2.16.09	Inventory Transfer
2.10.2.16.10	Final Facility Report
2.10.2.18	Building 7025 Facility Deactivation
2.10.2.18.01	Contamination Control
2.10.2.18.02	Structural Stabilization
2.10.2.18.10	Final Facility Report
2.10.2.20	Other Facility Deactivation and Support
2.10.2.20.01	Other Engineering Support
2.10.2.20.02	Audits and Assessments

6. PROJECT SCHEDULE

As part of development of the work plan, activity schedules incorporating controlled milestones have been developed for IFDP. This schedule information constitutes the schedule baseline; the master project schedule; and the controlled milestones, which are documented in the IFDP baseline document.

The LMES ER Program is responsible for the preparation and the management of these schedules and milestones in accordance with the management control system (MCS) (Chap. 8.). The master schedule is to be supported by lower-level schedules. The schedules constitute the schedule baseline utilized by LMES for schedule performance, measurement, and control. The DOE-ORO facility transition manager will be provided with copies of all schedules necessary for evaluating project status.

The schedule and schedule control process include the following items.

- Schedules will be constructed to reflect tasks required to complete a single WBS element. Also, in accordance with WBS, lower-level schedules are directly integrated and traceable to higher-level schedules.
- An integrated network capable of producing a critical path logic for the entire project will be implemented for analysis and reporting.
- Schedule objectives discussed in Sect. 2.3 of this plan will be incorporated into major milestones. These milestones provide points for control and reporting within the master project schedule and lower-level schedules. Changes in schedule dates for these major milestones must be approved in accordance with the project change control in Chap. 10.
- On a monthly basis, the ER Program will track actual progress against the master project schedule. Schedule status is reported by each project team member, and the status is reviewed by DOE-ORO and LMES project management. Appropriate Corrective Actions are initiated to rectify schedule variances as they are identified.
- The DOE-ORO project office will conduct periodic analysis of project schedules to ensure the accuracy of the monthly data.

The master project schedule discussed in this chapter will be the working schedule used to plan, determine status, and report on the project. This document will integrate all facets of the project.

7. PROJECT COSTS

7.1 COST BASELINE

The cost baseline for the project is a time-phased cost estimate for completion of the deactivation activities identified in the work plan. The following approach was used to develop the cost estimate:

- define the project's technical and end-point criteria,
- identify and schedule the individual work elements required to meet the end-point requirements,
- organize the work elements systematically in a WBS, and
- estimate the resources needed to complete the work elements using a uniform set of estimating assumptions.

The cost baseline will be contained in the IFDP baseline document. The baseline details the scope of work to be performed each fiscal year and defines the baseline cost estimate for the year. An annual review of the baseline will accommodate changes resulting from revised programmatic requirements, budget constraints, or unplanned conditions or changes. Scope of work information for the baseline will be extracted from this report.

7.2 BASIS FOR COST ESTIMATE

The IFDP cost estimate is based on existing work rules and historical productivity and therefore represents conditions expected during the deactivation activities. The level of confidence in the estimate is similar to that expected at the end of the conceptual design phase of a major project if the work is performed and controlled as described in this report.

The following are key planning assumptions used to prepare the cost estimate.

- D&D activities will not be performed for at least 10 years beyond the completion of deactivation activities.
- All deactivation activities are covered by existing ORNL National Environmental Policy Act documentation. Any additional National Environmental Policy Act documentation will be completed in parallel with other project activities with additional resources.
- Waste tanks WC-10 and WC-2 will be available to support deactivation activities.
- Trained and qualified personnel are available to perform deactivation activities.
- Work inefficiencies are expected for radiation work involving respirators or supplied air.
- Operational readiness reviews will be conducted by the project staff or by an appointed review committee. No other operational readiness reviews will be required.
- Technical planning bases for the project will be implemented as described. Appropriate project contingency will be provided and identified.
- Budget will be provided as planned in the funding profile.

7.3 COST ESTIMATE METHOD

The cost estimate was prepared by the LMES Engineering Division with support from ORNL organizations. The estimating methodologies and practices conform to the LMES *Project Estimating and Scheduling (PES) Standard Operating Manual* (Energy Systems 1991), the *Estimating and Cost Control Manual for Construction Projects* (DOE-ORO 1991), and the *Cost Estimating Hand Book for Environmental Restoration* (U.S. DOE EM&UE Cost Assessment Team 1990). The estimate is an activity-based cost estimate.

The resource data used to prepare the cost estimate are derived from current cost data and staffing requirements for existing work elements that continue for the duration of the project and from technical work descriptions and schedules prepared for each deactivation activity.

The estimate for each work element was reviewed by knowledgeable plant staff for uniformity and reasonableness before acceptance into the cost estimate.

The resources were priced using labor rates developed from the existing financial system. The indirect costs—including steam and water use assessments, organization overheads, material procurement, and general and administrative burdens—were similarly developed.

Comparisons of the deactivation resource mix with the existing resource mix were made, and the changes were reconciled with work content differences. Where necessary, cost allowances were made based upon historical usage rates, including materials and MK-Ferguson construction forces.

8. PROJECT MANAGEMENT CONTROL SYSTEM

The IFDP MCS is based on the *Program Management Plan for the Martin Marietta Energy Systems, Inc., Oak Ridge National Laboratory Site Environmental Restoration Program* (Gilbert/Commonwealth 1994). The IFDP MCS provides a uniform approach to be used throughout the project. The goal is to ensure planning and execution of this project in a manner that is technically sound, timely, and cost-effective.

The basis of the MCS is the establishment of a baseline and then controlling work to that baseline. The summary Level 4 project baseline is controlled by DOE-ORO.

LMES and subcontractors have developed the contract WBS (Chap. 5) to organize the associated technical, cost, schedule, and funding documentation.

In addition, the system is designed to summarize information for LMES to DOE-ORO and DOE-HQ so that timely management decisions can be made by the project team. This is accomplished as follows:

- Provide a WBS that is integrated with the organization structure and defines manageable work packages for which a technical scope of effort and associated schedule and budget are established and can be assigned to a specific organization for accomplishment.
- Ensure that the MCS for the project is capable of organizing and reporting work in a timely and consistent manner.
- Obtain technical, schedule, cost, and funding information in the format and level of detail necessary to meet management and reporting needs.
- Prepare the data to show the project status and progress against planned accomplishments.
- Evaluate and analyze the information to identify key problems that require management decisions and Corrective Actions.
- Correlate the project funding profile with planned commitments, expenditures, and work accomplished to date.
- Prepare Baseline Change Proposals that impact established work scope, budgets, and schedules.

9. INFORMATION AND REPORTING

9.1 OVERVIEW

Project performance will be reported to DOE through a graded system of bimonthly highlights and monthly cost and schedule status summaries. Bimonthly highlights and monthly reports will be issued for the life of the project. A final report will be issued at the end of the project.

9.2 BIMONTHLY HIGHLIGHTS AND PROJECT MEETING

A bimonthly IFDP staff meeting will be conducted to discuss all programmatic activities, concerns, and accomplishments. Discussion and subsequent reporting items include critical program constraints; budgets; schedules; safety; QA; other support groups; procedures; training; staffing; inventory movement; action items; and bimonthly activity highlights, as submitted by the facility supervisors.

The IFDP bimonthly highlights condense progress and significant concerns into a list for timely reporting to DOE. Monthly cost summaries with analyses of variances will be available by the seventh business day of each month.

9.3 SUMMARY COST CHARTS

The financial reporting system is designed to provide the project manager with the data necessary to control and manage program costs. All costs within the ORNL complex are collected in the Cost Accounting System. IFDP costs will be retrieved electronically from the Cost Accounting System and put into the cost and scheduling tracking system, where comparative analysis may be made against planned costs. Cost reports will be presented in the WBS format.

Summary cost reports showing actual costs relative to a planned budget will be developed for each WBS and reported monthly. These summaries will appear in the bimonthly meeting minutes as soon as the data are available from the Cost Accounting System (normally by the second week). Variances will be controlled as explained in Sect. 2.3.

9.4 DETAILED ACTIVITY PROGRESS REPORT

In addition to the bimonthly reporting discussed in Sect. 9.2, monthly detailed schedule status reports will be generated to assist the project manager. These reports are primarily intended to be a working tool for use by all project participants and will include information in the following areas:

1. major accomplishments;
2. developments affecting baseline estimates, schedules, and scope;
3. cost performance;
4. schedule status on all level 2 and 3 milestones;

5. significant problems and solutions; and
6. significant comments.

These reports will be issued to IFDP participants and DOE through the project tracking system by the tenth working day of each month.

10. CHANGE CONTROL

10.1 BASELINE CHANGE CONTROL

Scope, schedule, and cost baselines have been developed and are used as a basis for project control. Proposed changes to any of these baselines will be approved by a baseline change control board consisting of ER management. Levels of reviews and approvals are detailed in Table 3.

10.2 CONFIGURATION MANAGEMENT (TECHNICAL CHANGE CONTROL)

Configuration Management is used on this project to help ensure that vital structures, systems, and components for the project conform to their respective requirements (including interfaces) and documents. The primary objective of Configuration Management is to support safe, reliable, and appropriate operations on project work. Changes to configuration items (safety class items, vital monitors, etc.) will be reviewed and approved by qualified technical reviewers. In the rare event that a proposed change to a configuration item adversely affects DOE-controlled cost, schedule, and scope baselines, project team members may choose to submit a Baseline Change Proposal.

10.3 CONTROLLED PROJECT DOCUMENTATION

The IFDP manager is responsible for designating controlled documents for the project. To comply with the configuration control objectives, each controlled document will be assigned a document number with a publication date. Every issuance shall be permanently maintained in the central project files. A Document Change Form with a revision number will accompany proposed revisions with a detailed explanation of requested changes. A summary sheet listing all controlled documents will be maintained by the IFDP project manager. The objectives of the controlled program documentation activity are to control the content and quality of each document and to ensure proper distribution. No attempt will be made to control distribution (i.e., numbered copies) before retrieving or destroying prior issuances.

Table 3. Change approval authorities

Scope change	Cost change	Schedule change	DOE-HQ BCCB Level 1	DOE-ORO BCCB Level 2A	Subproject team Level 2B	LMES Level 3
Addition or deletion of WBS at Level 6 element			Approve (addition or deletion of an element)	Endorse	Endorse	Endorse
Change to WBS dictionary at Level 7 (assumptions, technical description, responsible assignment) or the Task Work Agreement				Approve	Endorse	Endorse
	> $25M		Approve	Endorse	Endorse	Endorse
	< $25M		Information	Approve	Endorse	Endorse
		Level 1 milestones	Approve change ≥ 6 months	Endorse > 6 months. Approve ≤ 6 months	Endorse	Endorse
		Level 2A milestones		Approve change ≥ 3 months	Endorse	Endorse
		Subproject team Level 2B milestones (see milestone log by subproject)			Approve	Endorse

Note: Level 1, 2A, and 2B milestones are identified on controlled milestone logs of baseline.
[a]BCCB = Baseline Change Control Board

11. SUPPORTING PLANS

In addition to the IFDP work plan (Chap. 4.), other supporting plans have been identified and will be prepared.

11.1 FACILITY SURVEILLANCE AND MAINTENANCE PLANS

A plan identifying all existing S&M activities currently performed in all facilities will be prepared. The plan will identify each S&M activity, the organization responsible for performing the activity, the basis for the activity, the required frequency, and the approximate cost. This will be used to identify which deactivation activities will decrease baseline S&M cost and provide a firm basis for the estimated annual costs for facilities after completion of the IFDP.

11.2 HEALTH AND SAFETY PLAN

The *Health and Safety Plan for the Isotopes Facilities Deactivation Project at the Oak Ridge National Laboratory, Oak Ridge, Tennessee,* ORNL/ER-370 (LMES 1996), has been prepared to (1) ensure that all activities are conducted in accordance with applicable health and safety standards; (2) ensure that the necessary permits and safety equipment and procedures are in place before commencement of work activities; (3) provide the appropriate review and approval for permits and procedures for experimental activities, operations, and maintenance to ensure the hazards have been addressed; and (4) provide implementation of an as low as reasonably achievable program, and ensure that project personnel wear proper dosimeters and appropriate personnel protective clothing and equipment, and are properly trained. This document meets the requirements of the *Health and Safety Plan for the Environmental Restoration Program at Oak Ridge National Laboratory*, ORNL/ER-226.

11.3 QUALITY ASSURANCE PLAN

Day-to-day technical management, coordination, control, and reporting of project activities for IFDP is under ER responsibility; however, the facility management function is provided by the Lockheed Martin Energy Research (LMER) CTD for ER under the conditions outlined in a Memorandum of Agreement between the two organizations. This management arrangement allows the IFDP QA program to be directed by the CTD *Radiochemical Technology Section Quality Assurance Plan,* RTS-QAP-X-91-CT-006, R2, (ORNL 1991). The *Environmental Restoration Quality Program Plan,* (ERWM/TM-4, R4), states that other LMER and LMES divisions performing work for ER can operate under their own QA project plans, as long as the plans are reviewed and accepted by the responsible ER Quality Assurance Engineer. Additionally, the Radiochemical Technology Section (RTS) QA plan (QAP) states that support organizations or subcontractors performing work within the scope of the RTS program shall have an approved QA program or work under the RTS QAP and its referenced procedures.

RTS-QAP-X-91-CT-006 meets the intent of the ORNL ER QAP (ORNL/ER-225, R1), the ER QAP, the DOE order on QA (DOE 5700.6C), the requirements of the LMES Quality Program Description (Y/QD-15), and the Price-Anderson Amendments Act Quality Assurance Program Commitments and Implementation Plan (Y/QD-35). As allowed under the upper tier ER QAP and

the RTS QAP, there will not be a separate QAP written for this project. RTS-QAP-X-91-CT-006 will be the governing QA document for IFDP, and its implementation addresses activities conducted in and for facilities within the scope of the IFDP. Implementation of RTS-QAP-X-91-CT-006 ensures achievement of IFDP objectives in a safe, reliable, and predictable manner. The RTS QAP will be evaluated annually and revised as necessary to incorporate changes to the IFDP QA requirements. The RTS QAS will have QA oversight and verification responsibilities for IFDP.

RTS-QAP-X-91-CT-006 is arranged in the same format as DOE 5700.6C. It covers QA requirements for training, quality improvement, documents and records, work processes, design, procurement, inspection and acceptance testing, management assessment, and independent assessment. It also includes a requirement matrix to show the relationship with 10 *CFR* 830.120, DOE Order 5700.6C, and ANSI/ASME NQA-1. This project management plan outlines the authorities and responsibilities for IFDP and includes a project description and project organization chart (Chap.7). A table is included to show the relationships between the DOE, NQA-1, ER, and RTS QA requirements (Table 4). This table will provide a reference to the ER QAP as an indication of the parallel requirements within each program.

11.4 READINESS REVIEWS

A readiness review plan will be developed as needed by the project manager before implementation of major work activities, such as restart of operations when no such activities have been identified to date.

Readiness reviews will be conducted in accordance with the ER Procedure "Conducting Project Readiness Reviews," ER/C-P1610.

Table 4. Modular profile for the Characterization and Monitoring Project

EPA QAMS 005/80	NQA-1 Basic Element	DOE Order 5700.6C Criteria	ES/ER/TM-4	RTS-QAP-X-91-CT-006	Location of QAPjP
5.1 Title Page	6. Document Control	4. Documents and Records	4. Documents and Records	4.	3.1 Introduction
5.2 Table of Contents	6. Document Control	4. Documents and Records	4. Documents and Records	4.0	3.2 Definition, Purpose, and Scope
5.3 Project Description	2. Quality Assurance 6. Document Control	1. Program	1. Program	1.1	3.5 Project Description
5.4 Project Organization and Responsibility	1. Organization	1. Program 2. Personnel Training and Qualification	2. Personnel Training and Qualification	2.0 1.5	3.4 Project Organization and Responsibilities
5.5 QA Objectives for Measurement Data	3. Design Control	6. Design	6. Design	6.0	3.7 QA Objectives for Measurement Data in Terms of PARCC
5.6 Sampling Procedures	5. Instruction, Procedures, and Drawings 6. Document Control, Technical Peer Reviews	4. Documents and Records 5. Work Processes 6. Design	4. Documents and Records 5. Work Processes 6. Design	5.0	3.8 Sampling Procedures
5.7 Sample Custody	6. Document Control 8. Identification and Control of Items 13. Handling, Storage, and Shipping	4. Documents and Records 5. Work Processes	4. Documents and Records 5. Work Processes	4.0 5.0	3.10 Sample Custody
5.8 Calibration Controls and Frequency	12. Control of Measuring and Test Equipment	5. Work Processes	5. Work Processes	8.0 8.3	3.11 Calibration and Frequency
5.9 Analytical Procedures	5. Instruction, Procedures, and Drawings 6. Document Control 9. Control of Processes	4. Documents and Records 5. Work Processes 6. Design	4. Documents and Records 5. Work Processes 6. Design	5.0 4.0 6.0	3.12 Analytical Procedures
5.10 Data Reduction, Validation, and Reporting	4. Procurement Document Control 7. Control of Purchased Items and Services 11. Test Control	7. Procurement 8. Inspection and Acceptance Testing	7. Procurement 8. Inspection and Acceptance Testing	7.0 8.0	3.15 Data Reduction, Validation, and Reporting

Table 4 (continued)

EPA QAMS 005/80	NQA-1 Basic Element	DOE Order 5700.6C Criteria	ES/ER/TM-4	RTS-QAP-X-91-CT-006	Location of QAPjP
5.11 Internal QC Checks	10. Inspections 11. Test Control 19. Software Quality Assurance	6. Design 8. Inspection and Acceptance Testing	6. Design 8. Inspection and Acceptance Testing	8.0 8.2	3.16 Internal Quality Control
5.12 Performance and System Auditing and Frequency	18. Audits	9. Management Assessments 10. Independent Assessments	9. Management Assessments 10. Independent Assessments	9.0 9.2 10.0 10.2	3.17 Performance and System Audits
5.13 Preventive Maintenance Procedures and Scheduling	12. Control of Measuring and Test Equipment 14. Inspection, Test, and Operating Status	5. Work Processes	5. Work Processes	5.0 5.2	3.18 Preventive Maintenance
5.14 Specific Routine Procedures	5. Instructions, Procedures, and Drawings 6. Document Control 9. Control of Processes	6. Design	6. Design	5.0 5.2	3.19 Specific Project Procedures
5.15 Corrective Action	16. Corrective Action	3. Quality Improvement 9. Management Assessment 10. Independent Assessment	3. Quality Improvement	3.0 3.3	3.20 Corrective Action
5.16 QA Reports to Management	15. Non-Conformance 16. Corrective Action 17. Quality Assurance Records	2. Personnel Training and Qualifications 3. Quality Improvement 9. Management Assessment 10. Independent Assessment	2. Personnel Training and Qualifications 3. Quality Improvement	9.0 9.22	3.21 QA Reports to Management

12. REFERENCES

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: P235
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☐ Additional Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☑ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Work Plan for the Isotopes Facility Deactivation Project at Oak Ridge National Laboratory	
Source Document Reference Information (author(s), document and revision number, date, publisher): Energy Systems Environmental Restoration Program, ORNL/ER-249, Rev. 1, 05/1995, Environmental Restoration Division/ORNL/Martin marietta Energy Systems, Inc.	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR7	All	This work Plan describes the environmental restoration of numerous facilities at ORNL that were involved in isotope separation and production. Many of these facilities were originally constructed in the early days of ORNL operations (1940s-1960s) and housed various projects and activities over the years. Only certain of these facilities are described as housing operations associated with TRU elements or containing TRU contamination; only these facilities are addressed below.
WS7	1	The purpose of the Isotopes Facility Deactivation Project is described as deactivation of 16 former isotopes production facilities and placing them in a safe shutdown condition.
WS2	2	A listing of all facilities to be deactivated is provided.
WS5	10	An idealized process flow diagram for the deactivation process is provided.
PR3, PR4	44	Section 4.4 describes the waste management operations to be associated with the deactivation project. This section addresses gaseous, liquid, and solid waste management plans.
PR6	50-51	The types and quantities of waste expected to be generated as part of the deactivation project are described. The following types and quantities are of particular interest: TRU (85 ft3) and TRU mixed (40 ft3). Expected TRU wastes are comprised of blotter paper, wipes, cheesecloth, small lab equipment, glass bottles, plastics, and paper.
WS4	52	Waste minimization is to be an integral part of waste management activities. This will include

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DATE REC'D 12/30/2013

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: P235
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		elimination of characteristic hazardous waste and segregating waste by type to prevent category crossover. Because of this, it is assumed that TRU waste generation will be strictly controlled and therefore only facilities identified as housing TRU operations or containing TRU contamination were considered for the following discussion.
PR1	A-6	A map showing the facilities to be deactivated is provided.
PR7, WS7, WS11, WS12	App. A	Appendix A contains a description of each facility to be deactivated. Only those facilities identified as housing TRU operations or containing TRU contamination are described here. Bldg 3026-D Segmenting Hot Cell Facility: This facility housed a chemical separation lab and was used for the isolation and production of various isotopes, including Np-237. It is now used for segmenting, examining, and assembling irradiated metallurgical specimens. Isotopes: p-32, I-131, T-99, Pm-147, Np-237, Xn-135, and Ba-140. hazardous constituents: barium. Bldg 3028, Alpha Powder Facility: This facility housed ion exchange operations for I-131 processing, the Short-Lived Fission Product Program (early 1960s-1985), and Curium processing and source fabrication in support of the 1960s-era Space Nuclear Systems program. This Cm processing is a major source of contamination. Isotopes: Xe-133, I-131, Mo-99, Pm-147, Pu, and Cm. Bldg 3038, isotopes Research, Shipping, and Technology and Alpha Handling Facility: this facility was built in 1949 and housed all of the radioisotopes shipping operations for ORNL. In 1968, the west end of the building was converted to the alpha handling facility. The building also housed analytical chemistry labs that supported the isotopes program until 1976. This area was then converted to isotopes production and development. In the late 70s/early 80s, research was conducted on Pu alloys and compounds and later on Pm-147 doped crystals and glasses for lasers (funded by LLNL). Isotopes: Cm-244, Am-241, Pu, Am, Cm, Pm-147, Sr-90, Y-90, Np-237, and Pu-238. Bldg 9204-3 - Actinide Area (located at Y-12 Plant): This facility was originally built to house the electromagnetic separation of uranium isotopes and recovery of U-235 using the calutrons. In 1962, the facility was converted to isotopes production, which continued through the mid-70s. in the late 70s to 1980, the facility was used to isolate Pu-242. Isotopes: U-235, Pu-242.

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: P235

Source Document Data Limitations (If any):

1. This work plan describes deactivation of 16 facilities associated with isotopes separation and production. However, only four of those facilities appear to have TRU contamination. This is a work plan and so estimates of types and quantities of TRU waste are projected. A final report for this project would be helpful in determining final TRU waste generated.

Acceptable Knowlege Expert:

Travis Smith / [signature] Date: 11/26/2013

Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

DIVIDER

PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C096
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☑ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Interview with Tom Miner: Historical operations and waste management at Building 3028	
Source Document Reference Information (author(s), document and revision number, date, publisher): Tom Krause , NA, NA, 05/18/2005, NA	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR4, WS1, WS2, WS3, S7, S15, S16	1, 2	Text of this interview is as follows: Note: Mr. Miner has been involved with Buildings 3028, 3038, 3517, 3026D, 3029, 3505, 4507, 3042 (ORR), and 3010 (BSR). What is your connection with Building 3028? –Or- What was your position at Building 3028? Mr. Miner was an operator from 1985 to 1992 and has been the Operations Supervisor from 1992 to present. During what time frame were you involved with operations at Building 3028? 1985 to present. What programs or projects were conducted in this building? Routine operations in this building were shut down prior to 1985. Activities since that time included ongoing facility maintenance, SNM maintenance, and cleanout of the Curium hot cells in 1996-97. What is your recollection of waste management practices at this building? Waste from the Cm hot cell cleanout was managed in accordance with ORNL-wide procedures in place at the time. Are you familiar with how waste from this building was packaged? If yes, can you provide details (e.g., layers of confinement, filters on drum or inner packages, rigid drums liners? Individual items were double-bagged and placed in stainless steel drums with another bag liner used to hold all waste within a drum. No liquids, powders, or sealed containers were placed in the drums. Was waste segregated at this building? If yes, how? Waste was not segregated as all the hot cells are interconnected. Is there anyone else that may be able to help with this information? No one else still available.

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Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C096

Source Document Data Limitations (if any):

1. Routine operations in this building were shut down prior to Mr. Miner's involvement.

Acceptable Knowlege Expert:

Travis Smith / [signature] Date: 11/20/2013

Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

Attachment 2 – Record of Communication

Waste Stream numbers(s): ORFWENC-007		Corresponding Source Document Tracking No: C096
Interviewer: Tom Krause	Date: May 18, 2005	Time: 1:20 pm MDT
Interviewee: Tom Miner	Group/Organization: ORNL Job Title: Research assistant	Phone: 865-576-4881 E-mail:

Subject: Historical operations and waste management at Building 3028

Summary: *Note: Mr. Miner has been involved with Buildings 3028, 3038, 3517, 3026D, 3029, 3505, 4507, 3042 (ORR), and 3010 (BSR).*

What is your connection with Building 3028? –Or- What was your position at Building 3028? *Mr. Miner was an operator from 1985 to 1992 and has been the Operations Supervisor from 1992 to present.*

During what time frame were you involved with operations at Building 3028? *1985 to present.*

What programs or projects were conducted in this building? *Routine operations in this building were shut down prior to 1985. Activities since that time included ongoing facility maintenance, SNM maintenance, and cleanout of the Curium hot cells in 1996-97.*

What is your recollection of waste management practices at this building? *Waste from the Cm hot cell cleanout was managed in accordance with ORNL-wide procedures in place at the time.*

Are you familiar with how waste from this building was packaged? If yes, can you provide details (e.g., layers of confinement, filters on drum or inner packages, rigid drums liners? *Individual items were double-bagged and placed in stainless steel drums with another bag liner used to hold all waste within a drum. No liquids, powders, or sealed containers were placed in the drums.*

Was waste segregated at this building? If yes, how? *Waste was not segregated as all the hot cells are interconnected.*

Is there anyone else that may be able to help with this information? *No one else still available.*

Data Limitations: *Routine operations in this building were shut down prior to Mr. Miner's*

involvement.

Acceptable Knowledge Expert: Tom Krause / [signature]
Print Sign

Date: 06/24/05

DIVIDER

PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	**Source Document Tracking Number:** C034
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	**Category:** ☑ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Memo to file re: Documentation of Defense-Related Activities Conducted in the Isotopes Research Materials Laboratory (IRML) at Oak Ridge National Laboratory (ORNL)	
Source Document Reference Information (author(s), document and revision number, date, publisher): JR Trabalka, DOE OR, NA, NA, 07/16/1999, NA	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR2, WS2, WS4, WS7, WS11, S7	All	Memo to file concerning activities conducted at Building 3038, the IRML. As much as 50% of the work conducted at IRML was 'Classified'. One of the major clients for work at IRML was LLNL. Requests from Defense Program (DP) clients were received on an ad hoc basis and were handled through the Isotopes Distribution (Sales) Office at ORNL. Often, classified work was not documented as such. The following defense-related activities were conducted in Building 3038: • Preparation of Cm-246 for high-pressure Cm studies • Pu separations from thermite mixtures (using Pu from Hanford) • Preparation of Ra-223 for the NUWAX-83 project • Production of Cm-244 metal cylinders for LANL • Preparation of a Cm-244 metal diagnostics package
WS11	Throughout	Isotope/nuclides mentioned: Cm-244, Cm-246, Ra-223

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DATE REC'D 12/30/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C034
Source Document Data Limitations (if any): 1. Memo to file - does not have any backup documentation.	
Acceptable Knowlege Expert: Travis Smith Date: 11/20/2013 Print /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

Memorandum to File

Subject: Documentation of Defense-Related Activities Conducted in the Isotopes Research Materials Laboratory (IRML) at Oak Ridge National Laboratory (ORNL)

On July 16, 1999, while serving as project leader for the TRU Waste Historical Survey as a member of the Chemical Technology Division at ORNL, I discussed the above subject with W. S. (Scott) Aaron, Chemical Technology Division, ORNL, who was formerly a member of the IRML staff, and later served as its director.

He confirmed that some of the work in the IRML was reportedly classified, and told me that as much as 50% of the work conducted in the facilities operated by the IRML at a given time was reportedly defense-related. This included preparation of tritium targets and other activities which did not contribute to TRU waste generation. Classified work was often conducted in an unclassified fashion by not revealing the purpose to the person who actually carried out the work, and by omission of any such information from working records, such as logbooks, etc. In one case, this involved the fabrication and loading of a test component into a weapons assembly in a Safe Secure Transporter at Bldg. 3038-E at ORNL (see last bulleted item below). Lawrence Livermore National Laboratory (LLNL; initially Lawrence Livermore Laboratory) was reportedly the principal "defense" customer of the IRML, so much so that the IRML was reportedly referred to jokingly as "Livermore East" by the ORNL staff.

He confirmed that requests for support services from Defense Programs (DP) customers were largely received on an ad hoc basis, and were handled through the Isotopes Distribution (Sales) Office at ORNL. A work order was issued for the activity by the Isotopes Distribution Office, using one of the existing account numbers for general sale or distribution of radioactive materials. It was therefore not possible to trace an Isotopes activity back to a programmatic source using conventional sources of information such as progress reports, logbooks, and financial management data. To compound matters, until the late 1980s, ORNL Isotopes Distribution records were routinely destroyed after a seven year storage period.

He said that although the "defense" customer would sometimes supply the radioactive material to the IRML for fabrication of special components (e.g., for weapons diagnostics), more often the IRML staff would utilize stocks of materials available at ORNL, either from those produced by the Isotopes Enrichment Facility or from those in the ORNL Sales Pool or the Research Materials Collection. Records for internal transfers of controlled materials from such stocks to the IRML are available prior to 1980, but do not provide a trail to a DP activity because these only reflected ORNL bookkeeping on its own materials.

He specifically identified several defense-related activities that were conducted in Bldg. 3038, including:

- Preparation of ^{246}Cm for high-pressure Cm studies.
- Plutonium separations from thermite mixtures (in glove boxes in 3038-AHF) for LLNL. Information linking the Pu source material for this work (a "button" from the Hanford site labeled CZA-68 that was later stored in the Special Nuclear Materials Vault in Bldg. 3027) is provided on the Request for Storage/Disposal forms for TRU waste containers ATN-2109, -2120, -2148, -2149, -2374, and -2502.
- Preparation of ^{223}Ra for the NUWAX-83 project.
- Production of ^{244}Cm metal cylinders for the LANL for use in the Amarillo nuclear test.
- Preparation of a ^{244}Cm metal diagnostic package (which was then loaded directly into a weapons assembly in a Safe Secure Transporter at Bldg. 3038-E).

John R. Trabalka, ORNL (retired)

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: P274
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☑ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Segregation and Immobilization of Particulate Fines	
Source Document Reference Information (author(s), document and revision number, date, publisher): NFS, Decommissioning Department, DCM-58, Various, Various	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
PR6, WS2, WS3, WS4, WS8, WS9, WS11, S16	Throughout	This procedure addresses the segregation and immobilization of particulate fines. For the Plutonium Facilities Decommissioning Project. Materials such as floor sweepings, paint chips, filter media, and rust are generated from various cleanup activities. These materials have been collected in 1 liter and 2 linter poly bottles and assayed to determine Pu-239 fge of each container. The bottles are presently being stored in bldg 234 and in bldg 233 vault, and are being tracked in the MTS. These bottles of particulate waste will be processed to remove respirable fines. The 1 and 2 liter bottles are put in the glovebox. Each bottle is opened and empties onto a sieve screen. The large pieces of waste are separated and shaken to remove any loose particulate material. The larger pieces are placed in 2 liter bottles for removal from the glovebox. These are sent to the DVRF for processing. The fines are placed into a poly measuring cup and into 2 liter bottles. These are bagged out and assayed, and stored in Bldg 234 Area C until ready for immobilization. The fines are cemented with cement and water. Revision 3 revisions: 8.3 changed to read - Mix the correct ratio of fines, cement and water, according to step 8.2. 8.4 changed to read - Stir the wet mixture with the spatula for approximately 30 seconds or until homogeneity of the mixture exists. 8.8 changed to read - after the cement slurry cures for twenty-four (24) hours, visually inspect the bottle for signs of residual liquid and set-up. Place a small amount of moisture absorbent material (approximately 1/2 inch thick) on the top of the cement to absorb any liquid that may evolve and condense due to thermal cycling.

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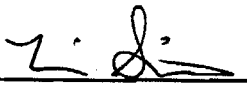
Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: P274

Source Document Data Limitations (if any):

1. Does not address placement of the 1 and 2 liter bottles.
2. Revision 0 of this procedure has no effective date.
3. Revision 3 of this procedure has "Revision 2" as well as the incorrect effective date on pages 2 through 10.

Acceptable Knowlege Expert:

Travis Smith /  Date: 11/18/2013

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P274

NFS

DOCUMENT TITLE PAGE

NAME:
COPY #:

TITLE:
SEGREGATION AND IMMOBILIZATION OF PARTICULATE FINES

PAGE 1 OF ____

28T-93-049
UNIQUE ID #

SYS-50-27
SUBJECT/FILE CODE

DCM-58
CROSS REFERENCE

CROSS REFERENCE

DECOMMISSIONING
CONTROLLING DEPT.

DCM-58
PROCEDURE/SECTION #

3
REVISION #

02/09/93
EFFECTIVE DATE

Rev. 2
SUPERSEDES

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Security Director

Nuclear Safety Supervisor

Health Physics Coordinator

Decommissioning Project Director - Plutonium

EcoTek Project Manager - Plutonium

Nuclear Fuel Services, Inc.
205 Banner Hill Rd.
Erwin, TN 37650

RECORD OF REVISIONS

PAGE/PARAGRAPH		DESCRIPTION OF AND REASON FOR CHANGE
8/8.3	Change to Read:	Mix the correct ratio of fines, cement and water, according to Step 8.2.
8/8.4	Change to Read:	Stir the wet mixture with the spatula for approximately 30 seconds or until homogeneity of the mixture exists.
8/8.8	Change to Read:	After the cement slurry cures for twenty-four (24) hours, visually inspect the bottle for signs of residual liquid and set-up. Place a small amount of moisture absorbent material (approximately 1/2 inch thick) on the top of the cement to absorb any liquid that may evolve and condense due to thermal cycling.

SEGREGATION AND IMMOBILIZATION OF PARTICULATE FINES

1 GENERAL

1.1 This procedure provides instruction for the segregation and solidification of particulate waste for the Plutonium Facilities Decommissioning Project. Materials such as floor sweepings, paint chips, filter media, and rust are generated from various clean-up activities. These materials have been collected in 1-liter and 2-liter polyethylene bottles and assayed in NDA Station 4 or NDA Station 5 to determine the ^{239}Pu fissile gram equivalent of each container. The bottles are presently being stored in Building 234 and in Building 233 (vault), and are being tracked in the MTS. These bottles of particulate waste will be processed to remove respirable fines. Respirable fines are defined as those wastes which contain particulates with greater than one (1) weight percent of the material less than ten (10) microns in diameter, or greater than fifteen (15) weight percent of the material less than two hundred (200) microns in diameter. The respirable fines will be removed from the waste through a process in which the particulates are screened through a 212 micron sieve. The screened fines will be collected in 2-liter or smaller polyethylene bottles. This work will be performed in the segregation and immobilization station, Building 234, Area C.

2 REFERENCES

2.1 NFS General Health and Safety Procedures

2.2 DCM-04, Health Physics for Plutonium Decommissioning

2.3 DCM-06, Bag-out and Glove Change

2.4 DCM-08, DVRF Operations

3 HEALTH AND SAFETY

3.1 Work shall be performed in accordance with NFS general Safety procedures and procedure DCM-04, Health Physics Procedure for Plutonium Decommissioning.

3.2 Respiratory protection and protective clothing shall be worn as prescribed by the RWP.

4 RADIOLOGICAL SAFETY

4.1 A minimum of 0.5" water gauge vacuum will be maintained in the process glovebox. The glovebox will be connected to the Building 234, stack #27, vacuum header. The inlet air to the glovebox will be HEPA filtered and the exhaust air from the glovebox will be double HEPA filtered prior to discharge.

4.2 A continuous air monitor (CAM) will be operational in Area C at all times during operation of the process.

5 NUCLEAR SAFETY

5.1 All materials to be introduced into the process glovebox have previously been assayed in NDA Station 4 or NDA Station 5 to determine ^{239}Pu fissile gram equivalent. Using these values, a maximum of 200 grams ^{239}Pu fissile gram equivalents will be in the system at any one time.

6 PREREQUISITES

6.1 Employees performing work under this procedure will receive training on this procedure. Training will be documented.

6.2 Proper equipment and supplies shall be available for the performance of the steps in this procedure. Proper equipment and supplies include, but is not limited to, the following:

212 micron sieve
sieve lid
sieve collection pan
2000 ml poly measuring cup

1000 ml poly graduated cylinder
stainless steel spatula
poly funnel
small hand brush
poly scoop
vibration table
drying pan
industrial bench scale
12 mil plastic sheet or bunge bag
utility knife
radiation monitoring equipment
55-gallon or 40-gallon drum
hot plate

6.3 The building ventilation shall be in operation.

6.4 An RWP shall be issued by the Health Physics Coordinator for work conducted in accordance with this procedure.

6.5 Radiation measuring instruments utilized during this procedure shall have up-to-date calibration stickers.

6.6 A Radiation Monitor shall be in attendance while introducing or removing materials from the glovebox.

7 SEGREGATION

7.1 Select a batch of 2-liter and/or 1-liter polyethylene bottles of waste materials to be segregated and solidified. A batch will be limited to a maximum of 200 grams ^{239}Pu fissile gram equivalents. Log each bottle number (the bottle's MTS bale number) and ^{239}Pu fissile gram equivalent on the Segregation of Respirable Fines Data Sheet (Figure 1). Delete each original bale number from the MTS. Each Segregation of Respirable Fines Data Sheet will not be used for more than one batch.

7.2 Bag in the batch of 1-liter and 2-liter bottles into the process glovebox.

7.3 Open each bottle and observe the moisture content of the material. Residual moisture may be present due to condensation during storage. If no moisture is present, proceed to Step 7.8.

7.4 A 440 volt hot plate, with temperature indicator and regulator has been installed in the glovebox. A stainless steel drying pan will be used to segregate and dry the materials.

7.5 Place the 24 x 48 inch screen on the drying pan and pour the contents of the 2-liter bottles on the screen. Carefully sort the materials, removing pieces too large to fall through the screen. Remove cheesecloth and other combustible materials, vigorously shake these items over the screen, place these materials in 2-liter bottles to be removed from the glovebox.

7.6 With all combustible material removed from drying box, turn the hot plate on, adjust the regulator to 350 ± 10 degrees. The material must be dried in the pan until respirable fines are liberated. Stir the contents of the pan intermittently to allow for quicker drying.

Caution: *Do not leave the hot plate unattended during drying operation.*

Caution: *A digital temperature indicating device with an alarm set point has been installed on the hot plate. Do not touch the heated surface while red strobe is flashing.*

7.7 The material must be dried on the pan until respirable fines are liberated such that they can pass through a 212 micron sieve. Stir the contents of the pan intermittently to allow for quicker drying.

NOTE: *Allow material to cool 45 minutes prior to placing in 2-liter bottle.*

7.8 Place the sieve screen onto the sieve collection pan. Empty the contents of each bottle, or of the drying pan, into the sieve screen.

7.9 Carefully separate the larger pieces of waste and place the larger pieces in a 2-liter bottle(s) for removal from the glovebox.

7.10 Once the larger pieces have been segregated, cover the sieve and vibrate for approximately one (1) minute. Remove the lid and stir the contents, replace the lid, and vibrate the contents an additional two (2) minutes.

7.11 Remove the sieve from the collection pan and pour the remaining material from the sieve screen into the 2-liter bottle containing the larger pieces of

waste removed in Step 7.8. Replace the sieve on the collection pan and clean the screen with a small hand brush.

7.12 Repeat the sieving process for all bottles in the batch.

7.13 Once the batch has been screened, sweep the floor of the glovebox to collect any particulate that has escaped the sieve and settled on the floor. Place the sweepings on the sieve screen to separate any fines.

7.14 Remove the sieve from the collection pan and empty the contents of the sieve into the 2-liter bottle containing the non-sieved pieces. Bag-out the 2-liter bottle(s) and transfer to the DVRF for processing.

7.15 Empty the contents of the collection pan into the poly measuring cup. If contents are greater than a 500 ml volume, separate into 2-liter bottles so that no single bottle contains greater than 500 ml. Remeasure volume(s) if necessary and document this volume(s) on the Immobilization of Respirable Fines Data Sheet(s) (Figure 2).

7.16 Bag-out the bottle(s) containing the respirable fines and assay in NDA Station 5. If the assay value is less than or equal to 80 ^{239}Pu fissile gram equivalents, proceed to Step 7.17.

7.17 If the assay value of a bottle is greater than 80 ^{239}Pu fissile gram equivalents, bag the bottle into the glovebox. Separate the material into 2-liter bottles so that no single bottle should contain greater than 80 ^{239}Pu fissile gram equivalents. New Immobilization of Respirable Fines Data Sheets shall be used for each bottle. Repeat Step 7.15.

7.18 Enter the gram value into the MTS and assign a bale number to the bottle.

7.19 Store the assayed bottle in the storage racks located in Building 234 Area C.

8 IMMOBILIZATION

8.1 When the cumulative gram and volume totals on Figure 2 reach, but do not exceed, either 80 grams ^{239}Pu fissile gram equivalents or a fines volume of 500 ml, bag the stored bottle(s) into the process glove box for immobilization. If more than one bottle is to be immobilized, combine the bottles into a single 2-

liter bottle. Bag the 2-liter bottle out of the glovebox and assay in NDA Station 5. Enter the gram value into the MTS and assign a bale number to the bottle. Bag the assayed 2-liter bottle into the glovebox.

Caution: *Segregation operations are not authorized during immobilization.*

8.2 Use the following concrete mix-to-fines ratio for solidification:

Fines	Cement	Water
250 ml or less	750 ml	250 ml
250 ml to 500 ml	1,250 ml	375 ml

8.3 Mix the correct ratio of fines, cement and water, according to Step 8.2.

8.4 Stir the wet mixture with the spatula for approximately 30 seconds or until homogeneity of the mixture exists.

8.5 Tamp the bottle on the floor of the glovebox several times to assist the settling of the cement and elimination of void spaces.

8.6 Sweep the floor of the glovebox to collect any particulate that was spilled. Place the sweepings into the 2-liter bottle and re-stir until homogeneity exists.

8.7 Set the uncapped 2-liter bottle aside in the glovebox to allow hardening for at least twenty-four (24) hours.

8.8 After the cement slurry cures for twenty-four (24) hours, visually inspect the bottle for signs of residual liquid and set-up. Place a small amount of moisture absorbent material (approximately 1/2 inch thick) on the top of the cement to absorb any liquid that may evolve and condense due to thermal cycling.

8.9 Cap and bag-out the immobilized 2-liter bottle from the process glovebox and place in an approved storage area.

8.10 Bag-out the empty 2-liter bottle and transfer to the DVRF for processing.

Figure 1

SEGREGATION OF RESPIRABLE FINES DATA SHEET

	MTS Bale Number	Gram Value	Cumulative Gram Value*
1			
2			
3			
4			
5			
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18			

**Not to exceed 200 grams ^{239}Pu equivalent.*

Remarks:	Operator: _____
	Supervisor: _____
	Date: _____

Figure 2

IMMOBILIZATION OF RESPIRABLE FINES DATA SHEET

	MTS Bale Number	Gram Value	Cumulative Gram Value	Volume (ml)	Cumulative Volume (ml)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Final Bale #	Gram Value	Volume

Remarks:	Operator: _____
	Supervisor: _____
	Date: _____

DIVIDER PAGE ONLY

Not part of page count

P274

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NFS

DOCUMENT TITLE PAGE	NAME: / COPY #:

TITLE: SEGREGATION AND IMMOBILIZATION OF PARTICULATE FINES

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DECOMMISSIONING DEPARTMENT

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PAGE 1 OF ____	
28T-92-030	UNIQUE ID #
SYS-50-27	SUBJECT/FILE CODE
DCM-58	CROSS REFERENCE
	CROSS REFERENCE
DECOMMISSIONING	CONTROLLING DEPT.
DCM-58	PROCEDURE/SECTION #
0	REVISION #
	EFFECTIVE DATE
	SUPERSEDES
QUAL. THNG.	VERS

APPROVED: _____ REVIEW DATE:

Safety Director

Material Control & Accountability Dir.

Production Director

Plant Engineering Director

Quality & Process Control Director

Security Director

Nuclear Safety Supervisor 9/14/92

Health Physics Coordinator

Decommissioning Project Director - Plutonium

EcoTek Project Manager - Plutonium

Nuclear Fuel Services, Inc.
205 Banner Hill Rd.
Erwin, TN 37650

(1) 89 gram 239Pu equivalent value - is this an NFS Administrative limit? Yes - based upon a 25-30% uncertainty and?
(2) Comment Nix - is it Portland, mixed according to Brunk Tech Bostik? - yes. 25-30 liter container?

RECORD OF REVISIONS

PAGE/PARAGRAPH	DESCRIPTION OF AND REASON FOR CHANGE
	This is a new procedure.

SEGREGATION AND IMMOBILIZATION OF PARTICULATE FINES

1 GENERAL

1.1 This procedure provides instruction for the segregation and solidification of particulate waste for the Plutonium Facilities Decommissioning Project. Materials such as floor sweepings, paint chips, filter media, and rust are generated from various clean-up activities. These materials have been collected in 1-liter and 2-liter polyethylene bottles and assayed in NDA Station 4 or NDA Station 5 to determine the ^{239}Pu fissile gram equivalent of each container. The bottles are presently being stored in Building 234 and in Building 233 (vault), and are being tracked in the MTS. These bottles of particulate waste will be processed to remove respirable fines. Respirable fines are defined as those wastes which contain particulates with greater than one (1) weight percent of the material less than ten (10) microns in diameter, or greater than fifteen (15) weight percent of the material less than two hundred (200) microns in diameter. The respirable fines will be removed from the waste through a process in which the particulates are screened through a 212 micron sieve. The screened fines will be collected in 2-liter or smaller polyethylene bottles. This work will be performed in Building 234, Area C.

2 REFERENCES

2.1 NFS General Health and Safety Procedures

2.2 DCM-04, Health Physics for Plutonium Decommissioning

2.3 DCM-06, Bag-out and Glove Change

2.4 DCM-08, DVRF Operations

3 HEALTH AND SAFETY

3.1 Work shall be performed in accordance with NFS general Safety procedures and procedure DCM-04, Health Physics Procedure for Plutonium Decommissioning.

3.2 Respiratory protection and protective clothing shall be worn as prescribed by the RWP.

4 RADIOLOGICAL SAFETY

4.1 A minimum of 0.5" water gauge vacuum will be maintained in the process glovebox. The glovebox will be connected to the Building 234, stack #224, vacuum header. The inlet air to the glovebox will be HEPA filtered and the exhaust air from the glovebox will be double HEPA filtered prior to discharge.

4.2 A continuous air monitor (CAM) will be operational in Area C at all times during operation of the process.

5 NUCLEAR SAFETY

5.1 All materials to be introduced into the process glovebox have previously been assayed in NDA Station 4 or NDA Station 5 to determine ^{239}Pu fissile gram equivalent. Using these values, a maximum of 200 grams ^{239}Pu fissile gram equivalents will be in the system at any one time.

6 PREREQUISITES

6.1 Employees performing work under this procedure will receive training on this procedure. Training will be documented.

6.2 Proper equipment and supplies shall be available for the performance of the steps in this procedure. Proper equipment and supplies include, but is not limited to, the following:

212 micron sieve
sieve lid
sieve collection pan
2000 ml poly measuring cup
1000 ml poly graduated cylinder
stainless steel spatula
poly funnel
small hand brush
poly scoop
vibration table

industrial bench scale
12 mil plastic sheet or bunge bag
utility knife
radiation monitoring equipment
55-gallon or 40-gallon drum

6.3 The building ventilation shall be in operation.

6.4 An RWP shall be issued by the Health Physics Coordinator for work conducted in accordance with this procedure.

6.5 Radiation measuring instruments utilized during this procedure shall have up-to-date calibration stickers.

6.6 A Radiation Monitor shall be in attendance during these operations.

7 SEGREGATION

7.1 Select a batch of 2-liter and/or 1-liter polyethylene bottles of waste materials to be segregated and solidified. A batch will be limited to a maximum of 200 grams ^{239}Pu fissile gram equivalents. Log each bottle number (the bottle's MTS bale number) and ^{239}Pu fissile gram equivalent on the Segregation of Respirable Fines Data Sheet (Figure 1). Delete each original bale number from the MTS. Each Segregation of Respirable Fines Data Sheet will not be used for more than one batch. — ?

7.2 Bag in the batch of 1-liter and 2-liter bottles into the process glovebox.

7.3 Place the sieve screen onto the sieve collection pan. Individually open each bottle and empty its contents into the sieve screen.

7.4 Carefully separate the larger pieces of waste (i.e. cheesecloth, gasket material, filter media, etc.). Vigorously shake each piece as it is removed over the sieve screen, in order to remove any loose particulate. Place the larger pieces in a 2-liter bottle(s) for removal from the glovebox.

7.5 Once the larger pieces have been segregated, cover the sieve and vibrate for approximately one (1) minute. Remove the lid and stir the contents, replace the lid, and vibrate the contents an additional two (2) minutes.

how determined →

Negative pressure differential across sieve ?

7.6 Remove the sieve from the collection pan and pour the remaining material from the sieve screen into the 2-liter bottle containing the larger pieces of waste removed in Step 7.4. Replace the sieve on the collection pan and clean the screen with a small hand brush.

7.7 Repeat the sieving process for all bottles in the batch.

7.8 Once the batch has been screened, sweep the floor of the glovebox to collect any particulate that has escaped the sieve and settled on the floor. Place the sweepings on the sieve screen to separate any fines.

7.9 Remove the sieve from the collection pan and empty the contents of the sieve into the 2-liter bottle containing the non-sieved pieces. Bag-out the 2-liter bottle(s) and transfer to the DVRF for processing.

7.10 Empty the contents of the collection pan into the poly measuring cup. If contents are greater than a 500 ml volume, separate into 2-liter bottles so that no single bottle contains greater than 500 ml. Remeasure volume(s) if necessary and document this volume(s) on the Immobilization of Respirable Fines Data Sheet(s) (Figure 2).

Q_1 → 7.11 Bag-out the bottle(s) containing the respirable fines and assay in NDA Station 5. If the assay value is less than or equal to 80 ^{239}Pu fissile gram equivalents, proceed to Step 7.13.

How Chosen?

7.12 If the assay value of a bottle is greater than 80 ^{239}Pu fissile gram equivalents, bag the bottle into the glovebox. Separate the material into 2-liter bottles so that no single bottle should contain greater than 80 ^{239}Pu fissile gram equivalents. New Immobilization of Respirable Fines Data Sheets shall be used for each bottle. Repeat Step 7.11.

7.13 Enter the gram value into the MTS and assign a bale number to the bottle.

7.14 Store the assayed bottle in the storage racks located in Building 234 Area C.

8 IMMOBILIZATION

8.1 When the cumulative gram and volume totals on Figure 2 reach, but do not exceed, either 80 grams ^{239}Pu fissile gram equivalents or a fines volume of 500

ml, bag the stored bottle(s) into the process glove box for immobilization. If more than one bottle is to be immobilized, combine the bottles into a single 2-liter bottle. Bag the 2-liter bottle out of the glovebox and assay in NDA Station 5. Enter the gram value into the MTS and assign a bale number to the bottle. Bag the assayed 2-liter bottle into the glovebox.

Caution: *Segregation operations are not authorized during immobilization.*

8.2 Use the following concrete mix-to-fines ratio for solidification:

Portland ? Yes, Per M.W. West telecon From Branch Technical 6-8-92 Positive ?

Fines	Cement	Water
250 ml or less	750 ml	250 ml
250 ml to 500 ml	1,250 ml	375 ml

8.3 Pre-mix the correct amount of cement and water, according to Step 8.2, in a 2-liter bottle outside of the process glovebox. Immediately bag the bottle into the glovebox.

8.4 Pour the fines into the wet cement and mix with the spatula for 30 seconds or until homogeneity of the mixture exists.

8.5 Tamp the bottle on the floor of the glovebox several times to assist the settling of the cement and elimination of void spaces.

8.6 Sweep the floor of the glovebox to collect any particulate that was spilled. Place the sweepings into the 2-liter bottle and re-stir until homogeneity exists.

8.7 Set the uncapped 2-liter bottle aside in the glovebox to allow hardening for at least twenty-four (24) hours.

8.8 After the cement slurry cures for twenty-four (24) hours, visually inspect the bottle for signs of residual liquid and proper set-up. Place a small amount of vermiculite (approximately 1/2 inch thick) on top of the cement to absorb any liquid that may evolve and condense due to thermal cycling.

8.9 Cap and bag-out the immobilized 2-liter bottle from the process glovebox and place in an approved storage area.

8.10 Bag-out the empty 2-liter bottle and transfer to the DVRF for processing.

Figure 1

SEGREGATION OF RESPIRABLE FINES DATA SHEET

	MTS Bale Number	Gram Value	Cumulative Gram Value*
1			
2			
3			
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18			

**Not to exceed 200 grams ^{239}Pu equivalent.*

Remarks:	Operator: _____
	Supervisor: _____
	Date: _____

Figure 2

IMMOBILIZATION OF RESPIRABLE FINES DATA SHEET

	MTS Bale Number	Gram Value	Cumulative Gram Value	Volume (ml)	Cumulative Volume (ml)
1					
2					
3					
4					
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7					
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9					
10					
11					
12					
13					
14					
15					
16					

Final Bale #	Gram Value	Volume

Remarks:	Operator: _____
	Supervisor: _____
	Date: _____

DIVIDER

PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: U043
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☑ Unpublished Documents
Title or Description of Source Document [a]: Final Report - Waste Characterization of Wastes Generated from D&D Activity; Buildings 110 and 234 on the NFS Site in Erwin, Tennessee	
Source Document Reference Information (author(s), document and revision number, date, publisher): M. W. Tull, Martin Marietta, NA, NA, 01/31/1992, NA	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
PR4, PR6, PR7, WS2, WS3, WS4, WS8, WS9, WS11, WS12, S5, S9	Throughout	This report summarizes the analytical results form analyses performed on samples submitted by the NFS associated with wastes to be generated from D&D of bigs 110 and 234. these samples were taken to characterize wastes from a lab tank and surrounding soil which were part of the bldg 110 activity, and samples were also taken at 6 pre-determined locations along the process line in the bldg 234 MOX fuel fabrication facility. The nature of the waste composition, particularly the nonhomogeneity and the rad content presented several challenges to the performance of characterization analysis in accordance with SW-846 methodologies. Page 8 Bldg 234 Mixed oxide fuel production process line The D&D of this facility will be the source of the majority of the potential 550 ft3 of waste to be stored at ORNL. Sample locations were as follows: Pt C1 - Precipitation, cake drying, and oxide conversion Pt C2 - Oxide blending, pressing, and sintering Pt C3 - Pellet grinding, inspection, and tube loading Pt J1 - Oxide scrap recovery line Pt J2 - Leachable materials recovery line Pt K1 - Pu nitrate storage and load out Additionally, gasket material from typical glovebox applications were analyzed for PCBs. Pg 9 - provides to tables. One for MOX process line radionuclides and metals, and one for PCBs. TCLP showed Barium, cadmium, arsenic. Radionuclides found were Pu-238, Pu-239, Am-241, Pu-240 in all samples. K1 and the gaskets showed PCBs (Aroclor 1248, 1254, and 1260). A Cd-coated wrench was found in one of the samples and they expected this to be an isolated

NTPC RECORDS ORIGINAL
DATE REC'D 12/27/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: U043
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		situation causing Cd levels to be above the regulatory thresholds for this sample. PCBs were detected at values well below the regulatory threshold.

Source Document Data Limitations (if any):

1. None.

Acceptable Knowlege Expert:

Travis Smith _____ Date: 11/18/2013
Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

U043

MARTIN MARIETTA

Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

January 31, 1992

D.W. Turner

Final Report on the Characterization of Wastes From NFS

Attached is the final report on the characterization of the waste stream comming from the NFS, Erwin site in fullfillment of the contract between DOE and NFS.

The report contains results from both the previous analysis of soil and laboratory tank, as well as the results from the process line analysis for completeness.

If you have any questions, please let me know.

Martin W. Tull

M.W. Tull, Bldg 3047, MS-6023 (6-5225) - RC

FINAL REPORT
WASTE CHARACTERIZATION
of
WASTES GENERATED from D&D ACTIVITY
in
BUILDINGS 110 and 234 on the NFS SITE
ERWIN, TENNESSEE

January 31, 1992

Prepared by
MARTIN MARIETTA ENERGY SYSTEMS,INC.
P.O. Box 2008
Oak Ridge, Tennessee 37831-6023
for the
U.S. DEPARTMENT OF ENERGY
Under Contract No. DE-AC05-84OR21400

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Polychlorinated Biphenyls

BUILDING 234 MIXED OXIDE FUEL PRODUCTION PROCESS LINE

Radionuclides and Metals

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DATA ANALYSIS

FINAL REPORT
WASTE CHARACTERIZATION
of
WASTES GENERATED from D&D ACTIVITY
in
BUILDINGS 110 and 234 on the NFS SITE
ERWIN, TENNESSEE

INTRODUCTION

This report summarizes the analytical results from analyses performed on samples submitted by the Nuclear Fuel Services Company, Erwin, Tennessee (NFS) associated with wastes to be generated from the decommissioning and decontamination of buildings 110 and 234 on the Erwin site and destined for storage at the Oak Ridge National Laboratory (ORNL). These samples were taken to characterize wastes from a laboratory tank and surrounding soil which were part of the building 110 activity, equipment in building 110 and samples were also taken at six (6) pre-determined locations along the process line in the building 234, mixed-oxide, fuel fabrication facility.

Although results from the laboratory tank and soils analyses have been reported previously, they are repeated here for the sake of completeness in the final characterization report.

These results are to be utilized by NFS to perform a hazardous waste determination as prescribed by 40CFR262.11. ORNL, which is not the generator of the wastes, has provided the analytical results, consulted with NFS on interpretation of the data, but has deferred the final determination to NFS, who as the actual generator, is required by regulation to perform the determination.

This report concludes the activities commited to , by ORNL and the Department of Energy (DOE), to provide supporting analytical services for waste characterization.

The nature of the waste composition, particularly the nonhomogeneity and the radionuclide content presented several challenges to the performance of characterization analysis in accordance with typical SW-846 methodologies. In some instances, typical protocols could not be followed. The sample consitiuents were highly complex which caused some re-analysis of certain parameters to become necessary. These difficulties required a significantly longer period of time to resolve and consequently the completion of the characterization effort could not be completed as expeditiously as had been thought originally.

A considerable amount of data on these samples has been generated and the result is that the NFS samples have been charactrized as completely as practical. A sufficient amount of information has been collected to enable both NFS and ORNL to clearly understand the content and character of the samples and the associated waste stream.

SOIL CORE SAMPLES

The soil surrounding the laboratory tank outside the Bldg. 110 area at the NFS site was sampled by taking 2 soil cores approximately 4 inches in diameter, one sample was taken in a location determined to be up-gradient from the tank at a distance from the tank of 15.6 feet, and the second sample was taken in a location approximately 4.6 feet from the tank and in a down-gradient position relative to the tank. The up-gradient core was 67.5 inches in total length and the down-gradient core was 56 inches in total length.

UP-GRADIENT
SOIL CORE SCHEMATIC

TOP BOTTOM

UP-GRADIENT SOIL CORE DATA RADIONUCLIDES and METALS				
SEGMENT NO. (LENGTH)	GROSS ALPHA (BQ/GM)	GROSS BETA (BQ/GM)	PRINCIPLE RADIOISOTOPES (% ABUNDANCE)	TCLP*
1 (19")	8.4	11.9	N/A	< RT
2 (17.5")	5.0	3.6	N/A	< RT
3 (12")	93	18	U^{233} (100)	< RT
4 (16")	120	24	U^{233} (93), Pu^{239} (6.1) Pu^{238} (0.9)	< RT

* < RT indicates that all characteristically toxic parameters were less than the regulatory threshold specified in 40CFR261.

DOWN-GRADIENT
SOIL CORE SCHEMATIC

TOP BOTTOM

DOWN-GRADIENT SOIL CORE DATA RADIONUCLIDES and METALS				
SEGMENT NO. (LENGTH)	GROSS ALPHA (BQ/GM)	GROSS BETA (BQ/GM)	PRINCIPLE RADIOISOTOPES (% ABUNDANCE)	TCLP
1 (18")	390	69	U^{233} (92), Pu^{239} (5.6) Pu^{238} (2.4) Am^{241} {1.28$\pm$ 0.52 Bq/Gm}	< RT
2 (18")	900	110	U^{233} (87), Pu^{239} (6.9) Pu^{238} (6.1) Am^{241} {0.46$\pm$0.17 Bq/Gm}	< RT
3 (20")	16	19.1	N/A	< RT

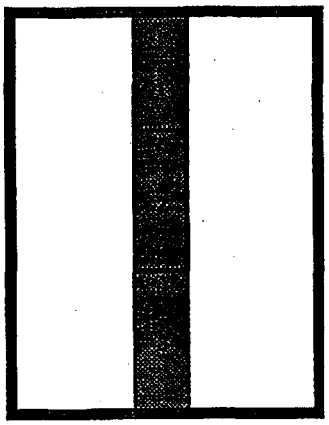
LABORATORY TANK CONTENTS

The laboratory tank which was sampled for these analyses was approximately 55 gallons in volume and was sampled by taking a core through the center along the vertical axis of the tank. That core was then sectioned into 3 segments and submitted for analysis. Each core segment was approximately 11 inches in length and approximately 1 inch in diameter.

LABORATORY TANK CONTENT RADIONUCLIDES and METALS				
CORE SECTION (LENGTH)	GROSS ALPHA (BQ/GM)	GROSS BETA (BQ/GM)	PRINCIPLE RADIOISOTOPES (BQ/GM)	TCLP* (uGM/GM)
TOP (11")	1.12E5 ±0.01E5	1.86E5 ±0.01E5	Pu^{238}/Am^{241} 1.14E5 ±0.06E5 Pu^{239}/Pu^{240} 7.02E3 ±0.4E3	< RT
MIDDLE (11")	8.10E4 ±0.02E4	1.21E5 ±0.01E5	Pu^{238}/Am^{241} 7.67E4 ±0.4E4 Pu^{239}/Pu^{240} 3.53E3 ±0.2E3	Hg 0.2±0.07
BOTTOM (11")	9.24E4 ±0.02E4	1.48E5 ±0.01E5	Pu^{238}/Am^{241} 1.04E5 ±0.05E5 Pu^{239}/Pu^{240} 4.8E3 ±0.2E3	< RT

* TCLP data reflect only those samples where parameters were reported in excess of the regulatory threshold.

LABORATORY TANK SCHEMATIC



Laboratory tank contained approximately 55 gallons in volume, and was buried approximately 18 inches below grade. The center column represents the core sample with segments 1, 2, and 3 corresponding to the top, middle, and bottom segments respectively as reported in the above table.

With regard to the Hg contamination indicated in the middle tank sample, the results were treated according to the methodology presented in Chapter Nine of SW-846. That statistical analysis resulted in a value for the upper limit of the confidence interval (CI_{ul}) of 0.193 uGm/Gm, which is < the 0.20 uGm/Gm value of the regulatory thtreshold. As a result, in accordance with SW-846, the Hg is not present at hazardous levels as defined by 40CFR261 in these samples.

ORGANIC ANALYSES

Both the soil core and laboratory tank samples were analyzed for the following consitiuents:

1,1 - Dichloroethylene
1,2 - Dichloroethene
1,4 - Dichlorobenzene
2,4,5 -TP (Silvex)
2,4,5 -Trichlorophenol
2,4,6 -Trichlorophenol
2,4, -D
2,4 - Dinitrotoluene
Benzene
Carbon Tetrachloride
Chlordane
Chlorobenzene
Chloroform
Cresol
Endrin
Heptachlor
Heptachlor epoxide
Hexachlorethane
Hexachlorobenzene
Hexachlorobutadiene
Lindane
Methoxychlor
Methyl ethyl ketone
Nitrobenzene
Pentachlorophenol
Pyridine
Tetrachloroethylene
Toxaphene
Trichloroethylene
Vinyl chloride
m-Cresol
o-Cresol
p-Cresol

No values above the regulatory thresholds were identified for any of the parameters in any of the samples of either soils or laboratory tank content.

POLYCHLORINATED BIPHENYLS

Polychlorinated Biphenyls (PCBs) were analyzed for after the first round of samples reported above. An insufficient amount of sample remained for a PCB analysis of the top tank core segment. Consequently, results for only the middle and bottom segments is reported.

POLYCHLORINATED BIPHENYLS	
Segment	Concentration (PPM)
Middle segment	3.14
Bottom Segment	1.43*

* The value reported (1.43 ppm) is below the quantitation limit (2.0 ppm) and represents an estimated value. It means that the parameter was detected, at some level below the quantitation limit.

BUILDING 234 MIXED OXIDE FUEL PRODUCTION PROCESS LINE

Building 234 on the NFS site was the location of the mixed oxide fuel fabrication process line. The decommissioning and decontamination of this facility will be the source of the majority of the potential 5500 ft^3 of waste to be stored at ORNL. The sample results reported below were from samples collected at six (6) locations along the process line. The sampling locations and process descriptions are detailed in NFS document 29G-91-001 "Waste Certification Sampling Plan for Transuranic Waste from Nuclear Fuel Services, Inc. Erwin, Tennessee" dated June 7, 1991.

The sample locations were determined by process grouping such that like process activity and subsequent waste constiuents would be consistent. The sample groups were :

Sample Point C1 - Precipitation, Cake Drying, and Oxide Conversion

Sample Point C2 - Oxide Blending, Pressing, and Sintering

Sample Point C3 - Pellet Grinding, Inspection, and Tube Loading

Sample Point J1 - Oxide Scrap Recovery Line

Sample Point J2 - Leachable Materials Recovery Line

Sample Point K1 - Pu Nitrate Storage and Load-Out

Additionally, gasket material from typical glovebox applications were analyzed for PCBs.

BUILDING 234 MIXED OXIDE PROCESS LINE RADIONUCLIDES and METALS				
Sample Point	Gross Alpha Bq/Gm	Gross Beta Bq/Gm	Principle Radioisotopes (% Abundance)	TCLP* (uGm/Gm)
C1	1.32E8 ± 0.01E8	2.00E7 ± 0.03E7	$^{238}Pu/^{241}Am$ (63.3) $^{239}Pu/^{240}Pu$ (36.7)	Ba 124± 1 Cd 1.2±0.03
C2	5.35E7 ± 0.04E7	6.98E6 ± 0.1E6	$^{238}Pu/^{241}Am$ (63.4) $^{239}Pu/^{240}Pu$ (36.6)	As 5.7±1.1 Ba 222±1
C3	3.28E8 ± 0.02E8	4.32E7 ± 0.07E7	$^{238}Pu/^{241}Am$ (44.6) $^{239}Pu/^{240}Pu$ (55.4)	Ba 301±3
J1	5.54E7 ± 0.03E7	7.68E6 ± 0.08E6	$^{238}Pu/^{241}Am$ (65.8) $^{239}Pu/^{240}Pu$ (34.2)	Cd 1.5±0.04
J2	1.28 E7 ± 0.01E7	1.98E6 ± 0.04E6	$^{238}Pu/^{241}Am$ (64.5) $^{239}Pu/^{240}Pu$ (35.5)	Cd 1.3±0/04
K1	1.52E7 ± 0.02E7	1.35E6 ± 0.05E6	$^{238}Pu/^{241}Am$ (N/A) $^{239}Pu/^{240}Pu$ (24)	Cd 24±0.4

* Only parameters for metals which exceeded the regulatory threshold (RT) were presented.
The Cd value obtained from the K1 sample location was outside the expected distribution from the other sample points. Consequently, this area was re-sampled. A sample composite was made of three (3) parts new sample to one (1) part previous K1 sample. The results were 6.27 ±0.12 uGm/Gm which confirmed the earlier value.

POLYCHLORINATED BIPHENYLS CONCENTRATION OF AROCLOR (PPM)*							
Sample Location	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
C1							
C2							
C3							
J1							
J2							
K1**						6.0	12.0
Gasket**					4.0		

* Only analytical values greater than the quantitation limit (2.0 ppm) are reported.
** Reported values for the K1 and Gasket samples are the re-analyzed values due to interferences and technical difficulties encountered in the first analysis.

ORGANIC ANALYSES

The mixed oxide fuel fabrication process line samples were analyzed for the following constituents:

1,1 - Dichloroethylene
1,2 - Dichloroethene
1,4 - Dichlorobenzene
2,4,5 -TP (Silvex)
2,4,5 -Trichlorophenol
2,4,6 -Trichlorophenol
2,4, -D
2,4 - Dinitrotoluene
Benzene
Carbon Tetrachloride
Chlordane
Chlorobenzene
Chloroform
Cresol
Endrin
Heptachlor
Heptachlor epoxide
Hexachlorethane
Hexachlorobenzene
Hexachlorobutadiene
Lindane
Methoxychlor
Methyl ethyl ketone
Nitrobenzene
Pentachlorophenol
Pyridine
Tetrachloroethylene
Toxaphene
Trichloroethylene
Vinyl chloride
m-Cresol
o-Cresol
p-Cresol

No values above the regulatory thresholds were identified for any of the parameters in any of the samples of either soils or laboratory tank content.

DATA ANALYSIS

The results of the samples analyzed from the NFS laboratory tank, the adjacent soil, the gasket material and the mixed oxide fuel fabrication process line yield the following conclusions regarding the characterization of the waste stream material:

1. The soil does not meet the 100 nCi/Gm (3700 Bq/Gm) criterion to be classified as transuranic (TRU) waste.

2. The laboratory tank contents are definitely TRU waste, but are not mixed wastes. The middle tank segment did reveal elevated levels of Hg, however, when the reported values for this parameter were subjected to SW-846 prescribed statistical treatment the resulting value for the upper limit of the confidence interval was below the regulatory threshold. The process line samples are also definitely TRU waste and the container(s) from which the initial K1 sample was obtained should be considered RCRA mixed due to Cd levels. The re-analysis of the K1 area confirmed the value obtained from the first sample and further confirmed that the second sample was not contaminated with excessive Cd levels. The discovery of a Cd-coated wrench in the first sample lent additional evidence to the fact that both the specific sample value was valid and that an isolated situation appeared to be the cause for Cd levels significantly greater than those seen in the other samples. Additionally, no listed hazardous materials, as defined by 40CFR261, Sub-parts C&D were detected.

3. Organic analysis did not identify the presence of any constituents at concentrations of regulatory concern.

4. Polyclchlorinated Biphenyls (PCBs) were detected at values well below the regulatory threshold. Although no regulatory issue is presented at the PCB levels reported, it should be noted that the PCB values reported will yield a value for the upper limit of the confidence interval which is > the MMES administrative limit on PCBs of 2 ppm.

The data presented in this report include all re-analysis that was performed as a result of technical difficulties encountered in the analytical work and comprises the final report on the characterization of the NFS waste stream destined for ORNL.

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PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C210
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☐ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☑ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Interview re: NFS TRU Waste Shipped to Oak Ridge National Laboratory. Interviewees: Richard Booth, Richard Moore, Bob Hunt, Scott Toller, Marie Moore	
Source Document Reference Information (author(s), document and revision number, date, publisher): J. Harrison; L. Watson, NA, NA, 09/12/2007, NA	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
WS2, WS3, WS8, WS9, WS11, WS12, S7, S16	Throughout	Summary: A meeting was held at the Training Center at NFS in Erwin, TN primarily to discuss the TRU waste generated at NFS in the early-1990s and shipped to Oak Ridge National Laboratory (ORNL). The meeting was approximately 3 hours in length. CCP (Jeff Harrison) prepared a list of questions, and had a list of several specific documents that were requested. The responses to our questions are in bold italics. The NFS personnel interviewed were: Richard Booth At NFS from 1963 to present Phone: 423-743-1726 E-mail: rlbooth@nuclearfuelservices.com Richard Moore At NFS from 1989 to present Phone: 423-743-1174 E-mail: ramoore@nuclearfuelservices.com Bob Hunt At NFS from 1988 to 1994, and is now at ORNL (BJC/WDP) Phone: 865-241-1203 E-mail: huntra@bechteljacobs.org Scott Toller At NFS from 1989 to 1994, and is now at ORNL (BJC/WGS) Phone: 865-771-1658 E-mail: fourtolers@aol.com Marie Moore At NFS from 1986 to present Phone: 423-743-1737 E-mail: bmmoore@nuclearfuelservices.com Ms. Moore was only present at the meeting for a short time and had no input to the conversation. Others in attendance were:

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DATE REC'D 12/16/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: C210
AK # [b]	Source Doc. Page #[c]	AK Information Summary
		Bob Billett, WTS/CCP, 865-576-1564, bob.billett@truproject.com Fred Heacker, Energx, 865-574-2900, fred.heacker@truproject.com Don Coffey, Energx, 423-743-1737, don.coffey@truproject.com Drum-Specific Questions 1.□There are 80 drums described as concrete generated in 1993. •□We have conflicting information as to whether the concrete is in chunks or is chips/dust from scabbling operations. The net weights range from 320 to 690 lbs (576 lbs average). - The concrete should be in the form of chunks. Some scabbling was done in Building 110, but did not likely result in TRU waste. •□Where did the concrete originate and describe the generating process. - The concrete originated from Building 234 and was jack hammered from the Wet Cell floor and footers in 1993 and 1994. The contamination was the result of column overflow, primarily nitric acid (Pu nitrate and depleted Uranyl nitrate. Possibly an aqueous-based fixative was applied to the concrete – not sure. 2. There are 44 drums described as Raschig rings generated in 1993. • Are these borosilicate glass rings about 1-in. outside diameter and 2-in. long. - Yes • Are they from the tank associated with the high-pressure water decontamination unit that was part of the DVRF, or from the Building 110 underground tank, or something else? - Not from high-pressure water decontamination unit. - They are from the master mix tank in the Bldg. 234 Wet Cell (nitrate) and other nitrate tanks in Bldg. 234. No organics. - They are also from the Bldg. 110 tank that supported the two labs. The tank also contained liquids and sludge, possibly organics. These rings went through the DVRF, but still had some visible contamination. 3. There are 3 drums described as metal trash generated in mid-1992 that were not compacted. • The waste is relatively heavy at 558 to 709 lbs net. What is this metal, and why was is not compacted. - Could be equipment, such as pellet presses (hardened steel) or furnaces (inconel). Hydraulic fluid would have been removed and shipped to SEG for incineration. - The hydraulic fluid was sampled and analyzed for PCBs, and did not contain regulated levels of PCBs. 4. There are 3 drums described as asbestos waste, metal, and trash generated in April 1994 that were not compacted. • Describe how this waste was generated, and why was it not compacted. - Asbestos was not compacted. - Could be furnace insulation. 5. There are 131 drums of compacted waste. • Is it primarily gloveboxes and equipment that were compacted. - Yes • What types of equipment were disposed. Did it include items such as pumps, and was the oil drained. What was done with the oil. - Blenders, filter housings, ductwork. - Could include pumps which would have been drained of oil. 6. There are 512 drums of soil generated in 1993, and several more generated in the 2000s. • Where did the 1993 drums originate. - Mostly Bldg. 234 Wet Cell; maybe a little (~2 drums) of soil from 110 tank excavation • Where did the 2000s drums originate. - Same. This is 1993 waste that was shipped later. Not new generation. • Was dust suppressant applied to the soil during excavation, and what specifically was it. - No Waste Generating Location and Facility Mission 7. Did the decommissioning of Building 110 include just the Area C Wet Chemistry Lab and

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: C210
AK # [b]	Source Doc. Page #[c]	AK Information Summary
		associated underground tank and piping, or did it also include the Area D Spectrographic Lab? - Just Area C; gloveboxes/equipment & underground tank and piping 8. What was the mission of Building 110? Did it provide analytical support to just Building 234 or also to other site operations? - Just Bldg. 234 analytical support - Early years it supported Bldg. 234 as well as LWBR program Chemical Use and Liquid/Sludge Waste Generation and Management 9. What chemicals or commercial products were used for cleaning/decontamination? Did it include acids or oxidizers (e.g., hypochlorites, perchlorates, permanganates, peroxides)? - Radiac Wash (citrus-based decon. solution) - High-pressure water in DVRF - Acids or oxidizers not used. 10. Did decommissioning include draining of tanks and other vessels? If so, what TRU liquids were generated (e.g., acids, oils)? Was sludge removed from tanks? - Tanks were drained, but liquids were not disposed as TRU. 11. Were acids neutralized and what was the neutralizing agent used? - Acidic liquids from tanks were not neutralized. 12. How were liquids/sludges disposed (e.g., absorbed/solidified and placed in TRU waste containers, or transferred to a liquid waste treatment facility)? - Some were treated in on-site treatment facilities, some were sent to off-site treatment. 13. If liquids or sludges were absorbed/solidified, what material was used (e.g., diatomaceous earth, soda ash, Portland cement) and what were the liquids or sludges solidified in? - Possible that some contaminated aqueous liquids from decon operations were mixed with cement to solidify glovebox fines. - A few drums were rejected because of liquids. Radsorb, Radpads, or Aqualac was added to absorb the liquid. Solid Waste Generation and Management 14. Were any of the following disposed in TRU waste containers? • Batteries (e.g., alkaline, nickel-cadmium, lead-acid) • Cadmium shielding • Equipment containing circuit boards (contain lead solder) • Lead items (e.g., glass windows, gloves, shielding, tape, incandescent light bulbs) • Fluorescent light tubes or mercury vapor lamps • Mercury thermometers, manometers, switches, pumps - Bulbs/ballasts – low-level waste because not inside glovebox - Manometer removed from a glovebox – Hg amalgamated in one drum - There is one cadmium-plated wrench in the same drum with the amalgamated Hg. - Lead shielding and bricks were not TRU waste 15. A 1/31/1992 report entitled "Final Report Waste Characterization of Wastes Generated from D&D Activity in Buildings 110 and 234 on the NFS Site" indicates that one of the samples had higher than expected cadmium which was later attributed to the discovery of a cadmium-coated wrench. Were other cadmium-coated tools used, and were they disposed as TRU waste? - The wrench was marked as containing cadmium and was disposed in a TRU mixed waste drum along with the amalgamated mercury. They don't know of others like it, and if there were, they would have been handled in the same way. 16. Was beryllium used, will it be in TRU waste, and what forms of beryllium could be present (e.g., metal pieces, shavings/fines, debris with Be contamination)? Will the beryllium exceed 1% by weight in the waste container? - No beryllium 17. Were acid-contaminated wipes/rags generated, and were they rinsed with water and/or neutralized by adding caustic? - 1 to 3 Molar acid was used in production, and cleaning would have been done with more dilute acid like 0.5 Molar. - Was not neutralized, but there would not have been a lot of liquid used. 18. Were aerosol cans disposed in TRU waste? Were they empty? Punctured? - Aerosol cans were drained and punctured, but were not TRU waste.

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: C210
AK # [b]	Source Doc. Page #[c]	AK Information Summary
		19. Were water reactive materials used (e.g., calcium, sodium, potassium) and if so, how were they managed? - No water reactives 20. Were ion-exchange resins generated as TRU waste and if so, were the resins treated (e.g., washed with sodium sulfate solution and water) before disposal? How was resin packaged? - No IX resin in decommissioning waste. 21.□Will any of the following PCB items be in TRU waste? • Fluorescent light ballasts - Outside glovebox, not TRU waste • Electrical transformers or capacitors - No • Absorbed oils from electrical, heat transfer, or hydraulic equipment - No; incinerated Radionuclides and Radioassay 22. Are the radionuclides in Building 110 waste expected to be the same as Building 234 waste? - Gloveboxes used for LWBR program are not in the waste sent to Oak Ridge. - Plutonium gloveboxes would have some combination of Bldg. 234 Pu. 23. U-233 was only reported in 32 drums of compacted waste and 19 drums of soil. Is this an indication that the 32 drums of compacted waste are from the U-233 purification facility in Building 234? Where are the 19 soil drums from? - U-233 gloveboxes in Bldg. 234 were removed earlier (~1983) and will not be in waste sent to Oak Ridge. - U-233 probably from Bldg. 110 equipment processed through the DVRF (compacted) and soil and tank/piping from the removal of the Bldg. 110 underground tank. 24. Which isotopes were actually measured by the passive/active neutron counter versus those that were scaled? - Active system quantified Pu-239 and others were scaled. - Passive system quantified Pu-240 and others were scaled. Waste Packaging For each of the waste types above: 25. Describe configuration of rigid liners and drum liners, including sealing methods and use of a filter vent or vent hole. - Black 90-mil HDPE liner, lid has 3/8-in. vent hole, lid not glued. 26. How was waste packaged (e.g., ice cream cartons, metal cans, plastic bags)? How many plastic bag layers could there be, including the drum liner bag? How were bags closed (e.g., twist/tape)? - Soil and concrete have 1 layer (twist/tape) and are not heat-sealed. - Raschig rings are most likely the same as soil and concrete. 27. Were plastic bags heat-sealed? Do heat-sealed bags contain a filter vent? What size of heat-sealed bags were used? - Plastic bags containing poly bottles of cemented fines were heat-sealed - Pucks from compactor were heat-sealed (but the 2nd compaction at SEG would have unsealed them) - Heat-sealed bags do not have filter vent 28. Will the drums contain sealed containers greater than 4 liters in size? What type of containers and how are they sealed? - No Other 29. A 1/31/1992 report entitled "Final Report Waste Characterization of Wastes Generated from D&D Activity in Buildings 110 and 234 on the NFS Site" discusses the analysis of six sweepings samples. One of the samples contains arsenic, three contain barium, and four contain cadmium above the RCRA regulatory threshold. Any ideas as to the source of these metals? - No 30. A 10/29/1992 report entitled "Oak Ridge National Laboratory/Nuclear Fuel Services, Inc. NFS Waste Parameter Verification Program" indicates that higher activity waste was collected in poly bottles and then passed through a 200 micron sieve. The fines <200 microns were cemented in poly bottles and packaged in their own drums separate from debris waste. Are the sweepings material described above what was cemented? - Yes

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: C210
AK # [b]	Source Doc. Page #[c]	AK Information Summary
		31. This same 10/29/1992 report says that material that did not pass through the sieve was packaged in poly bottle and baled/compacted with other debris waste. Were the materials that did not pass through the sieve debris items, or did they include larger particle sweepings as well? - Sieving was done for a period of time, but they stopped doing it and cemented all of it. Data Limitations: Information is based on memory of activities that occurred approximately 15 years ago.

Source Document Data Limitations (if any):

1. Information is based on memory of activities that occurred approximately 15 years ago.

Acceptable Knowlege Expert:

Trev Greenwood _____ Date: 11/14/2013

Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

Attachment 2 – Record of Communication

Waste Stream Numbers: OR-NFS-CH-HET, Heterogeneous Debris OR-NFS-CH-HOM, Cemented Fines OR-NFS-CH-SOIL, Contaminated Soil	Corresponding Source Document #: **C210**	
Interviewer: Jeff Harrison, Lisa Watson	Date: 9/12/2007	Time: 1:00 EST
Interviewees: See below	Group/Organization: Job Title: See below	Phone: See below Email:
Subject: NFS TRU Waste Shipped to Oak Ridge National Laboratory		

Summary: A meeting was held at the Training Center at NFS in Erwin, TN primarily to discuss the TRU waste generated at NFS in the early-1990s and shipped to Oak Ridge National Laboratory (ORNL). The meeting was approximately 3 hours in length. CCP (Jeff Harrison) prepared a list of questions, and had a list of several specific documents that were requested. The responses to our questions are in bold italics. The NFS personnel interviewed were:

Richard Booth
At NFS from 1963 to present
Phone: 423-743-1726
E-mail: rlbooth@nuclearfuelservices.com

Richard Moore
At NFS from 1989 to present
Phone: 423-743-1174
E-mail: ramoore@nuclearfuelservices.com

Bob Hunt
At NFS from 1988 to 1994, and is now at ORNL (BJC/WDP)
Phone: 865-241-1203
E-mail: huntra@bechteljacobs.org

Scott Toller
At NFS from 1989 to 1994, and is now at ORNL (BJC/WGS)
Phone: 865-771-1658
E-mail: fourtolers@aol.com

Marie Moore
At NFS from 1986 to present
Phone: 423-743-1737
E-mail: bmmoore@nuclearfuelservices.com
Ms. Moore was only present at the meeting for a short time and had no input to the conversation.

Others in attendance were:

Bob Billett, WTS/CCP, 865-576-1564, bob.billett@truproject.com
Fred Heacker, Energx, 865-574-2900, fred.heacker@truproject.com
Don Coffey, Energx, 423-743-1737, don.coffey@truproject.com

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Drum-Specific Questions

1. There are 80 drums described as concrete generated in 1993.
   - We have conflicting information as to whether the concrete is in chunks or is chips/dust from scabbling operations. The net weights range from 320 to 690 lbs (576 lbs average).

   - The concrete should be in the form of chunks. Some scabbling was done in Building 110, but did not likely result in TRU waste.

   - Where did the concrete originate and describe the generating process.

   - The concrete originated from Building 234 and was jack hammered from the Wet Cell floor and footers in 1993 and 1994. The contamination was the result of column overflow, primarily nitric acid (Pu nitrate and depleted Uranyl nitrate. Possibly an aqueous-based fixative was applied to the concrete – not sure.

2. There are 44 drums described as Raschig rings generated in 1993.
   - Are these borosilicate glass rings about 1-in. outside diameter and 2-in. long. - ***Yes***
   - Are they from the tank associated with the high-pressure water decontamination unit that was part of the DVRF, or from the Building 110 underground tank, or something else?

   - Not from high-pressure water decontamination unit.

   - They are from the master mix tank in the Bldg. 234 Wet Cell (nitrate) and other nitrate tanks in Bldg. 234. No organics.

   - They are also from the Bldg. 110 tank that supported the two labs. The tank also contained liquids and sludge, possibly organics. These rings went through the DVRF, but still had some visible contamination.

3. There are 3 drums described as metal trash generated in mid-1992 that were not compacted.
   - The waste is relatively heavy at 558 to 709 lbs net. What is this metal, and why was is not compacted.

   - Could be equipment, such as pellet presses (hardened steel) or furnaces (Inconel). Hydraulic fluid would have been removed and shipped to SEG for incineration.

   - The hydraulic fluid was sampled and analyzed for PCBs, and did not contain regulated levels of PCBs.

4. There are 3 drums described as asbestos waste, metal, and trash generated in April 1994 that were not compacted.
   - Describe how this waste was generated, and why was it not compacted.

   - Asbestos was not compacted.

   - Could be furnace insulation.

5. There are 131 drums of compacted waste.
   - Is it primarily gloveboxes and equipment that were compacted. - ***Yes***
   - What types of equipment were disposed. Did it include items such as pumps, and was the oil drained. What was done with the oil.

   - Blenders, filter housings, ductwork.

- Could include pumps which would have been drained of oil.

6. There are 512 drums of soil generated in 1993, and several more generated in the 2000s.
   - Where did the 1993 drums originate.

   - Mostly Bldg. 234 Wet Cell; maybe a little (~2 drums) of soil from 110 tank excavation

   - Where did the 2000s drums originate.

   - Same. This is 1993 waste that was shipped later. Not new generation.

   - Was dust suppressant applied to the soil during excavation, and what specifically was it.

   - No

Waste Generating Location and Facility Mission

7. Did the decommissioning of Building 110 include just the Area C Wet Chemistry Lab and associated underground tank and piping, or did it also include the Area D Spectrographic Lab?

   - Just Area C; gloveboxes/equipment & underground tank and piping

8. What was the mission of Building 110? Did it provide analytical support to just Building 234 or also to other site operations?

   - Just Bldg. 234 analytical support

   - Early years it supported Bldg. 234 as well as LWBR program

Chemical Use and Liquid/Sludge Waste Generation and Management

9. What chemicals or commercial products were used for cleaning/decontamination? Did it include acids or oxidizers (e.g., hypochlorites, perchlorates, permanganates, peroxides)?

   - Radiac Wash (citrus-based decon. solution)

   - High-pressure water in DVRF

   - Acids or oxidizers not used.

10. Did decommissioning include draining of tanks and other vessels? If so, what TRU liquids were generated (e.g., acids, oils)? Was sludge removed from tanks?

    - Tanks were drained, but liquids were not disposed as TRU.

11. Were acids neutralized and what was the neutralizing agent used?

    - Acidic liquids from tanks were not neutralized.

12. How were liquids/sludges disposed (e.g., absorbed/solidified and placed in TRU waste containers, or transferred to a liquid waste treatment facility)?

    - Some were treated in on-site treatment facilities, some were sent to off-site treatment.

13. If liquids or sludges were absorbed/solidified, what material was used (e.g., diatomaceous earth, soda ash, Portland cement) and what were the liquids or sludges solidified in?

    - Possible that some contaminated aqueous liquids from decon operations were mixed with cement to solidify glovebox fines.

    - A few drums were rejected because of liquids. Radsorb, Radpads, or Aqualac was added to absorb the liquid.

Solid Waste Generation and Management

14. Were any of the following disposed in TRU waste containers?
    - Batteries (e.g., alkaline, nickel-cadmium, lead-acid)
    - Cadmium shielding
    - Equipment containing circuit boards (contain lead solder)
    - Lead items (e.g., glass windows, gloves, shielding, tape, incandescent light bulbs)
    - Fluorescent light tubes or mercury vapor lamps
    - Mercury thermometers, manometers, switches, pumps

    - Bulbs/ballasts – low-level waste because not inside glovebox

    - Manometer removed from a glovebox – Hg amalgamated in one drum

    - There is one cadmium-plated wrench in the same drum with the amalgamated Hg.

    - Lead shielding and bricks were not TRU waste

15. A 1/31/1992 report entitled "Final Report Waste Characterization of Wastes Generated from D&D Activity in Buildings 110 and 234 on the NFS Site" indicates that one of the samples had higher than expected cadmium which was later attributed to the discovery of a cadmium-coated wrench. Were other cadmium-coated tools used, and were they disposed as TRU waste?

    - The wrench was marked as containing cadmium and was disposed in a TRU mixed waste drum along with the amalgamated mercury. They don't know of others like it, and if there were, they would have been handled in the same way.

16. Was beryllium used, will it be in TRU waste, and what forms of beryllium could be present (e.g., metal pieces, shavings/fines, debris with Be contamination)? Will the beryllium exceed 1% by weight in the waste container? ***- No beryllium***

17. Were acid-contaminated wipes/rags generated, and were they rinsed with water and/or neutralized by adding caustic?

    - 1 to 3 Molar acid was used in production, and cleaning would have been done with more dilute acid like 0.5 Molar.

    - Was not neutralized, but there would not have been a lot of liquid used.

18. Were aerosol cans disposed in TRU waste? Were they empty? Punctured?

    - Aerosol cans were drained and punctured, but were not TRU waste.

19. Were water reactive materials used (e.g., calcium, sodium, potassium) and if so, how were they managed? ***- No water reactives***

20. Were ion-exchange resins generated as TRU waste and if so, were the resins treated (e.g., washed with sodium sulfate solution and water) before disposal? How was resin packaged?

    - No IX resin in decommissioning waste.

21. Will any of the following PCB items be in TRU waste?
    - Fluorescent light ballasts ***- Outside glovebox, not TRU waste***
    - Electrical transformers or capacitors ***- No***
    - Absorbed oils from electrical, heat transfer, or hydraulic equipment ***- No; incinerated***

Radionuclides and Radioassay

22. Are the radionuclides in Building 110 waste expected to be the same as Building 234 waste?

    - Gloveboxes used for LWBR program are not in the waste sent to Oak Ridge.

    - Plutonium gloveboxes would have some combination of Bldg. 234 Pu.

23. U-233 was only reported in 32 drums of compacted waste and 19 drums of soil. Is this an indication that the 32 drums of compacted waste are from the U-233 purification facility in Building 234? Where are the 19 soil drums from?

    - U-233 gloveboxes in Bldg. 234 were removed earlier (~1983) and will not be in waste sent to Oak Ridge.

    - U-233 probably from Bldg. 110 equipment processed through the DVRF (compacted) and soil and tank/piping from the removal of the Bldg. 110 underground tank.

24. Which isotopes were actually measured by the passive/active neutron counter versus those that were scaled?

    - Active system quantified Pu-239 and others were scaled.

    - Passive system quantified Pu-240 and others were scaled.

Waste Packaging

For each of the waste types above:

25. Describe configuration of rigid liners and drum liners, including sealing methods and use of a filter vent or vent hole.

    - Black 90-mil HDPE liner, lid has 3/8-in. vent hole, lid not glued.

26. How was waste packaged (e.g., ice cream cartons, metal cans, plastic bags)? How many plastic bag layers could there be, including the drum liner bag? How were bags closed (e.g., twist/tape)?

    - Soil and concrete have 1 layer (twist/tape) and are not heat-sealed.

    - Raschig rings are most likely the same as soil and concrete.

27. Were plastic bags heat-sealed? Do heat-sealed bags contain a filter vent? What size of heat-sealed bags were used?

    - Plastic bags containing poly bottles of cemented fines were heat-sealed

    - Pucks from compactor were heat-sealed (but the 2nd compaction at SEG would have unsealed them)

    - Heat-sealed bags do not have filter vent

28. Will the drums contain sealed containers greater than 4 liters in size? What type of containers and how are they sealed? - ***No***

Other

29. A 1/31/1992 report entitled "Final Report Waste Characterization of Wastes Generated from D&D Activity in Buildings 110 and 234 on the NFS Site" discusses the analysis of six sweepings samples. One of the samples contains arsenic, three contain barium, and four contain cadmium above the RCRA regulatory threshold. Any ideas as to the source of these metals? - ***No***

30. A 10/29/1992 report entitled "Oak Ridge National Laboratory/Nuclear Fuel Services, Inc. NFS Waste Parameter Verification Program" indicates that higher activity waste was collected in poly bottles and then passed through a 200 micron sieve. The fines <200 microns were cemented in poly bottles and packaged in their own drums separate from debris waste. Are the sweepings material described above what was cemented? - ***Yes***

31. This same 10/29/1992 report says that material that did not pass through the sieve was packaged in poly bottle and baled/compacted with other debris waste. Were the materials that did not pass through the sieve debris items, or did they include larger particle sweepings as well?

    - Sieving was done for a period of time, but they stopped doing it and cemented all of it.

Data Limitations:

Information is based on memory of activities that occurred approximately 15 years ago.

Acceptable Knowledge Expert: Lisa Watson [signature] Date: 11/21/07
Print / Sign

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PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C203
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☐ TRU Waste Management Program Information ☐ Waste Stream-Specific Information ☑ Additional Information	Category: ☑ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Letter to Martin Tull from Robert A. Hunt regarding a picture of the proposed method to "lab pack" bottles of immobilized respirable fines and residual materials	
Source Document Reference Information (author(s), document and revision number, date, publisher): Robert A. Hunt, Ecotek, Inc., NA, Rev. NA, 03/23/1993, NA	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
S16	Throughout	Letter to Martin Tull from Robert A. Hunt regarding a picture of the proposed method to "lab pack" bottles of immobilized respirable fines and residual materials. The photo shows one layer of 14 bottles in the bottom of a poly-lined 55-gallon drum. "We can place three (3) layers in a drum for a total of 42 bottles. The bottles are 2-liter Nalgene high density polyethylene, heat sealed in one layer of 12-mil polyvinyl chloride and one layer of 25-mil nylon reinforced polyethylene. This should provide adequate protection for the material contained in the bottles. The packaging configuration prevents excessive jostling of the bottles without using a vermiculite filler. If we get into the position where we cannot completely fill a drum, we will complete a layer with wrapped empty 2-liter bottles. If this leaves us below three full layers we will press fit a false lid into the liner."

NTPC RECORDS ORIGINAL
DATE REC'D 12/18/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C203
Source Document Data Limitations (if any): 1. None.	
Acceptable Knowiege Expert: Trey Greenwood Date: 11/14/2013 Print /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

C203

EcoTek

MAR 24 1993

P.O. Box 369
219 Banner Hill Road
Erwin, Tennessee 37650
(615) 743-6186

March 23, 1993

Mr. Martin Tull
Martin Marietta Energy Systems
Building 1054B M/S 6404
Bethel Valley Road
Oak Ridge, Tennessee 37831

Dear Martin;

Please find enclosed a picture of our proposed method to "lab pack" bottles of immobilized respirable fines and residual material. In consonance with the Waste Parameter Verification Program, we will keep material packed with this method below 50 grams (^{239}Pu FGE) per drum. The photo shows one layer of 14 bottles in the bottom of a poly-lined 55-gallon drum. We can place three (3) layers in a drum for a total of 42 bottles. The bottles are 2-liter Nalgene® high density polyethylene, heat sealed in one layer of 12-mil polyvinyl chloride and one layer of 25-mil nylon reinforced polyethylene. This should provide adequate protection for the material contained in the bottles. The packaging configuration prevents excessive jostling of the bottles without using a vermiculite filler. If we get into a position where we cannot completely fill a drum, we will complete a layer with wrapped empty 2-liter bottles. If this leaves us below three full layers we will press fit a false lid into the liner.

I would greatly appreciate your expeditious review of this methodology. If you have any questions, please do not hesitate to call me at (615) 743-1800.

Sincerely yours,

ECOTEK, INC.

Robert A. Hunt
Project Manager

Best Available Copy

*************************** -COMM. JOURNAL- ********** DATE MAR-24-1993 ***** TIME 17:03 ****** P.1

MODE=TRANSMISSION START=MAR-24 17:02 END=MAR-24 17:03

FILE NO.= 297

NO.	COM	ABBR.NO.	STATION NAME/ TELEPHONE NO.	PAGES	PRG.NO.	PROGRAM NAME
01	OK		67954	002/002		

-WASTE MIN.,PLAN.,& CERT. -

********************************* -615 241 2843 - ***** - 615 241 2843- ***********

EcoTek

P.O. Box 369
219 Banner Hill Road
Erwin, Tennessee 37650
(615) 743-6186

MAR 24 1993

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Martin Marietta Energy Systems
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ECOTEK, INC.

Robert A. Hunt
Project Manager

7.67x10⁷ / 2.79x10⁵ = 2.74x10²

279, 210

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DIVIDER PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C099
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☐ Additional Information	Category: ☑ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Letter to Harold Johnson, CBFO DOE re: KAPL-NFS Transuranic Waste Background Information	
Source Document Reference Information (author(s), document and revision number, date, publisher): Delwiche, D. A., NA, NA, 05/03/2005, DOE, Schenectady Naval Reactors Office	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR1, PR2, PR3, PR4, PR6, PR7, WS1, WS2, WS3, WS4, WS5, WS7, WS9, WS10, WS11, WS12	ALL	This correspondence contained information regarding the generation of waste at Nuclear Fuel Services, Inc., Erwin, TN. It included a description of the building, what processes generated the waste, and the defense program associated with the operations in the building. It also included background information on the waste, and historical information about the plant. Production history, contract information, decommissioning activities, waste disposal options, and a summary description of building 234 including a building map, are discussed. The TRU wastes can be specifically linked to carrying out defense nuclear materials production, defense nuclear waste and by-products management, and defense research and development. Concerning the waste remaining at NFS: There are two drums of PCB contaminated waste. Waste items include concrete, metal, PPE, Plexiglas, plastic, HEPA filters, piping ductwork glass, cloth, paper, rubber, and small hand tools. Waste is packaged in 55-gallon stainless steel drums, B25 boxes and high-density polyethylene high integrity containers. There will be additional D&D waste generated - contaminated soil and concrete debris. Page 4 Predominant TRU isotopes are Pu-238, Pu-239, Pu-240, Pu-241, and Am-241 with an average TRU activity of ~860 nCi/gm.

NTPC RECORDS ORIGINAL
DATE REC'D 12/18/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C099

Source Document Data Limitations (if any):

1. Attachments B and C (contracts) are not included with the document.
2. No specific information on individual waste containers.

Acceptable Knowlege Expert:

Trey Greenwood Date: 11/14/2013

Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

C0099

Dave/Bev: F.Y.I & inventory
Roger

Department of Energy
Schenectady Naval Reactors Office
Post Office Box 1069
Schenectady, New York 12301-1069

REC&SD:DAD05-17

MAY 0 3 2005

COPY

Mr. Harold Johnson
U.S. Department of Energy
Carlsbad Field Office
P.O. Box 3090
4021 National Parks Highway
Carlsbad, NM 88221

Subject: **KAPL-NFS TRANSURANIC WASTE BACKGROUND INFORMATION**

Dear Mr. Johnson:

Recent small quantity generator site (SQS) conference calls have discussed the status of defense determinations, including the preparation of defense determinations for TRU waste streams at the Oak Ridge National Laboratory (ORNL). I have enclosed background information that may be relevant for an ORNL TRU waste stream.

Nuclear Fuel Services, Inc. (NFS), located in Erwin, Tennessee, generated TRU waste from the decommissioning of a former Mixed Oxide (MOX) Fuel Fabrication Facility (Building 234). TRU waste generated during the first phase of the decommissioning of the facility was shipped to ORNL in the early 1990s. TRU waste generated during the second phase of decommissioning (building removal) is currently in storage at NFS. Additional TRU waste from the removal of contaminated soils under this facility is expected to be generated in the future (final phase). NFS produces nuclear fuel materials for use in the Naval Nuclear Propulsion Program. Naval Reactors is financially responsible for decommissioning of retired NFS facilities, including the second and final phase of the MOX facility decommissioning. The Knolls Atomic Power Laboratory (KAPL), under contract to Naval Reactors, works with NFS and Naval Reactors on facility decommissioning and related issues. The TRU waste from the second and final phase of the Building 234 decommissioning is designated as KAPL-NFS waste.

In support of the building demolition and final phases of the Building 234 decommissioning project, the attached background information discussing government-sponsored orders covering the production period of Building 234 is applicable. Since the TRU waste from NFS at ORNL has NFS Building 234 as its origin, this information may be of use in supplementing ORNL's defense determination.

UNIQUE #	DOE UFC	DATE REC'VD	ADDRESSEES
D50987	1160.00	MAY 09 2005	H. Johnson R. Nelson

C-099

I appreciate the opportunity to provide this information to you and hope it will be useful. Please call me at (518) 395-4543 if you have any questions.

Sincerely,

D. A. Delwiche

D. A. Delwiche
Radiological/Environmental
Control and Safety Division

Enclosure:
As Stated

cc: R. Nelson, CBFO
G. Riner, ORO
D. M. Battiste, KAPL
R. Moore, NFS

Background Information on KAPL-NFS Transuranic Waste

Summary: Nuclear Fuel Services (NFS) in Erwin, Tenessee is decommissioning Building 234, a former plutonium-uranium Mixed Oxide (MOX) Fuel Fabrication facility that operated from 1965 to 1973. Included in the decommissioning is a waste tank (removed from beneath the building 110C laboratory) contaminated with Building 234 MOX facility laboratory waste.

The Building 234 facility performed fuel fabrication work under subcontracts to two U.S. Government contracts administered by the USAEC, and two smaller commercial contracts. The first two contracts, producing 94% of the fuel produced by the MOX facility, were placed pursuant to prime contracts with the U.S. Atomic Energy Commission (the predecessor to the DOE) and were both National Defense Rated Orders which are rated and allotted DO-E-2 and "Certified for National Defense Use under DMS [Defense Material System] Regulation 1". The waste generated from Building 234 decommissioning and associated contaminated soil remediation is TRU waste (referred to as KAPL-NFS TRU waste) from general facility contamination resulting from accepted contamination control practices during the manufacturing process operations. The established defense (94%) and remaining (6%) activities utilized the same process equipment so the source of contamination is indistinguishable.

The process at NFS, that was the original source of the TRU in the waste being generated, was MOX fuel production performed for the most part (94% of generated material) under national defense orders. The contamination from the defense contracted production is indistinguishable from, and therefore can not be segregated from, the small amount of "other" contributed contamination, and even if possible the segregation would not normally be performed as provided in DOE guidance.

Discussion: Nuclear Fuel Services, located in Erwin, Tennessee, is currently decommissioning inactive facilities under contract to Naval Reactors. NFS is decommissioning a former Mixed Oxide (MOX) Fuel Fabrication Facility (Building 234) located in Erwin, Tennessee. The MOX facility was operated from 1965 to 1973 under license to the USAEC. Process capabilities included dissolution of plutonium and uranium metals and oxides, co-precipitation of plutonium and uranium, wet or dry blending of MOX powders, pellet and rod fabrication, rod loading and scrap recovery. The facility performed fuel fabrication work under subcontracts to two U.S. Government contracts administered by the USAEC, and two smaller commercial contracts (six percent of the material processed). The facility remained inactive until decommissioning started in the early 1990's.

The following table gives a brief description of the contracts:

Customer	Pu (kgs)	USAEC Contract	Purchase Order	NFS Sales Order	Approx Dates
Dupont-AEC (SROO)	16	AT(07-2)-1	Dupont PO: AX-2640	3163	1965-66
GE-AEC (SEFOR)	746	AT(04-3)-647	GE PO: 205-58226-NG	256A	1967-71
Halden Fuel-NFS	3	NA	. . .	945E	1972
Consumer Power-NFS	47	NA	. . .	1021F	1972-73

Approximately 213 M^3 of TRU waste will be generated as a result of decommissioning the MOX Fuel Fabrication Facility. The waste is low level, Contact Handled TRU waste and is not expected to be RCRA hazardous. However, the waste includes two drums of PCB contaminated waste (maximum 280 PPM). The waste is primarily non-hazardous soil and debris consisting of concrete, metal, PPE, Plexiglas, plastic, HEPA filters, piping ductwork, glass, cloth, paper, rubber and small hand tools. The predominant TRU isotopes are Pu-238, Pu-239, Pu-240, Pu-241, and Am-241 with an average TRU activity of ~860 nCi/gm (expected maximum of ~12,100 nCi/gm). Approximately 80 M^3 of Transuranic waste has been generated and is available for preparation for offsite shipment. The waste is currently packaged in 55-gallon carbon steel drums, 55-gallon stainless steel drums, B25 boxes and high-density polyethylene (HDPE) high integrity containers (HICs). The need for some repackaging of waste into approved containers is anticipated prior to shipment offsite. The remaining waste (contaminated soil and concrete debris) is yet to be generated.

Reviewing the purchase orders Dupont and GE had placed with NFS, it is noted that they were placed pursuant to their prime contracts with the U.S. Atomic Energy Commission. It is also noted that both these contracts were National Defense Rated Orders. They were both rated and allotted DO-E-2 and state they were "Certified for National Defense Use under DMS Regulation 1". DMS is the Defense Material System. The current priorities and allocations system is discussed in Subpart 11.6 of the Federal Acquisition Regulation (FAR) which states rated orders are placed by a "Delegate Agency" under the Defense Priorities and Allocations System (DPAS) in support of authorized national defense programs (15 CFR 700). "Authorized programs" are defined as those approved by FEMA for support under the Defense Production Act of 1950, as amended, to promote the national defense. A review of the Department of Defense Priorities and Allocations Manual of 1961 with changes 1 – 9 (1967) shows that the intent and application of the rating system, in effect when the purchase orders were placed with NFS, was consistent with that of today.

The TRU wastes can be specifically linked to carrying out defense nuclear materials production, defense nuclear waste and by-products management, and defense research and development:

- The majority (94%) of the radioactive material was provided under defense contract from the USAEC.
- The process that generated the waste was the manufacture of MOX fuel.
- The facility became contaminated by the MOX fuel process. Contracts for the first 94% of the MOX fuel produced are rated orders (DO-E-2) and certified for national defense use under DMS Regulation 1.

July 1998

Production History and Waste Disposal Considerations Relative to Decommissioning the Mixed Oxide Fuel Fabrication Facility at Nuclear Fuel Services, Inc. Erwin, Tennessee

Introduction

Nuclear Fuel Services, Inc. (NFS) is preparing to complete the decommissioning of the former Mixed Oxide Fuel Fabrication Facility (Building 234) in Erwin, Tennessee. Decommissioning will include removing remaining equipment and utilities, excavating contaminated soil, demolishing the building, and disposing of the waste. Essentially all processing equipment and interior furnishings have been previously dispositioned with the exception of the Decontamination and Volume Reduction System (DVRS). Planning and preparations for the remaining work began in 1998 and are anticipated to continue through 1999. Decommissioning is expected begin in the year 2000.

Waste disposal is projected to be the most significant direct cost in decommissioning Building 234. This cost can be reduced if the waste is disposed at the Nevada Test Site (NTS). The acceptability of Building 234 waste at the NTS is not known; however, a disposal site must be identified to define decommissioning budget plans, schedules, and elements of the technical work scope.

U. S. Department of Energy (DOE) authorization from the Office of Waste Management (EM-30) and the Nevada Operations Office (DOE-NV) is needed to disposition waste at the NTS. It is proposed that the Schenectady Naval Reactors Office of the DOE (SNR) enter into discussions with these and other appropriate parties to determine if authorization can be granted for disposal of the plutonium-bearing waste from NFS. NFS will support and assist this effort as requested by NR/SNR. This paper is intended to provide information needed to initiate DOE consideration of this matter.

Production History

The plutonium-uranium mixed oxide (MOX) fuel process in Building 234 (Attachment A) was operated by NFS from 1965 to 1973 under license to the U. S. Atomic Energy Commission (USAEC), predecessor to the DOE and the Nuclear Regulatory Commission (NRC). Process capabilities included dissolution of plutonium and uranium metals and oxides, co-precipitation of plutonium and uranium, wet or dry blending of MOX powders, pellet and rod fabrication, rod loading, and scrap recovery.

Ninety-four Percent of Plutonium Supported USAEC Contracts

NFS processed approximately 812 kilograms (kgs) of plutonium between 1965 and 1972. Ninety-four percent (762 kgs) of the plutonium processed by NFS resulted from two U. S. Government contracts administered by the USAEC. The remaining six percent (50 kgs) of plutonium processed at NFS supported commercial contracts for the Halden reactor and Consumers Power Co. in 1972 and 1973.

The largest of the two government sponsored orders was to manufacture about 2,000 fuel rods for the Southwest Experimental Fast Oxide Reactor (SEFOR) in Arkansas. The General Electric Company (GE) was contracted by the USAEC to design, build, and operate the SEFOR to measure the Doppler effect for fast neutron breeder reactors. GE contracted NFS to fabricate the fuel rods for the reactor. The plutonium utilized was supplied by the USAEC. This contract accounted for about 92 percent (746 kgs) of the plutonium introduced to Building 234. The other government sponsored order was from E. I. du Pont de Nemours & Company (Du Pont) at Savannah River for 1,556 aluminum clad MOX fuel rods. Copies of the GE and Du Pont contracts with NFS are attached (Attachments B and C).

Facility Placed in Standby in 1973

MOX production at NFS ceased and the plutonium facilities were placed in standby in 1973. NFS MOX fuel contracts are summarized in Table 1.

Table 1. MOX Fuel Contracts

Customer	Pu (kgs)	USAEC Contract	Purchase Order	NFS Sales Order	Approx Dates
Dupont-AEC (SROO)	16	AT(07-2)-1	Dupont PO: AX-2640	3163	1965-66
GE-AEC (SEFOR)	746	AT(04-3)-647	GE PO: 205-58226-NG	256A	1967-71
Halden Fuel-NFS	3	NA	. . .	945E	1972
Consumer Power-NFS	47	NA	. . .	1021F	1972-73

Decommissioning Actions

In April 1986 NFS secured a contract with the DOE Idaho Operations Office (DOE-ID) for acceptance, storage, and eventual disposal of transuranic waste (>100 nanocuries/gram). Transuranic (TRU) waste from NFS would be stored at the Idaho National Engineering Laboratory (INEL) Radioactive Waste Management Complex for later disposal at the Waste Isolation Pilot Plant (WIPP). Similar contracts were executed by DOE-ID with Babcock and Wilcox, Inc. (B&W) and the Monsanto Chemical Company, Inc. (Monsanto). All of these contracts were on a "full cost recovery basis" by the government.

Subsequently, the governor of Idaho banned out-of-state waste shipments to INEL before NFS wastes could be received.

DOE Contract Modification for TRU Waste Storage at ORNL Signed April 1992

To honor its contract with NFS, the DOE proposed that the TRU waste be stored at the Oak Ridge National Laboratory (ORNL) instead of INEL. NFS obtained the concurrence and support of the State of Tennessee in this move and the DOE contract was modified in April 1992.

The NRC approved the NFS Plutonium Facilities Decommissioning Project Plan and Condition Addendum in June 1989. Process equipment, gloveboxes, utilities, and ancillary materials were removed from Building 234 and processed through the DVRS from September 1990 through September 1992. Class A waste (<10 nCi/g) was shipped directly to the Barnwell, S. C. disposal site operated by Chem-Nuclear Systems, L. L. C., (CNS). Class C waste (10-100 nCi/g) was shipped to Scientific Ecology Group, Inc. (SEG) in Oak Ridge for additional compaction and stabilization prior to disposal at Barnwell. TRU waste (debris) was shipped to SEG for additional compaction prior to interim storage at ORNL under the DOE/NFS contract. This waste will be disposed at the WIPP.

Additionally, during 1993 approximately 2,300 ft^3 of soil were excavated from the Building 234 Wet Cell. The soil was blended with less contaminated soil to meet ORNL waste acceptance criteria for the maximum permissible fissile content of waste packages (128 ^{239}Pu fissile gram equivalents). This resulted in 4,275 ft^3 of soil containing about 6.1 kgs of plutonium. The soil was classified as TRU waste and shipped directly to ORNL for interim storage prior to disposal at the WIPP.

Waste Disposal Projections to Complete D&D

Projections of waste volumes and classifications to complete the decommissioning of Building 234 are very preliminary. The estimates discussed here are from the *NFS Near Term Decommissioning Management Plan* (NTDMP), January 1998.

Approximately 80,000 ft^3 of waste are expected to be generated from the future decommissioning of Building 234. About 75 percent of the waste is projected to be Class C, 15 percent Class A, and 10 percent TRU. About 1,700 ft^3 of soil with TRU levels of contamination are estimated to remain beneath the Wet Cell and 475 ft^3 of TRU waste (soil) is stored in Building 234. Approximately 60 percent (48,000 ft^3) of the total waste volume is expected to be soil or "soil-like" waste and about 40 percent (32,000 ft^3) debris.

The cost for disposal of Building 234 decommissioning waste was estimated at roughly $50 million in the NTDMP. Unit prices of $480/ ft^3 and $528/ ft^3 were assumed for disposal of Class A and Class C waste respectively at Barnwell. A unit price of $1,056/ ft^3 was assumed for TRU disposal at the WIPP, the only domestic TRU waste disposal site.

About 90 percent of the waste from Building 234 decommissioning (all Class A and Class C) should be acceptable at the NTS if disposal is authorized and preliminary projections are correct. If access to the NTS is not possible, a minimum of about 75 percent of the decommissioning waste (all Class C) will likely require disposal at Barnwell.

CNS Proposed 25 Year Funding Plan for Barnwell in July 1998

Future disposal costs at Barnwell are uncertain. CNS distributed a plan to customers in July 1998 that describes a funding proposal to continue operating the site over the next 25 years (Attachment D). The plan proposes that CNS enter into agreements ("Qualified Contracts") with customers ("Users") to reserve disposal capacity for a term of 25 years. The agreements will allow CNS to satisfy financial commitments to the State. NFS has not yet evaluated the potential impact of this plan on Building 234 decommissioning cost estimates, but it appears that disposal charges may exceed those included in the NTDMP.

Work is in-progress by NFS to revise the preliminary waste projections for decommissioning Building 234, but a sound estimating basis will not be available until the facility is adequately characterized. Characterization is expected to be completed by the end of 1998. Preliminary waste projections are shown in Table 3.

Table 3. Building 234 Preliminary Waste Projections

Waste Type	Debris Volume (ft^3)	Soil Volume (ft^3)	Total Volume (ft^3)
Class A	10,874	1,550	12,424
Class C	14,317	44,384	58,701
TRU	6,978	2,175[1]	9,153
Total	32,169	48,109	80,278

Source: NFS Near Term Decommissioning Management Plan, NFS, January 1998.
[1]Includes 475 ft^3 of TRU waste in storage (containerized soil) and the 1,700 ft^3 TRU soil estimate provided in the Near Term Decommissioning Management Plan.

NTS Disposal Considerations

Authorization for NTS acceptance of plutonium bearing waste from NFS appears to depend on the distinction between Federal and State responsibilities as defined in the *Low-Level Radioactive Waste Policy Amendments Act of 1985* (the Act). The Act exempts from State responsibility wastes owned or generated by the DOE. DOE Order 5820.2A, *Radioactive Waste Management*, defines DOE waste as "Radioactive waste generated by activities of the Department (or its predecessors), waste for which the Department is responsible under law or contract, or other waste for which the Department is responsible."

The plutonium processed at NFS was almost exclusively the result of Federal procurement actions by the DOE's predecessor, the USAEC. All of the plutonium processed by NFS was supplied by the USAEC. Possible additional support for the position that the government owned the plutonium processed by NFS is contained in the contract between NFS and Du Pont, the USAEC's prime management and operations contractor at the Savannah River Plant (Attachment C). That contract, in Section F.4, states, "Title to all special nuclear material and source material furnished to or received by the vendor subject to this purchase order shall at all times be and remain in the Government."

Summary

A reasonable basis exists for authorizing the NTS to accept plutonium bearing waste from NFS. Given this, the NTS disposal option should be pursued due to the potential for significant cost savings to the NR Program. Concurrently, NFS must characterize the facility and improve projections of decommissioning waste types and volumes. Also, decommissioning planning efforts must be directed at waste minimization. NFS is prepared to assist NR/SNR as needed to gain acceptance to the NTS.

Attachments

Attachment A. Summary Description of Building 234 at NFS, Erwin, Tennessee

Attachment B. GE PO No. 205-58226-NG for SEFOR Fuel to Support USAEC Contract AT (04-3)-647

Attachment C. Du Pont PO No. AX-2640 for MOX Fuel to Support USAEC Contract AT (07-2)-1

Attachment D. Chem-Nuclear Systems, L.L.C., Transaction Summary; Proposed Agreement to Establish S. C. Trust Fund, July 10, 1998

Attachment A

Summary Description of Building 234 at NFS, Erwin, Tennessee

Production History and Waste Disposal Considerations Relative to Decommissioning the Mixed Oxide Fuel Fabrication Facility at Nuclear Fuel Services, Inc., Erwin, Tennessee

July 1998

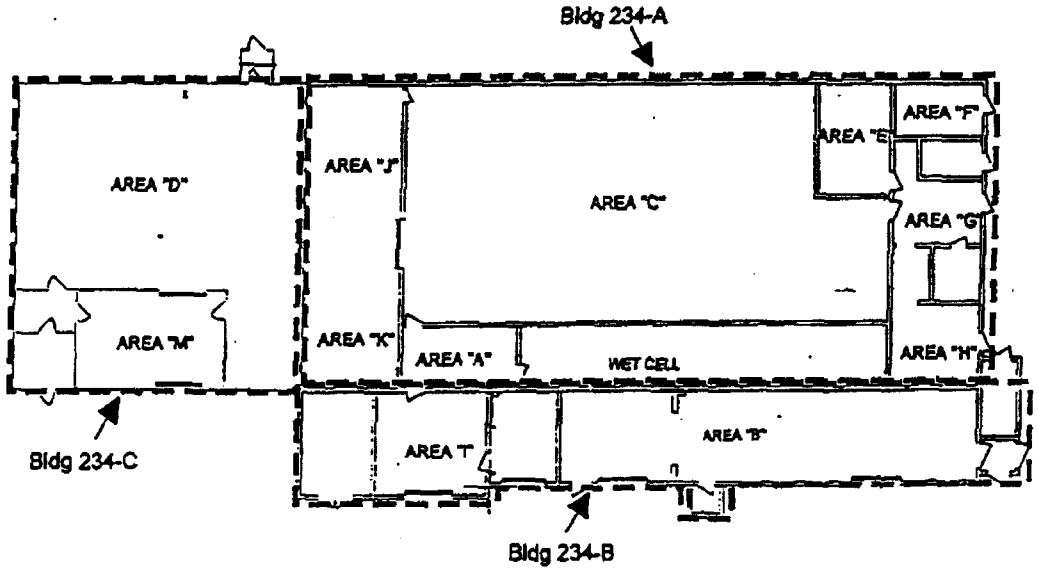
Summary Description of Building 234 at NFS, Erwin, Tennessee

Building 234 is located in the northeast section of the NFS plant adjacent to the High Enriched Uranium Recovery Facility. The building housed the equipment and processes for converting plutonium feed materials to oxides and fabricating fuel pellets and fuel rods. The building is constructed primarily of concrete block and encloses an area of about 10,000 square feet (ft^2). Floors are concrete and the composite and rubber membrane roofs are supported by metal trusses.

The facility is comprised of three areas designated as Buildings 234A, 234B, and 234C. Building 234A was constructed in 1962 or 1963 and contained the conversion, pellet fabrication, and scrap recovery processes. The dimensions of this structure are 100 ft by 50 ft (5,000 ft^2) with 14 ft walls. A 16 ft by 50 ft (800 ft^2) annex was built on the south end of Building 234A in about 1965. The annex was used for an office, a utility room, showers, and change rooms.

Buildings 234B and 234C were also added to Building 234A in 1964/1965. Building 234B was built on the west side of 234A and varies from 14 to 16 ft wide by 116 ft long (1688 ft^2). This facility contained the ^{233}U purification process. Building 234C is a 50 ft by 50 ft (2500 ft^2) high bay (24 ft walls) addition to the north end of 234A. Building 234C was used to fabricate and inspect fuel rods. It now contains the Decontamination and Volume Reduction Facility (DVRF) used during the previous decommissioning project.

←Plant North



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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: M064
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☐ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☑ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Analysis Results for Process Line Samples from Nuclear Fuel Services, Inc. and NFS Sample Set No. 3	
Source Document Reference Information (author(s), document and revision number, date, publisher): C.E. Frye, NA, Rev. NA, 10/18/1991, NA	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
WS12, S9	Throughout	Analysis Results for Process Line Samples from Nuclear Fuel Services, Inc. Also attached is the analytical results which represent the characterization of the process-line samples taken from the 234 building at the NFS site in Erwin, Tenessee. Also included is the supporting quality control analytical results. The Analytical Chemistry Data Package includes a Case Narrative, Results, and Appendix of Data. The Appendix of Data includes VOA Screen Data, SVOA Screen Data, SVOA of Filter Sample Extract, PCB Data, Qualitative GC-MS for PCB Confirmation, Analytical Request Forms and Chain of Custody Forms, Holding Time Data for Set No. 3, TCLP Metals Data. The third set of NFS samples was received at the High Radiation Level Analytical Laboratory by the Inorganic and Physical Analysis Group on July 16, 1991. Because of the high specific radioactivities of the samples, all handling and preparation was conductefed in glove b oxes. Four groups in the ORNL Analytical Chemistry Division participated in sample preparation and anlaysis.

NTPC RECORDS ORIGINAL
DATE REC'D 12/18/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: M064
Source Document Data Limitations (if any): 1. None.	
Acceptable Knowlege Expert: TRAVIS SMITH ~~Trey Greenwood~~ Print TS 11/14/2013 /Sign Date: 11/14/2013	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

M0064

MARTIN MARIETTA

MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2003
OAK RIDGE, TENNESSEE 37831

October 18, 1991

Mr. Larry L. Radcliffe, Director
Waste Management and K-25 Site Operations Division
DOE Field Office, Oak Ridge
Post Office Box 2001
Oak Ridge, Tennessee 37831-8620

Dear Mr. Radcliffe:

Analysis Results for Process Line Samples from Nuclear Fuel Services, Inc.

As part of the program to certify the waste from decontamination and decommissioning (D&D) of the Nuclear Fuel Services, Inc. (NFS) mixed oxide process line, samples were sent by NFS to Oak Ridge National Laboratory for analysis by the Analytical Chemistry Division. The first enclosure is the analytical results which represent the characterization of the process-line samples taken from the 234 building at the NFS site in Erwin, Tennessee. Also included is the supporting quality control analytical results.

The sample locations were selected by NFS in their sampling plan as part of the certification requirements and were chosen as being representative of the waste resulting from the D&D activity of respective portions of the process. Six samples were involved in the characterization of the process line. The results indicate that the wastes are Resource Conservation and Recovery Act mixed, with at least one metals parameter exceeding the regulatory threshold in each sample. Additionally, the sample from the plutonium (Pu) nitrate storage and load-out station has indicated positive for polychlorinated biphenyl (PCB) contamination.

A seventh sample, of glove-box gasket material, from the 110 laboratory building has also indicated positive for PCB contamination. The gasket sample and the sample from the Pu nitrate storage and load-out station are being analyzed further to quantify the PCB contamination. The first analyses were complicated by large numbers of interfering chromatographic peaks, and the uncertainties associated with the initial values were quite large. Efforts are being directed at narrowing the uncertainty range associated with the PCB levels in these two samples.

The attached results are provided at this time for information and review. After the additional analysis is completed to better quantify the level of PCB contamination in the samples as discussed above, the final analysis results will be issued. If there are questions on this subject, please contact M. W. Tull (6-5225).

Sincerely,

CE Frye

C. E. Frye, Director
Central Waste Management Division

Enclosures

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ANALYTICAL CHEMISTRY DATA PACKAGE

FOR

NFS SAMPLE SET NO. 3

October 9, 1991

Compiled by

W. H. Griest
Analytical Chemistry Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831-6120

Wayne H. Griest
Coordinator

10/9/91
Date

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Case Narrative for NFS Set No. 3

The third set of NFS samples was received at the High Radiation Level Analytical Laboratory by the Inorganic and Physical Analysis Group on July 16, 1991. Because of the high specific radioactivities of the samples, all handling and preparation was conducted in glove boxes. Four groups in the ORNL Analytical Chemistry Division participated in sample preparation and analysis.

Two 0.5 g amounts of the eight NFS samples and one trip blank were obtained by the Separations and Synthesis Group on July 19, 1991, for organic chemical analysis. Organic solvent extraction was conducted in glove boxes. TCLP leaching was not conducted because the zero headspace extractor (required for leaching volatile organics) was not set up in a glove box, and because the volume of nonvolatile TCLP leachate being generated for metals analyses was not sufficient for extractable organics analyses. For these reasons, the samples were prepared for direct analysis of volatile and extractable organics (except for pesticides and herbicides, which were not requested), and for PCBs.

The samples were prepared for TCLP organics analyses by modifications of SW-846 methodologies. One 0.5 g aliquot of each sample was shaken with 20 mL of methanol for 4 to 5 min, similar to the high concentration protocol in SW-846 method 5030. After a 45 min standing period to allow particles to settle out, 10 mL of the supernatant extract were transferred into a clean bottle. A 200 µL aliquot was taken from each bottle for gross alpha and gross beta counting, and the bottles were sealed in a polyethylene bag. The second 0.5 g sample was then extracted similarly with methylene chloride, and after 45 min, 10 mL were transferred into clean bottles. A 200 µL aliquot was taken from each bottle for gross alpha and gross beta counting, and the bottles were bagged. On July 29, an additional 5 mL of the methylene chloride extract was removed from the extracted samples and was added to the 10 mL volumes previously removed.

These extraction conditions deviated from SW-846 methodology in several respects. The mass of sample extracted was smaller than that usually utilized for direct analysis for TCLP organics because of the high specific activities of the samples. Ultrasonic extraction for semivolatiles was not used because an ultrasonic bath was not set up in the glove box. Shaking is permitted in SW-846 method 5030 for volatile organics, but the solid part of the sample was not collected with the methanol extract for the purge and trap analysis because of its radioactivity. Surrogate standards were not added to the samples before extraction.

Considerable radioactivity was found in the methanol extracts, but the activities were within radiochemical hood limits. The methanol extracts were bagged out of the glove box and were transferred to a radiochemical laboratory after the gross alpha and gross beta screens. Sixty-five µL volumes of the methanol extracts plus volatile organics surrogate standards were analyzed in a

crude extract of samples K1, filter, and gasket 2 severely contaminated the GC-ECD, and the column had to be removed and the ends cut off, and the detector and column reconditioned. However, analyses could be made of the K1 and gasket samples, and a total of 23 ppm and 31 ppm (respectively) of Aroclors were measured. The sample extracts of K1, trip blank, filter, and gasket 2 were subjected to Florisil cleanup (after SW-846 method 3620) and reanalyzed. The Florisil cleanup method was not successful, and the GC column was again contaminated, and had to be replaced. The four crude extracts and a portion of the trip blank extract subjected to Florisil cleanup were submitted to the Organic Spectroscopy Group for GC-MS verification of the PCBs using a Hewlett Packard 5985 research instrument. By comparing the retention times of selected ion chromatograms, PCBs were unambiguously identified in the K1 and gasket 2 extracts, but were not detected in the trip blank and filter extracts. The Florisil column was found to contaminate samples with PCBs if the column was not sufficiently prewashed. The aliquots of the sample extracts remaining from the SVOA screening were diluted to 5 mL, and 1 mL volumes, after solvent exchange, were subjected to a modified Florisil column cleanup procedure. In the modified procedure, the Florisil column was washed with a larger volume of solvents, and a solvent blank was applied to the column and eluted before the actual sample extract was applied and eluted. Both the solvent blank and the sample extract purified by the column were analyzed by GC-ECD, and again the GC column was contaminated. However, a quantitative analysis was achieved for K1, and the result, 20 ppm of Aroclors, agreed with the first analysis. After regeneration of the GC column, the gasket 2 sample was reanalyzed qualitatively, and PCBs were observed. The solvent blanks from the Florisil columns demonstrated that the PCBs did not originate from Florisil column contamination. Sample reanalysis will be conducted when an improved sample cleanup method is developed. This will be reported separately. A PCB analysis Case Narrative is included in the Data Appendix.

For TCLP metals analysis, the TCLP nonvolatile leaching was performed on the C1, C2, C3, J1, J2, K1, and Trip Blank samples in a glove box on July 24. The TCLP leaching was conducted on a reduced scale of ca. 3.5 to 27 g of sample (instead of the protocol 100 g), but the TCLP chemistry and 1:20 solid:liquid ratio were preserved. The reduction in scale was necessary because of the high specific activities of the samples. The leachates were analyzed by inductively coupled plasma emission spectroscopy in a radiochemical hood/glove box on August 4. Concentrations of Ba, As, or Cd in the leachates exceeded the TCLP Regulatory Limits for most of the samples, but the Ba blank was high. High Ba blanks from the TCLP protocol filter (even after acid washing) have been observed previously. Radiochemical analyses were conducted by in-house methods by both the Inorganic and Physical Analysis Group and the Radiochemical Engineering and Development Center Analytical Laboratory.

PCB'S AND CHLORDANE IN NFS SAMPLES

REQUEST NO: 94640
CUSTOMER ID: GASKET 1
ACD SAMPLE ID: 910723-234
WEIGHT SAMPLE: 0.5 g

SDG NO.: 464T
DATE ANALYZED: 09/02/91
FINAL VOL EXTRACT: 1 mL
DILUTION FACTOR: 20

COMPOUND	PK HT STD	PK HT SAMPLE	CONC, ug/g	
ALPHA-CHLORDANE		0	0.20	U
GAMMA-CHLORDANE		0	0.20	U
AR 1016		0	10	U
AR 1221		0	10	U
AR 1232		0	10	U
AR 1242		0	10	U
AR 1248	19470	14788	15.2	
AR 1254	45371	35452	15.6	J
AR 1260			20	U

** WITH FLORSIL

NOTE: This sample was confirmed by GCMS that PCB's were present. We were unable to check for chlordane due to many interferences; however there appeared to be none present.

approved
W. D. Reid
10/7/91

PCB'S AND CHLORDANE IN NFS SAMPLES

REQUEST NO: 94640
CUSTOMER ID: K1
ACD SAMPLE ID: 910723-231
WEIGHT SAMPLE: 0.07 g

SDG NO.: 464W
DATE ANALYZED: 09/21/91
FINAL VOL EXTRACT: 1 mL
DILUTION FACTOR: 1

COMPOUND	PK HT STD	PK HT SAMPLE	CONC, ug/g	
ALPHA-CHLORDANE	6529	0	0.07	U
GAMMA-CHLORDANE	6446	0	0.07	U
AR 1016	54208	0	4	U
AR 1221	38058	0	4	U
AR 1232	31179	0	4	U
AR 1242	31411	0	4	U
AR 1248	56923	0	4	U
AR 1254	71135	78586	7.89	J
AR 1260	86592	I48321	12.2	

** WITH FLORSIL

NOTE: This sample was confirmed by GCMS that PCB's were present. We were unable to check for chlordane due to many interferences; however there appeared to be none present.

Approved
W H Smith
10/2/91

PCB'S AND CHLORDANE IN NFS SAMPLES

REQUEST NO: 94640
CUSTOMER ID: TRIP BLANK
ACD SAMPLE ID: 910723-232
WEIGHT SAMPLE: 0.5 g

SDG NO.: 464T
DATE ANALYZED: 09/02/91
FINAL VOL EXTRACT: 1 mL
DILUTION FACTOR: 20

COMPOUND	PK HT STD	PK HT SAMPLE	CONC, ug/g	
ALPHA-CHLORDANE		0	0.20	U
GAMMA-CHLORDANE		0	0.20	U
AR 1016		0	10	U
AR 1221		0	10	U
AR 1232		0	10	U
AR 1242		0	10	U
AR 1248		0	10	U
AR 1254		0	20	U
AR 1260		0	20	U

NOTE: This sample was sent to Jan Ma to perform GCMS analysis and it was determined no PCB's were detected. It is impossible for this lab to found trace amounts due to contamination and peaks eluting during the same time PCB peaks eluted on the columns.

9/24/91

approved
WH Brent
10/7/91

PCB'S AND CHLORDANE IN NFS SAMPLES

REQUEST NO: 94640
CUSTOMER ID: C3
ACD SAMPLE ID: 910723-228
WEIGHT SAMPLE: 0.5 g

SDG NO.: 4640/4B40
DATE ANALYZED: 08/06/91
FINAL VOL EXTRACT: 1 mL
DILUTION FACTOR: 20

COMPOUND	PK HT STD	PK HT SAMPLE	CONC, ug/g	
ALPHA-CHLORDANE	34118	0	0.20	U
GAMMA-CHLORDANE	34890	0	0.20	U
AR 1016	15206	0	10	U
AR 1221	10446	0	10	U
AR 1232	4052	0	10	U
AR 1242	8900	0	10	U
AR 1248	22854	0	10	U
AR 1254	33826	0	20	U
AR 1260	29785	0	20	U

approved
with Qualif
10/7/91

PCB'S AND CHLORDANE IN NFS SAMPLES

REQUEST NO: 94640
CUSTOMER ID: C2
ACD SAMPLE ID: 910723-227
WEIGHT SAMPLE: 0.5 g

SDG NO.: 4640/4B40
DATE ANALYZED: 08/06/91
FINAL VOL EXTRACT: 1 mL
DILUTION FACTOR: 20

COMPOUND	PK HT STD	PK HT SAMPLE	CONC, ug/g	
ALPHA-CHLORDANE	34118	0	0.20	U
GAMMA-CHLORDANE	34890	0	0.20	U
AR 1016	15206	0	10	U
AR 1221	10446	0	10	U
AR 1232	4052	0	10	U
AR 1242	8900	0	10	U
AR 1248	22854	0	10	U
AR 1254	33826	0	20	U
AR 1260	29785	0	20	U

approved
w H Durst
10/9/91

VOLATILE ORGANIC COMPOUND SCREEN BY
PURGE/TRAP GAS CHROMATOGRAPHY-FLAME IONIZATION DETECTION

Building 2026, Separations and Synthesis Group

Type of Analysis:

- [x] TCLP VOA from ZHE (<200 ppb)
- [x] TCLP VOA from Direct Analysis (equivalent to <200 ppb in leachate)
- [ ] Waste Disposal (<1000 ppm)
- [ ] Other (Specify: _____)

Request No.: 94640 Customer: NFS

ACD Sample No.	Customer Sample ID	Date Anal.	Dil'n. g/mL or mL/mL	Vol. for P/T	QC OK	VOC over Limit?	
910723-226	C_1	7/30/91	0.5g:20mL	65µL	OK	*	
-227	C_2	7/31/91					
-228	C_3	↓					
-229	J_1	8/5/91					
-230	J_2						
-231	K_1	↓					
-232	Trip Blank	8/6/91	↓	↓	↓	↓	
910723-233	Filter	8/20/91	0.5g:20mL	65µL	OK	*	Paul J. W. 8/21/91
910723-234	Gasket	↓	↓	↓	↓	↓	

Comments: * see attached sheet

Note: only 2-butanone, chloroform, + chlorobenzene pass TCLP. Insufficient sensitivity for other TCLP VOA. WTG

Paul J. Wolfe — Analyst

8/14/91 — Date

TCLP VOA from Direct Analysis

Request #: 17070
Customer: NFS

ACD #	Sample ID	Date Analyzed	Concentration ppm ~~ppb~~ [Methylene Chloride] w NC 9/23/91	
10723-226	C_1	7/30/91	<30.8 μ	
10723-227	C_2	7/31/91	4.3 J	
0723-228	C_3	↓	20.6 J	
0723-229	J_1	8/5/91	162	
-230	J_2	↓	<30.8	
-231	k_1	↓	<30.8	
-232	TripBlank	8/6/91	22.4 J	
0723-233	Filter	8/20/91	<30.8	PFW 8/21/91
0723-234	Gasket	8/20/91	33.2	PFW 8/21/91

Detected methylene chloride may be contamination during extraction of VOA's. Extraction of VOA's with methanol was done in a glovebox. After VOA extraction, extraction of SVOA's with methylene chloride was done in the glovebox; therefore, the VOA extracts may have become contaminated with methylene chloride.

μ - no peak detected

J - peak detected, but below detection limit

Paul J. Wolf
Analyst

8/15/91
Date

ESTIMATED DETECTION LIMITS FOR EXTRACTABLES SCREEN

NFS SET NO. 3

Extractable Compound	Detection Limit, ppm in Sample
O-Cresol	29
m-Cresol	29
p-Cresol	29
Cresol	29
1,4-Dichlorobenzene	29
2,4-Dinitrotoluene	29
Hexachlorobutadiene	29
Hexachloroethane	29
Nitrobenzene	29
Pentachlorophenol	29
2,4,5-Trichlorophenol	29
2,4,6-Trichlorophenol	29

WHG
10/7/91

Oak Ridge National Laboratory
Analytical Chemistry Division
Results of Analyses
2026 Radiochemical Analysis

IPA6525 Page 1

Customer Name NFS
Request Number IPA6525
Frequency
Sample Matrix

Date Received 17-Jul-1991 13:05
Charge Number 33257041
Series
Date of Report 1-OCT-91

Approved By J. L. Scott
Date 10/1/91

Customer ID	Analy No.								
C1	910717-075	AG	AM-241	AS	BA	CD	CR	G-ALPHA	G-BETA
		0.52	4.53E7	0.51	124	1.20	1.00	1.32E8	2.00E7
		+/- 0.01	+/- 0.02E7	+/- 0.44	+/- 1	+/- 0.03	+/- 0.02	+/- 0.01E8	+/- 0.03E7
		UG/ML	BQ/G	UG/ML	UG/ML	UG/ML	UG/ML	BQ/G	BQ/G
		HG	NI	PB	RAD PREP	SCHENLEY	SE	TCLP PREP	TL
		< 0.01	113	0.69	910718	910718	< 0.02	910718	3.2
			+/- 5	+/- 0.03					+/- 0.8
		UG/ML	UG/ML	UG/ML			UG/ML		UG/ML
C2	910717-076	AG	AM-241	AS	BA	CD	CR	G-ALPHA	G-BETA
		3.80	5.30E7	5.7	222	0.04	3.80	5.35E7	6.98E6
		+/- 0.01	+/- 0.03E7	+/- 1.1	+/- 1	+/- 0.01	+/- 0.05	+/- 0.04E7	+/- 0.10E6
		UG/ML	BQ/G	UG/ML	UG/ML	UG/ML	UG/ML	BQ/G	BQ/G
		HG	NI	PB	RAD PREP	SCHENLEY	SE	TCLP PREP	TL
		< 0.01	7.8	4.0	910718	910718	< 0.02	910718	24.0
			+/- 2.3	+/- 0.1					+/- 0.2
		UG/ML	UG/ML	UG/ML			UG/ML		UG/ML
C3	910717-077	AG	AM-241	AS	BA	CD	CR	G-ALPHA	G-BETA
		0.21	9.05E7	0.13	301	0.15	0.87	3.28E8	4.32E7
		+/- 0.01	+/- 0.05E7	+/- 0.39	+/- 3	+/- 0.01	+/- 0.01	+/- 0.02E8	+/- 0.07E7
		UG/ML	BQ/G	UG/ML	UG/ML	UG/ML	UG/ML	BQ/G	BQ/G
		HG	NI	PB	RAD PREP	SCHENLEY	SE	TCLP PREP	TL
		< 0.01	8.80	0.45	910718	910718	< 0.02	910718	< 0.02
			+/- 0.03	+/- 0.14					
		UG/ML	UG/ML	UG/ML			UG/ML		UG/ML
J1	910717-078	AG	AM-241	AS	BA	CD	CR	G-ALPHA	G-BETA
		0.64	1.83E7	0.62	1.4	1.50	1.30	5.54E7	7.68E6
		+/- 0.01	+/- 0.01E7	+/- 0.27	+/- 0.2	+/- 0.04	+/- 0.03	+/- 0.03E7	+/- 0.08E6
		UG/ML	BQ/G	UG/ML	UG/ML	UG/ML	UG/ML	BQ/G	BQ/G
		HG	NI	PB	RAD PREP	SCHENLEY	SE	TCLP PREP	TL
		< 0.01	17.0	0.53	910718	910718	< 0.02	910718	2.70
			+/- 0.3	+/- 0.57					+/- 0.05
		UG/ML	UG/ML	UG/ML			UG/ML		UG/ML

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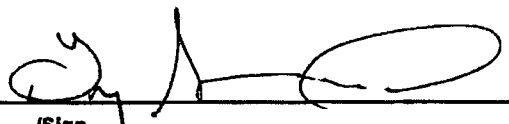
Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C205
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☑ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Internal Correspondence to Distribtuion regarding Minutes of November 5, 1991 Meeting with NFS Regarding Process-Line Samples	
Source Document Reference Information (author(s), document and revision number, date, publisher): Martin W. Tull, NA, Rev. NA, 11/11/1991, NA	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
PR7, WS2, WS12, S9	Throughout	Internal Correspondence to Distribution regarding Minutes of November 5, 1991 Meeting with NFS Regarding Process-Line Samples. The meeting agenda included the following areas of discussion: A. Discussion of Analyses 1. What parameters were analyzed 2. What protocols were employed 3. What technical difficulties/problems were encountered during execution of the protocols 4. What deviations were required from protocol and what were the justifications B. Discussion of Results 1. Review of resulting data from analyzed parameters 2. Interpretation of data 3. Impact on waste characterization C. Discussion of Next Action(s) 1. What options are available 2. What constraints on available options do identified problems create 3. What remaining options appear appropriate

NTPC RECORDS ORIGINAL
DATE REC'D 12/18/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C205
Source Document Data Limitations (if any): 1. None.	
Acceptable Knowlege Expert: Trey Greenwood  Date: 11/14/2013 Print /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

C205

MARTIN MARIETTA

Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

November 11, 1991

Distribution

Minutes of November 5, 1991 Meeting With NFS Regarding Process-Line Samples

On Tuesday, November 5, 1991 representatives of ORNL (Analytical Chemistry Division and Office of Waste Management and Remedial Action), DOE-OR, NFS and one of its subsidiaries (LSI Labs) met to review and discuss the analytical results from the samples collected from the Building 234 processing line. These samples had been collected to establish the waste stream characteristics for waste generated by the decommissioning of this facility.

The meeting agenda included the following areas of discussion:

A. Discussion of Analyses

1. What parameters were analyzed
2. What protocols were employed
3. What technical difficulties/problems were encountered during execution of the protocols
4. What deviations were required from protocol and what were the justifications

B. Discussion of Results

1. Review of resulting data from analyzed parameters
2. Interpretation of data
3. Impact on waste characterization

C. Discussion of Next Action(s)

1. What options are available
2. What constraints on available options do identified problems create
3. What remaining options appear appropriate

The discussion of these issues covered approximately two hours and were thoroughly explored by all parties. A consensus was reached regarding remaining work to be done. The following action plan was adopted:

TCLP Metals

All metals parameters, with the exception of Cd, are below any applicable regulatory threshold. Ba was reported at high levels, however, the trip blank was also high. ACD personnel indicated that the Ba could have been introduced from one of the extraction columns used in the analysis. This problem is routinely encountered from time-to-time. The Cd issue is a real concern. It was agreed that of particular interest was the value reported from the K1 sample point (24ppm). Other Cd values reported

at the remaining five sample points displayed a high degree of variation (variability from highest, K1, to lowest spanned three orders of magnitude). Verification of the K1 value was determined to be necessary. Another analysis of that sample point will be run and additional sample will be collected from K1. The results of this verification will constitute the final data on this waste characteristic. It was agreed by all parties that the corresponding results would define the waste characteristic for Cd and no further analysis would be performed.

PCBs

During the analysis for PCBs, seven PCB species have been positively identified. The concentrations have been determined at < 50ppm, but the associated uncertainties are fairly large. Additionally, several of the reported values are actually < values or reported detection limits. Utilizing the methodology presented in SW-846, these results would yield concentrations below the 50ppm regulatory threshold, but it was deemed prudent to make one more attempt to narrow the uncertainty window if possible. Consequently, this work will proceed coincidently with the TCLP Cd analysis. As with the Cd work, this will constitute the final analytical work on PCBs.

These actions were discussed to be performed within the next two weeks, however, the need to obtain additional sample and several other constraints will make the achievement of this goal most unlikely. Early December would seem to be the earliest that the work would be completed.

A list of attendees is attached.

Martin W. Tull, 3047, MS-6023 (6-5225) - RC

Enclosure

Distribution:
H. L. Adair
J. L. Botts
W. H. Griest
R. C. Mason
L. E. McNeese
T. F. Scanlan
L. E. Stratton
D. W. Turner

ATTENDEES
NOVEMBER 5, 1991 MMES/NFS/DOE MEETING
PROCESS-LINE SAMPLE RESULTS

ORNL

J. L. Botts - ACD
W. H. Griest - ACD
R. L. Schenley - ACD
M. W. Tull - OWMRA

NFS

D. Paine - NFS
R. Slagle - NFS/LSI
M. L. West - NFS

DOE

N. W. Lingle - DOE-OR

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: M235

Waste Stream Number(s): ORNL Non-specific Library Files
(Applicable only when site library is not in use)

Acceptable Knowledge Documentation Type:	Category:
☐ TRU Waste Management Program Information	☐ Correspondence
☑ Waste Stream-Specific Information	☐ Discrepancy Resolution
☑ Additional Information	☐ Internal Procedure
	☑ Miscellaneous
	☐ Published Document or Internal Procedure
	☐ Unpublished Documents

Title or Description of Source Document [a]: Evaluation of Data from Source Document M064

Source Document Reference Information (author(s), document and revision number, date, publisher): Jeff Harrison, N/A, N/A, Undated, N/A

AK # [b]	Source Doc. Page # [c]	AK Information Summary
WS10, S9	1	This is an evaluation of arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver from different customers. The statistical data (mean, standard deviation, sample size, t.20, standard error, UCL 90 and RCRA Limit are evaluated.

Source Document Data Limitations (if any):

1. No units on any of the measurements in the source document.
2. There is no key to identify the Customer ID codes.

Acceptable Knowlege Expert:

Travis Smith / Y. Smith Date: 11/20/2013
Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

NTPC RECORDS ORIGINAL

DATE REC'D_____

Evaluation of Data from Source Document M064

Customer ID	As	Ba	Cd	Cr	Pb	Hg	Se	Ag
C1	0.51	124	1.2	1	0.69	0.01	0.02	0.52
C2	5.7	222	0.04	3.8	4	0.01	0.02	3.8
C3	0.13	301	0.15	0.87	0.45	0.01	0.02	0.21
J1	0.62	1.4	1.5	1.3	0.53	0.01	0.02	0.64
J2	4.4	0.57	1.3	3.8	3.1	0.01	0.02	3.1
K1	0.02	38	6.27	0.11	0.01	0.01	0.02	0.04
Mean	1.90	114.50	1.74	1.81	1.46	0.01	0.02	1.39
Std Dev	2.49	124.94	2.30	1.59	1.66	0.00	0.00	1.63
No. of Samples	6	6	6	6	6	6	6	6
$t_{.20}$	1.476	1.476	1.476	1.476	1.476	1.476	1.476	1.476
Std error	1.02	51.01	0.94	0.65	0.68	0.00	0.00	0.66
UCL90	3.40	189.78	3.13	2.77	2.46	0.01	0.02	2.37
RCRA Limit	5	100	1	5	5	0.2	1	5

Below detection limit. Value reported is the detection limit.

Source of equations: SW-846 (http://www.epa.gov/epawaste/hazard/testmethods/sw846/pdfs/chap9.pdf)

Online Copy

Online Copy

6.0 SYSTEM PREPARATION

6.1 Disconnect Drum Haulers from respective charging stations and ensure the battery has sufficient charge to operate during the shift as indicated by the green indicator light.

6.2 Ensure the air compressor is turned on prior to using the air pallet by checking the display on the south side of the compressor.

6.3 Perform a visual inspection on all airline connections and whip checks to ensure they are in place.

6.4 Disconnect electric pallet jack from the charging station prior to use.

6.5 Ensure placement of herculite or other Health Physics approved floor covering is secured with tape in drum loading areas and north equipment airlock prior to conducting airlock operations.

6.6 Replace or re-tape floor coverings that are damaged or show excessive signs of wear.

6.7 Soil sampling and associated analysis is addressed in the Building 234 Soil, Groundwater, and Groundwater Sludge Sampling and Analysis Plan. NFS-approved SWIs will be used to provide specific instructions for sample collection and handling.

6.8 Burial Box Preparation

1) Transport an empty burial box inspected and approved by Transportation and Waste Management with lid attached inside the 234 Excavation Facility.

NOTE: Ensure the lid is secured on the empty burial box prior to transport outside during rain or snow to prevent water collection inside the box.

2) Remove the lid from the empty burial box.

CAUTION: The lid weighs approximately 200 pounds. Use proper lifting techniques when removing the lid.

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3) Raise the height of the burial box using the electric pallet jack.
4) Install the burial box i-beam extensions by sliding the extensions over the ends of the outer i-beams if needed.

CAUTION: Do not place any part of the body underneath the i-beams on the bottom of the burial box during installation.

5) Lower the height of the burial box until the box is stationary on the ground.
6) Place a super sack inside the empty burial box and remove excess void space between the sack and the burial box.
7) Place super sack flaps on the outside of the burial box and ensure hoisting straps are accessible.
8) Wrap the exterior of the burial box, including super sack flaps, with plastic wrap.

6.9 Drum Preparation

1) Obtain a T&WM-approved and inspected empty 7 A 55-gallon drum, which is indicated by two labels "Container Approved for NTS Disposal" and "Container Approved for WIPP Disposal, " with lid, drum ring, bolt, and container filter vent and transfer into the 234 Excavation Facility.

NOTE: Ensure the lid is placed on the empty drum prior to transport outside during rain or snow to prevent water collection inside the drum.

2) Remove the lid from the empty 55-gallon drum if present.
3) Obtain a clean transfer bag equipped with a filter and rigid 90-mil liner and transfer into the 234 Excavation Facility.
4) Place a clean transfer bag inside the empty 55-gallon drum and remove excess void space between the bag and the drum.
5) Position excess clean transfer bag on the outside of the empty 55-gallon drum. Excess bag should cover the entire outside of the empty 55-gallon drum at a minimum.
6) When loading soil and gravel, place the rigid 90-mil liner inside the 55-gallon drum such that the clean transfer bag resides between the empty 55-gallon drum and the 90-mil liner. Do not use a rigid 90-mil

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liner when packaging or repackaging debris.

NOTE: Area Process Engineering may approve placement of the 90-mil liner inside the clean transfer bag followed by placement of the bagged 90-mil liner into the 55-gallon drum in lieu of Steps 4 through 6.

7) Determine the tare weight of the configured 55-gallon drum to include the 90-mil liner, clean transfer bag, 4 – 8 inches of absorbent as specified by Process Engineer, lid, ring, and bolt. This step is only required once and only needs to be conducted again if the drum configuration changes.

NOTE: Ensure that Steps 2 through 6 are monitored by the camera system in accordance with SOP 335-L where applicable.

6.10 Bag Out Preparation

1) Place the assembled 55-gallon drum on the drum cart carousel.

NOTE: Inspect drum cart and carousel prior to use to ensure proper functionality.

2) Position the drum cart inside the drum packaging station specified by supervision and engage the cart brake.

NOTE: Handheld barcode scanners may be utilized to capture bar codes on video recording prior to placement of the drum cart inside the drum packaging station as applicable in SOP 335 L.

NOTE: The drum cart may be raised during waste loading if specified by area Process Engineer.

3) Close the drum packaging station door and lower the top enclosure sashes to the lowest position.
4) If present, position the existing elastic band, Velcro strap, or Process Engineer approved equivalent off of the existing bag stub from the previous drum bag out.

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5) Lower the existing bag stub from above the top bagging ring to a position in between the upper and lower bagging rings.

6) Position the new clean transfer bag above the top bagging ring such that the new bag completely encloses the old bag stub.

7) Position the elastic band, Velcro strap, or Process Engineer approved equivalent off of the drum port in between the bungee cord of the clean transfer bag and the top bagging ring.

8) Use the excess of the clean transfer bag to grab the bottom of the existing bag stub, and pull the stub off of the drum port into the bottom of the empty drum.

9) Place excess bag around the outside diameter of the empty drum or to the top of the drum port and secure using an elastic band, Velcro strap, or Process Engineer approved equivalent.

10) Raise the top enclosure sashes and secure in the closed position.

11) Visually ensure that all openings to the enclosure are closed and secure and bag integrity is maintained.

6.11 CO Monitor Bump Test

1) The RT, with assistance from the HEU Material handler, will inspect CO monitor and remove any debris or dirt present on the bump test cup.

2) HEU Material Handler will affix the bump test cup to the CO monitor sensor inside the primary containment.

3) RT will partially open the regulator and attach the regulator to the bump test gas bottle.

4) RT will attach the tubing to test fitting and open the isolation valve.

5) RT will open the regulator valve and allow valve to stabilize

6) RT will open the containment isolation valve.

7) .

8) HEU Material Handler will communicate the bump test reading to the RT for the respective CO monitors.

9) RT will record bump test information on Attachment#1.

10) RT will close the containment isolation valve and immediately close the regulator isolation valve.

11) Proceed to the next CO monitor and repeat steps 1 – 9 until remaining bump testing has been completed.

12) If the bump check indicates failure for any of the CO monitors, calibration can be performed on the failed monitor or a new monitor with successful calibration can replace the failed monitor. Operations

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inside the primary containment shall be suspended until functioning monitors are in place.

6.11 CO Monitor Alarm

1)If one or more CO monitors reach ≥ 25 ppm to ≤ 35 ppm, proceed with the following steps:

a. Position the excavator and all other processing equipment inside the primary containment to a safe shut down position.
b. Turn the excavator engine off.
c. Monitor each of the five CO monitors and allow building ventilation to remove excess carbon monoxide build-up.
d. Proceed with routine operations once all CO monitors indicate carbon monoxide levels of ≤ 25 ppm.

2)If one or more CO monitors reach > 35 ppm, proceed with the following steps:

a. Position the excavator and all other processing equipment inside the primary containment to a safe shut down position.
b. Turn the excavator engine off.
c. Safely exit the primary containment.
d. Monitor each of the five CO monitors from outside the primary containment and allow building ventilation to remove excess carbon monoxide build-up.
e. Proceed with routine operations once all CO monitors indicate carbon monoxide levels of ≤ 25 ppm.

3)If CO monitors alarm, HEU Material Handlers shall notify Supervisor or Process Engineer for system inspection.

7.0 DEBRIS ABOVE WET CELL CAP

Debris currently resides above the wet cell cap from previous Building 234 activities. This debris must be removed prior to removal of the wet cell cap. This work scope will be captured in an approved Specific Work Instructions (SWI).

8.0 WET CELL CAP

The wet cell cap consists of fiberglass decking and beams with ethylene propylene diene monomer (EPDM) rubber on top of the decking. This cap and a portion of adjacent concrete must be removed prior to soil excavation. This work scope will be captured in an approved SWI.

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9.0 SOIL EXCAVATION

The total area requiring excavation has been divided into two separate excavation phases. The first phase of excavation consists of the footprint of the wet cell area. The second phase of excavation consists of the footprint of the concrete slab and soil on which the excavator is currently located.

Two different waste classifications will be encountered during operations. These consist of low-level waste (Class A and Class C) and transuranic waste (TRU). Each waste classification has a specific set of requirements that must be met in order to ensure packaging compliance with the respective disposal facility.

9.1 Wet Cell Excavation

Soil processing consists of three phases. The first phase focuses on handling debris that may be present on the top surface of the quadrant selected for excavation. The second phase focuses on soil excavation, sample analysis screening, and absorbent addition. The final phase focuses on the packaging method that will be used and is based on analytical screening results obtained. A soil batch is identified as a batch with approximate dimensions of 11 feet wide by 14 feet long by 1 foot deep.

The first phase of excavation consists of the footprint of the wet cell area. This footprint has been divided into a total of 7 quadrants. The approximate dimensions of each quadrant are 11 feet wide by 14 feet long. Soil will be excavated at approximate 1 foot depth increments, thus comprising a soil processing batch of approximately 154 ft^3.

Each quadrant will be excavated until soil activity concentration reaches Class A (< 10 nCi/g) limits, bedrock refusal is encountered, or the excavator arm has reached full extension. When one of the three criteria listed above is reached for a given quadrant, sampling will be conducted and verified. The quadrant will then be backfilled with a flowable-fill low-strength concrete. Backfill will be addressed in an approved SWI. Sampling will be conducted in accordance with NFS-DC-135.

HEU Material Handlers shall complete Attachment #4 "Use every time check list for packaging CH-TRU Soil and Gravel" for each container of transuranic waste that is packaged. This form will be attached to the respective drum upon packaging.

9.2 Soil Excavation

1) Use the excavator to level the top surface of the adjacent quadrant for soil staging.
2) Use the excavator to excavate a soil batch of approximately 11 feet wide by 14 feet long by 1 foot deep.

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3) Stage the excavated soil batch on the top surface of the adjacent quadrant using the excavator.
4) Add the amount of an approved absorbent specified by Area Process Engineer or Supervision to the excavator bucket.
5) Use the excavator to deliver absorbent to the soil batch.
6) Use the excavator to thoroughly mix the absorbent and soil batch.
7) Collect one grab sample and one duplicate and place in 2 sample jars from the mixed soil batch using the excavator bucket for paint filter testing. Ensure that the bucket is lowered and the hydraulic activation control lever is disengaged prior to the HEU Material Handler approaching the bucket for sample collection.
8) Transport the sample jars from the excavation site to the paint filter test assembly for paint filter testing.
9) Perform paint filter testing in accordance with Attachment #2 of this procedure and document sample number and paint filter test results in a sample log book. Sample nomenclature will be named by the quadrant and the lift depth. For example, when digging in quadrant 2 at a 7 foot depth, the sample identification will be Q2L7-01. The sequence will be increased to Q2L7-02 for a second sample pulled. These results will also be recorded on the Waste Container Packaging Form in accordance with SOP 335-L.
10) If paint filter test results indicate the treated soil batch fails the paint filter test, then repeat Steps 4 through 9 using approximately 50 pounds of additional absorbent until paint filter test results indicate the treated soil batch passes paint filter testing.
11) Prepare one 500 ml poly sample jar with a latex glove to sleeve or other suitable radiological contamination control methods specified by area HP or RT.
12) Collect one sample in accordance with NFS-DC-103, current revision, and place in one 500 mL sample jar from the mixed soil batch using the excavator bucket for non-destructive assay (NDA) analysis.
13) Transport the sample jar from the excavation site to the north personnel airlock door and remove jar sleeving as specified by area HP or RT.
14) Perform decontamination on the 1 sample jar.
15) Sample will require surveys prior to release from the radiologically controlled area and shall be transported to the NDA lab for NDA analysis as specified by area HP or RT.
16) Supervisors will document sample number, batch name, and analytical results in a sample log book.

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17) Sample will require surveys prior to release from the radiologically controlled area and shall be transported to the NDA lab for NDA analysis as specified by area HP or RT.

18) Stage approximately 12 empty stainless steel drums adjacent to the excavator.

19) Fill the bottom of each of the 12 drums with 4 – 8 inches of absorbent using the absorbent transfer bucket as specified by area Process Engineering.

20) Use the excavator to fill each of the 12 drums with the treated soil batch.

> **NOTE:** An aluminum portable hopper is available inside the primary containment to assist loading treated soil into stainless steel drums if needed to minimize spillage. The excavator is equipped with an arm-mounted camera and monitor system, which should be used by the excavator operator to ensure the drum is not over-filled.

21) Ensure that the soil in the drum is approximately level with the top surface of the drum.

NOTE: Do not use hands to level the contents of a 55-gallon drum. Use long handled tools or equivalent for soil leveling purposes.

22) Proceed to Section 9.2.1 for NDA analytical screening results that indicate the treated soil batch is low level waste.

23) Proceed with Section 9.2.2 for NDA analytical screening results that indicate the treated soil batch is 90% or greater of the transuranic limits.

> **NOTE:** The limits listed in 9.2, Steps 21 and 22 can be adjusted by area Process Engineering based on operations experience.

24) Rocks will be processed according to the following:

   a. A jack hammer or other appropriate equipment may be used to reduce rock size.
   b. Rock which are less than 6" in diameter are considered soil and will be processed as such.

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c. Rock over 6" and less than 10" in diameter will be considered debris. The hopper on the Lexan enclosures cannot accept rock greater than 10" in diameter.

NOTE: Do not mix the contents of two different batches into the same stainless steel drum inside the primary containment. Soil remaining in a quantity smaller than a 55-gallon drum shall be mixed with the next batch that is excavated.

9.2.1 Soil Packaging Method for Low Level Waste

1) Use electric pallet jack or forklift in accordance with manufacturer's recommendations to retrieve a T&WM-approved burial box prepared in accordance with Section 6.8 from the burial box staging area.
2) Transport burial box from the staging area to the inside of the north side equipment airlock.
3) Use the air pallet in accordance with the manufacture's recommendations to transfer the burial box from the inside of the equipment airlock to the inside of the primary containment.

NOTE: Herculite or equivalent plastic floor covering should be placed on the metal floor inside the primary containment prior to burial box staging to minimize the potential for radiological contamination on the bottom of the burial box.

4) Shut off the air to the air pallet and let residual air bleed off completely.
5) Remove the air pallet from underneath the burial box and return it to the inside of the equipment airlock.
6) Close the door separating the inside of the primary containment from the inside of the equipment airlock.
7) Use Drum Hauler to transport a stainless steel drum filled with an approved absorbent specified by Area Process Engineer or Supervisor and transport the drum to the empty burial box.
8) Use Drum Hauler to raise the top of the stainless steel drum to approximately 36 inches above the opening of the empty burial box.
9) Use Drum Hauler to rotate the stainless steel drum to transfer the contents from the drum into the burial box. Contents may be leveled using hand tools if needed.
10) Use Drum Hauler to transport a stainless steel drum containing processed soil from the stainless steel drum staging area adjacent to the excavator and transport the drum to the empty burial box.

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a. NOTE: Personnel shall remain 5 feet clear of materials or equipment when lifted above floor level.

11) Use Drum Hauler to raise the stainless steel drum to approximately 36 inches above the opening of the empty burial box.

12) Use Drum Hauler to rotate the stainless steel drum to transfer the contents from the drum into the burial box.

13) Repeat steps 10 through 12 until the burial box is a minimum of 90% full (approximately 4 inches of void space from the top of the box).

14) Use shovels, rakes, or other suitable methods to level the contents inside the burial box after the addition of each drum.

15) Don a clean pair of outer gloves and cut the plastic wrap off of the burial box and place removed plastic inside the burial box.

16) Close the super sack per the manufacturer's instructions.

17) HEU Material Handlers inside the equipment airlock will open the door separating the inside of the primary containment from the inside of the equipment airlock.

18) Transport the air pallet from the equipment airlock to the inside of the primary containment.

19) Position the air pallet underneath the full burial box.

20) Engage compressed air for the air pallet until the air bladders are fully inflated.

21) Transport the full burial box to the inside of the equipment airlock.

22) Close the door separating the inside of the primary containment from the inside of the equipment airlock.

23) Perform lid closure of the full burial box in accordance with Attachment #3.

24) HEU Material Handlers will perform any necessary box decontamination prior or after the box is surveyed.

25) RTs will perform necessary surveys prior to releasing the box for transport outside the equipment airlock.

9.2.2 Soil Packaging Method for Transuranic Waste

1) Ensure that the 55-gallon drum is in place on the drum bagout station in accordance with Section 6.9 of this procedure.

2) Use Drum Hauler to transport a stainless steel drum containing treated soil from the stainless steel drum staging area adjacent to the excavator to one of four drum dumping stations.

3) Stage stainless steel drum on the drum roller conveyor.

4) Use the drum roller conveyor to position the stainless steel drum on the base of the drum dumper.

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5) Secure the yellow drum clamps to the top of the stainless steel drum.

6) Drum dumping operations will be controlled by personnel outside the primary containment in accordance with Section 9.2.3 of this procedure.

> **NOTE:** Personnel inside the primary containment may need to stand on the upper platform behind the fixed handrail during drum dumping operations to use long handled tools to facilitate dumping or inspection of wastes during the transfer.

> **CAUTION:** Operations personnel inside the primary containment shall stand clear of the drum dumpers when the yellow beacons are signaling drum dumping operations. Personnel outside the primary containment shall provide communications to personnel inside the primary containment prior to initiating drum dumping.

7) Operations personnel will remove the empty stainless steel drums from the drum dumpers and stage the empty drums back in the stainless steel drum staging area adjacent to the excavator.

9.2.3 Bag Out Operation

1) Visually verify through the Lexan wall that the yellow drum clamps on the drum dumper are securing the drum inside the primary containment.
2) Push and hold the hand controller for the respective drum dumper to raise the stainless steel drum until the waste contents have been completely transferred. The camera system shall be utilized for verification of transfer.

> **NOTE:** Operations personnel may disengage the hand controller for drum dumping to facilitate inspection of waste as needed in accordance with SOP 335-L.

3) Push and hold the hand controller to lower the empty stainless steel drum after the waste has been transferred.
4) Visually inspect the clean transfer bag and verify the bag integrity was not compromised during waste transfer.
5) Ensure the entire contents of the stainless steel drum were transferred through the use of camera system and/or radio communications.

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NOTE: If the bag integrity has been compromised during waste transfer, stop bag out operations and contact area supervisor. Area supervision will notify radiological safety for further instructions.

6) If the bag integrity was not compromised during waste transfer, lower the top enclosure sashes.
7) Remove the strap securing the excess bag from the drum or the drum port.
8) Rotate the drum on the drum carousel until a "horsetail" with an approximate length of 8 to 10 inches is formed.
9) Ensure that the bag filter is located between the top of the drum and the bottom of the "horsetail ."
10) Place and tighten one ziptie at each end of the "horsetail."
11) Use tape approved by Process Engineer to cover the "horsetail."
12) Prepare two sections of tape or vinyl "dots" to be utilized to cover exposed ends after "horsetail" is cut.
13) Use ratcheting PVC cutter to cut the center of the "horsetail."
14) Place the two previously prepared pieces of tape or vinyl "dots" over the exposed ends.
15) Contact area Radiation Technician to perform survey on the drum, the bag, and the horsetail stub. Additional surveys may be requested by by the area Health Physicist.
16) Decontamination of the drum and/or the lexan enclosure will be performed as directed by area Radiation Technicians based on survey results.
17) Open the drum packaging station door and release the drum cart brake.
18) Transport the drum cart to the outside of the enclosure and close drum packaging station door.
19) Place the lid on the top of the drum and ensure the lid and drum ring are properly seated on the drum.
20) Secure lid with drum ring and bolt.
21) Torque bolt to 55 to 60 ft-lbs and ensure drum ring ends do not contact using tools specified by Area Process Engineer or Supervisor.

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22) Install tamper indicating device.

NOTE: Ensure that steps 18 through 21 are monitored by the camera system in accordance with SOP 335-L where applicable. All requirements of SOP 335-L shall be met during bag-out operations.

23) RTs perform off site shipping survey.

24) Ensure the calibration on the scale is current.

25) Use Drum Hauler to place drum on the scale located inside 234 Excavation Facility and weigh the drum.

26) Record the drum weight on burial certification

27) NuMAC transactions for this container will be performed in accordance with Attachment #5 of this procedure.

28) Use Drum Hauler to stage the drum for future NDA analysis.

10.0 SYSTEM SHUT DOWN

10.1 Communications radios shall be placed on chargers at the end of each shift.
10.2 Drum Haulers shall be staged and connected to their respective charging stations at the end of each shift.
10.3 The excavator shall be placed in a safe shut down with the entrance to the cab facing the west wall of the primary containment at the end of each shift.
10.4 The air compressor shall be turned off at the end of each shift.

11.0 NON ROUTINE OPERATIONS AND PROCESS UPSETS

11.1 Abnormal Operations Responses

Abnormal operations responses will be addressed in NFS-DC-136, "Emergency Preparedness and Adverse Condition Procedure for the 234 Facility."

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ATTACHMENT #1 – CO MONITOR BUMP CHECK DOCUMENTATION FORM

Date	Station Number	Time	Result (Pass/Fail)	Monitor Calibration Date

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ATTACHMENT #2 – EPA PAINT FILTER TEST METHOD

METHOD 9095B
PAINT FILTER LIQUIDS TEST

1.0 SCOPE AND APPLICATION

1.1 This method is used to determine the presence of free liquids in a representative sample of waste.

1.2 The method is used to determine compliance with 40 CFR 264.314 and 265.314.

2.0 SUMMARY OF METHOD

2.1 A predetermined amount of material is placed in a paint filter. If any portion of the material passes through and drops from the filter within the 5-min test period, the material is deemed to contain free liquids.

3.0 INTERFERENCES

3.1 Filter media were observed to separate from the filter cone on exposure to alkaline materials. This development causes no problem if the sample is not disturbed.

3.2 Temperature can affect the test results if the test is performed below the freezing point of any liquid in the sample. Tests must be performed above the freezing point and can, but are not required to, exceed room temperature of 25° C.

4.0 APPARATUS AND MATERIALS

4.1 Conical paint filter -- Mesh number 60 +/- 5% (fine meshed size). Available at local paint stores such as Sherwin-Williams and Glidden.

4.2 Glass funnel -- If the paint filter, with the waste, cannot sustain its weight on the ring stand, then a fluted glass funnel or glass funnel with a mouth large enough to allow at least 1 in. of the filter mesh to protrude should be used to support the filter. The funnel should be fluted or have a large open mouth in order to support the paint filter yet not interfere with the movement, to the graduated cylinder, of the liquid that passes through the filter mesh.

4.3 Ring stand and ring, or tripod.

4.4 Graduated cylinder or beaker -- 100-mL.

5.0 REAGENTS

5.1 None.

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6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

A 100-mL or 100-g representative sample is required for the test. If it is not possible to obtain a sample of 100 mL or 100 g that is sufficiently representative of the waste, the analyst may use larger size samples in multiples of 100 mL or 100 g, i.e., 200, 300, 400 mL or g. However, when larger samples are used, analysts shall divide the sample into 100-mL or 100-g portions and test each portion separately. If any portion contains free liquids, the entire sample is considered to have free liquids. If the sample is measured volumetrically, then it should lack major air spaces or voids.

7.0 PROCEDURE

7.1 Assemble test apparatus as shown in Figure 1.

7.2 Place sample in the filter. A funnel may be used to provide support for the paint filter. If the sample is of such light bulk density that it overflows the filter, then the sides of the filter can be extended upward by taping filter paper to the inside of the filter and above the mesh. Settling the sample into the paint filter may be facilitated by lightly tapping the side of the filter as it is being filled.

7.3 In order to assure uniformity and standardization of the test, material such as sorbent pads or pillows which do not conform to the shape of the paint filter should be cut into small pieces and poured into the filter. Sample size reduction may be accomplished by cutting the sorbent material with scissors, shears, a knife, or other such device so as to preserve as much of the original integrity of the sorbent fabric as possible. Sorbents enclosed in a fabric should be mixed with the resultant fabric pieces. The particles to be tested should be reduced smaller than 1 cm (i.e., should be capable of passing through a 9.5 mm (0.375 inch) standard sieve). Grinding sorbent materials should be avoided as this may destroy the integrity of the sorbent and produce many "fine particles" which would normally not be present.

7.4 For brittle materials larger than 1 cm that do not conform to the filter, light crushing to reduce oversize particles is acceptable if it is not practical to cut the material. Materials such as clay, silica gel, and some polymers may fall into this category.

7.5 Allow sample to drain for 5 min into the graduated cylinder.

7.6 If any portion of the test material collects in the graduated cylinder in the 5-min period, then the material is deemed to contain free liquids for purposes of 40 CFR 264.314 and 265.314.

8.0 QUALITY CONTROL

8.1 Duplicate samples should be analyzed on a routine basis as specified by area Process Engineer.

9.0 METHOD PERFORMANCE

9.1 No data provided.

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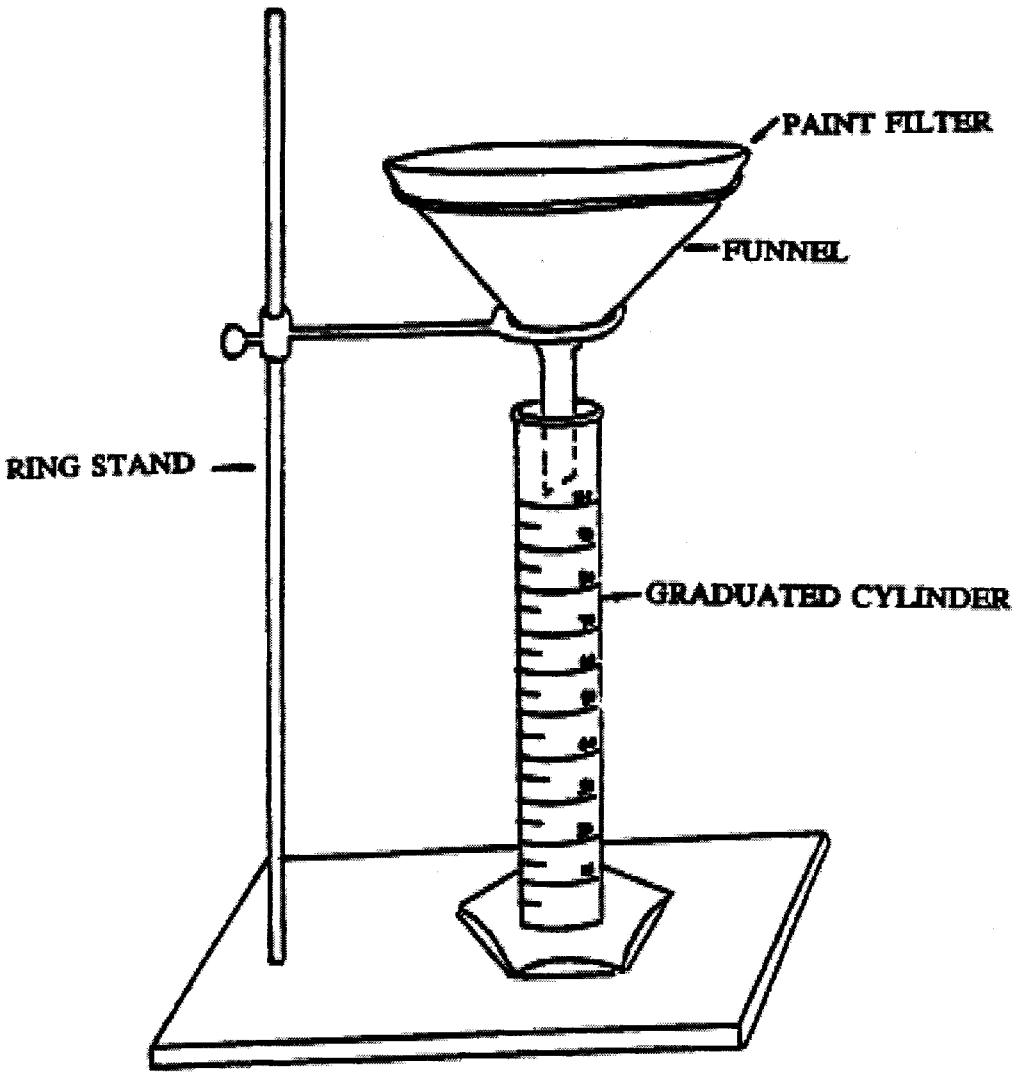
10.0 REFERENCES

10.1 None provided.

FIGURE 1
PAINT FILTER TEST APPARATUS
METHOD 9095B



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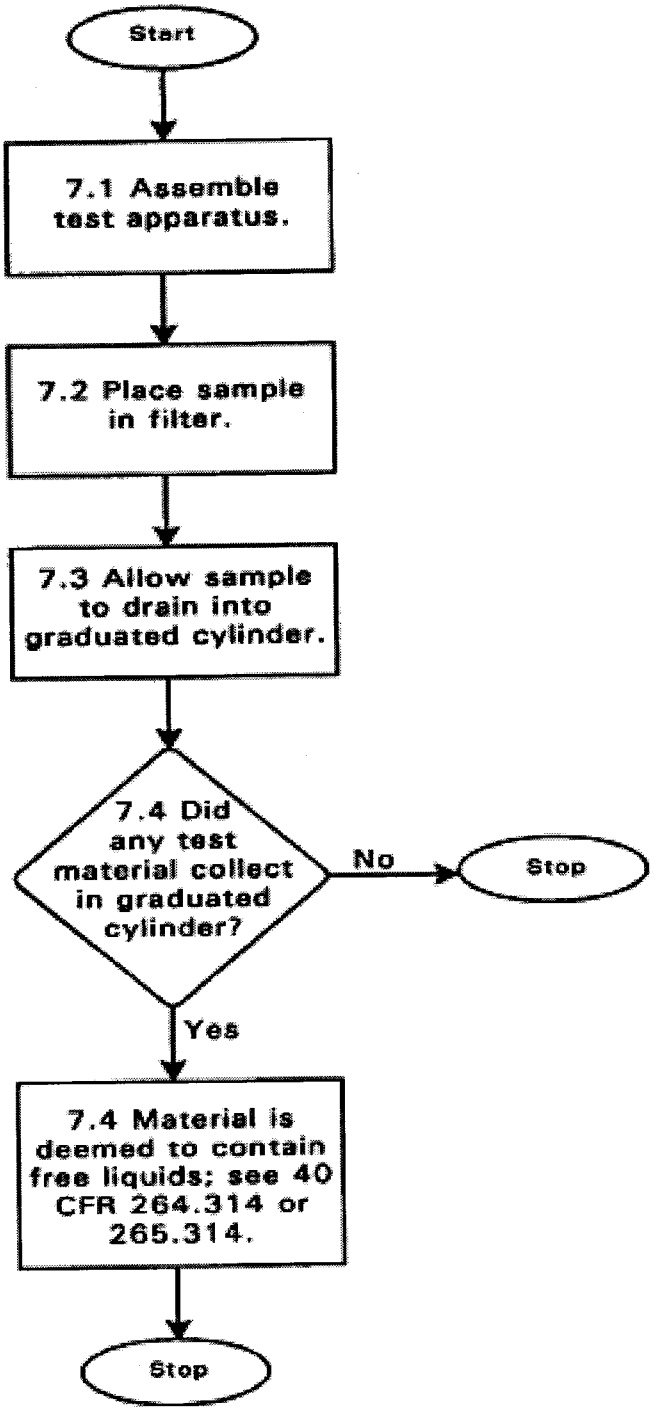
METHOD 9095B
PAINT FILTER LIQUIDS TEST



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ATTACHMENT #3 – BURIAL BOX LID CLOSURE INSTRUCTIONS

1.0 PURPOSE:
The purpose of this attachment is to provide documented instructions for closure of the Blue Burial Boxes per manufacturer's instructions.

2.0 INSTRUCTIONS:
The HEU material handlers will perform the closure of the Blue Burial Boxes.

CAUTION: Be alert to all pinch points while performing this process. Never place part of your body beneath suspended load.

2.1 Prepare Blue Burial Boxes by:

2.1.1 Verify the lid gasket is firmly sealed to the bottom of the lid and has not been damaged or dislocated. If gasket is not installed, contact T&WM Specialist prior to box use.

2.1.2 Verify gasket seating area on the rim of the box is clean and free of debris.

2.1.3 Place lid on Burial Box.

2.2 Install bolts and washers as follows:

2.2.1 If the nut is serrated, place bolt with single flat washer through container and lid followed by another flat washer and serrated nut.

2.2.2 If the nut is non-serrated, place bolt with single flat washer through container and lid followed by another flat washer and lock washer then the non-serrated nut.

2.3 Tighten each bolt until snug.

2.4 Torque each bolt using a calibrated torque wrench per the sequence pattern shown in Figure I to 15 ft. lbs.

2.5 Re-torque each bolt using a calibrated torque wrench to 30 ft. lbs. Figure I sequence is not required.

2.6 Gasket compression is now complete.

2.7 After container card is printed write the following in the "Remarks" section: **"Lid torqued to 30 ft. lbs." Then initial and date.** Only one person's initials are required.

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ATTACHMENT #3 – BURIAL BOX LID CLOSURE INSTRUCTIONS
FIGURE I

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ATTACHMENT #4 - USE EVERY TIME CHECK LIST FOR PACKAGING CH-TRU SOIL AND GRAVEL

1) Ensure video recording was performed by T&WM representative on all 55-gallon drum loading with an audio narration per Section 22 of SOP-335-L. ☐ Yes ☐ No
2) Document a written record of waste packaging on the WCPF, WBIF, and RPCR, place in a 1-gallon liner and attach to top of drum. Provide T&WM Specialist with the original attachments. ☐ Yes ☐ No
3) Package TRU waste into a 55-gallon drum using as few closed plastic bag layers as possible, but no more than two closed plastic bag layers. ☐ Yes ☐ No
4) Ensure that the outer bag consists of a WIPP approved filter bag. ☐ Yes ☐ No
5) If inner bags are used, please obtain approval from the T&WM Specialist and ensure the inner bag is either vented or open. ☐ Yes ☐ No
6) Each bag, if closed, shall be closed by the twist-and-tape method (horse-tail) and equipped with a filter per DOE Memo, "Contact-Handled Transuranic Waste Packaging Instructions "Rev. 0 final 9-30-08[1], Section 7.1. ☐ Yes ☐ No
7) Waste packages shall be loaded to ensure that the interior volume is as efficiently loaded as practical to minimize void space. ☐ Yes ☐ No
8) Document the unique container identification number on the WCPF and RPCR. ☐ Yes ☐ No
9) Document on the WCPF and RPCR a description of each item of waste placed into the receiving container including estimated weight percent composition of each waste constituents: ☐ Yes ☐ No
10) When waste is treated (i.e. absorbent added) for any reason prior to packaging, document the waste form, treatment method, absorbent used, solidification agent, and product name and manufacturer of all materials added on the WCPF and the RPCR: ☐ Yes ☐ No ☐N/A
11) Ensure the WCPF has been completed per the instructions in Section 32 of SOP-335-L. ☐ Yes ☐ No
12) Complete the RPCR per the instructions in SOP 335 A. ☐ Yes ☐ No
13) Prior to packaging, determine that each batch of Soil and Gravel does not contain free liquid using EPA Publication SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Method 9095B (Paint Filter Liquids Test). ☐ Yes ☐ No
14) When liquid is determined to be present, add approved absorbent in a quantity sufficient to absorb all liquid. ☐ Yes ☐ No ☐N/A
15) Following mixing with absorbent and prior to packaging, determine that the batch of waste no longer contains free liquid by repeating the Method 9095B Paint Filter Liquids Test. ☐ Yes ☐ No ☐N/A
16) If liquid is determined to be present, add additional approved absorbent until the Soil and Gravel is determined not to contain free liquid using the Method 9095B Paint Filter Liquids Test. ☐ Yes ☐ No ☐N/A
17) Document the result of the Method 9095B Paint Filter Liquids Test performed on the WCPF and RPCR. ☐ Yes ☐ No

---

Packer Date Packer Date Supervisor Date

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ATTACHMENT #5 – NuMAC TRANSACTION

Perform a "Remove Material From Process" and "Apply a Seal" transaction in NUMAC. Use the following process information:

Process Group:	Facility Decommission/Cleanup
Process:	Pu Decommissioning/Cleanup
Process Step:	Pu Decommissioning/Cleanup
I/O Stream:	I/O Stream-Pu Soil/Gravel or Debris
	I/O Stream-Pu Homogenous Solids
	I/O Stream-Pu PPE
	I/O Stream-Pu D&D Organics (oils, coolants, etc.)

I/O Stream	**Batch Mask**
I/O Stream-Pu Soil/Gravel or Debris	QUAD-##-##
I/O Stream-Pu Homogenous Solids	QUAD-##
I/O Stream-Pu PPE	Julian date
I/O Stream-Pu D&D Organics	Julian date

Material Descriptions

Pu Debris Drum
Pu Soil & Gravel Drum
Pu Homogenous Solids Drum
Pu Debris Box
Pu Soil & Gravel Box
Pu Organics Drum

Note: Quadrant identification will be handled by quadrant number and lift depth. For example, soil removed from quadrant 2 at 4 foot depth will be shown as QUAD-02-04.

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Name: _____

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TITLE:

OPERATING PROCEDURE FOR SOIL EXCAVATION, PROCESSING AND PACKAGING FOR THE 234 EXCAVATION FACILITY

This document may not be copied without approval of the:

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CROSS REFERENCE

Prepared by:

Review Date:

CONTROLLING DEPT.
Decommissioning

APPROVAL:

DECOMMISSIONING MANAGER — 8/24/2010

T&WM MANAGER — for BAM 8/19/10

PROJECT ENGINEERING MANAGER — for JFK 8/23/10

MATERIALS MANAGER — 8-23-10

FUEL PRODUCTION DIRECTOR — 8/24/10

SECURITY DIRECTOR — 8-20-10

LICENSING & COMPLIANCE DIRECTOR / SSRC CHAIRMAN — 8/18/10

SAFETY DIRECTOR — 8/18/10

WASTE PROGRAMS MANAGER — for 8/19/10

REVISION #
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RECORD OF REVISIONS

Revision No.	Change Section	Description
	N/A	This is a new procedure
1	Title	Deleted "Treatment" and inserted "Processing"
1	1.0	Deleted "System mock-up testing will be performed with non-radiologically contaminated soil . . . . . Red line changes will be tracked using Attachment #6 of this procedure and must be approved by the responsible Senior Project Manager and Industrial Safety representative."
1	3.2.6	3) Deleted "site", inserted "facility" b) and d) Deleted "site", inserted "facility"
1	3.2.7	2) Deleted "excavation", inserted "ground water from the excavation"
1	4.0, 4.2 and 4.18	Added "transuranic isotopes"
1	4.39	Deleted "Waste Pocket - "Debris or hazardous . . . . . covered over with soil."
1	6.1	Inserted "has sufficient charge to operate during the shift"
1	6.3	Added "Perform a visual inspection on all airline connections and whip checks to ensure they are in place". Renumbered remaining steps.
1	6.8	4) Inserted "if needed".
1	6.9	1) Revised to read, "Obtain a T&WM approved and inspected empty 7 A 55-gallon drum. . . . . .bolt, and container filter vent and transfer into the 234 Excavation Facility." 7) Inserted "4 - 8 inches of absorbent as specified by Process Engineer"
1	6.10	9) Changed to read, "Place excess bag around the outside diameter of the empty drum or to the top of the drum port and secure using an elastic band, Velcro strap or Process Engineer approved equivalent."
1	6.11	5) Changed to read, " RT will open the regulator valve and allow valve to stabilize." 6) Changed to read, "RT will open the containment isolation valve" 7) & 8) (Formatting – Renumbered) 9) Changed to read, "RT will close the containment isolation valve and immediately close the regulator isolation valve." 11) Inserted "Operations inside the primary containment shall be suspended until functioning monitors are in place."
1	6.12	1) Changed ≥ 35 ppm to 25 ppm Changed≤ 50 ppm to 35 ppm 2) Changed >50 ppm to 35 ppm

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Revision No.	Change Section	Description
1	9.1	Second paragraph, deleted "treatment" and inserted "processing"
1	9.2	7) Inserted "bucket is lowered and the hydraulic " 9) Inserted "Sample nomenclature will be named by the quadrant and the lift depth. For example, when digging in quadrant 2 at a 7 foot depth, the sample identification will be Q2L7-01. The sequence will be increased to Q2L7-02 for a second sample pulled." 16) Inserted "batch name". (21) Inserted, "NOTE: Do not use hands to level the contents of a 55-gallon drum. Use long handled tools or equivalent for soil leveling purposes."
1	9.2.1	1) Inserted "or forklift", deleted "an empty" and inserted "a" and inserted "prepared in accordance with Section 6.8" 7) Deleted "approximately half full" 8) Changed "24 to 36" 10) Deleted "treated" and inserted "processed" 11) Changed "24 to 36" 13) Changed 8% to 9% and 9 inches to 4 18) Changed to read, "Transport the air pallet from the equipment airlock to the inside of the primary containment". 20) Changed to read, "Engage compressed air for the air pallet until the air bladders are fully inflated". Added: 25) HEU Material Handlers . . . . . after the box is surveyed 26) RT's will perform necessary . . . . . outside the equipment airlock.
1	9.2.2	CAUTION: Inserted 'Personnel outside the primary containment shall provide communications to personnel inside the primary containment prior to initiating drum dumping."
1	9.2.3	2) Deleted "may" and inserted "shall" 7) Inserted "or the drum port" 14) Inserted "or vinyl "dots" 15) Deleted "necessary" and added "on the drum, the bag, and the horsetail stub. Additional surveys may be requested by . . . . ." 23) Deleted and inserted "RT's perform off site shipping survey" Moved 28) to 24) and renumbered others
1	Attachment #6	Deleted
1	Attachment #3	Revised
1	Attachment #4	Revised

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COMMITMENT LOG

Revision Number	Section containing Commitment	Commitment (include PIRCS reference)
N/A	This is a new procedure	
1	Incorporate lessons learned and red-line changes from system mock-up testing prior to start-up of operations.	

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1.0 PURPOSE

This procedure provides the instructions to safely excavate, process, and package transuranic (TRU) waste in compliance with the Contact-Handled Transuranic Waste Packaging Instructions and low-level waste (LLW) in compliance with the Nevada Test Site (NTS) waste acceptance criteria (WAC).

2.0 SCOPE

This procedure covers excavation of soil, absorbent addition, soil testing, soil transport, and final packaging of excavated soil from the 234 Excavation Facility. Standby and shutdown conditions, non-routine processing and operations are also provided. Letters Of Authorization (L.O.A.s) or Specific Work Instructions (SWIs) may be written to supplement this Standard Operating Procedure (SOP) and to address any situation not covered within this document. The SOP will not require a revision for LOAs and SWIs. Sign-off of LOAs will consist of the same approval level as this SOP and SWIs must be approved by the Nuclear Safety Engineer, Process Engineer, Senior Project Manager, and Health Physicist.

3.0 GENERAL INFORMATION

3.1 Safety Related Equipment

There is no Safety Related Equipment (SRE) associated with the 234 Excavation Facility.

3.2 Safety Hazards and Precautions

3.2.1 Industrial Safety

General Information

1) All injuries must be reported in accordance with NFS-GH-04.
2) HEU Material Handlers will check equipment and tools prior to their use.

    a. Only equipment with properly operating controls and safety devices shall be used in accordance with NFS-GH-37 (PIT procedure and inspections).

    b. The manufacturer's safety devices on the equipment must be present, not altered, and in good working order when in use.
3) A Hot Work Permit is required in accordance with NFS-GH-25 for all welding, spark producing activities or in the presence of open flames.
4) Combustibles will be minimized in accordance with NFS-GH-62.
5) Hand and power tools will be used in accordance with NFS-GH-67.

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6) Ladders will be used in accordance with NFS-GH-05.

7) Employees working in confined spaces shall be trained and shall perform the work in accordance with NFS-GH-30.

3.2.2 Personal Protective Equipment (PPE) shall be used in accordance with NFS-GH-19 and will be worn as described in the following sections.

1) Safety toe shoes shall be worn in controlled areas at all times and when performing all work in accordance with NFS-OS-001.

2) Hearing protection shall be worn for high noise activities such as jack hammering or shearing. The headsets used for radio communication can also be used for hearing protection.

NOTE: Safety Work Permits (SWPs) may require additional protective clothing.

3) HEU Material Handlers loading debris by hand will wear cut-resistant gloves or equivalent.

4) Personnel will properly dispose of used PPE and practice good housekeeping in accordance with NFS-OS-001, maintaining the step off pad free of all obstacles and allowing for unimpeded emergency egress of personnel.

3.2.3 Vehicle and Equipment Use

1) Training and Inspection shall be conducted in accordance with NFS-GH-37.

2) Vehicle Operations

a. All decommissioning personnel who operate vehicles or equipment will follow all manufacturer operations manual instructions.

b. Spotters will be used during use of the excavator, Drum Hauler, electric and air pallets, when the view of the HEU Material Handler is impaired, or at the discretion of the supervisor. Pay attention to the following:

- Buildings and power lines
- Primary containment wall boundaries
- Low clearances
- Pedestrians
- Excavation edges
- All other hazards associated with vehicle/heavy equipment movement.

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3) HEU Material Handlers shall operate vehicle and heavy equipment in accordance with NFS-GH-37.
4) The company speed limit is 9 miles per hour. Adhere to the posted speed limits. Situations can occur (carrying heavy loads, creating excessive dust, operating in areas of pedestrians) which may require a slower rate of speed.
5) All accidents and near misses must be reported to Decommissioning Supervisor, Decommissioning Manager, Industrial Safety, the Plant Superintendant, and to the Security Operations Supervisor (SOS) and in accordance with NFS-GH-04.

3.2.4 Excavation and Trenching

1) All excavation activities shall be performed in accordance with NFS-GH-59.
2) A competent person for excavation, trenching and shoring will be present during excavation activities. His/her duties shall be performed in accordance with OSHA requirements for this work.
3) Underground work permits shall be obtained prior to initial excavation activities in accordance with SOP 392. A copy of this permit will be posted in the Supervisors office or in the work area.
4) Employees shall not walk between the safety railing and the excavation.

3.2.5 Chemical Safety, Storage, Disposal and Use

1) All chemicals shall be stored in approved cabinets when not in use.
2) Flammable chemicals must be stored in flammable storage cabinets when not in use.
3) All chemical containers must be labeled in accordance with NFS-GH-68.
4) Wear the appropriate PPE before using and handling chemicals.
5) Eyewash stations are available inside the 234 Excavation Facility if needed.
6) Follow the precautions in the Material Safety Data Sheets (MSDSs) located in 234 Excavation Facility for handling solutions and chemicals within the 234 Excavation Facility.
7) A face shield with safety glasses or goggles, apron and gloves are worn as directed by Industrial Safety when handling corrosive chemicals outside of containment.

   NOTE: If no sleeves are attached to the chemical resistant apron, sleeve protectors are additionally required.

8) Collection and disposal of used oil, fuels, antifreeze, and other liquids must be handled in the following manner:

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a) Used oil collected from equipment oil changes, pumps or equipment will be placed in a 55-gallon closed head (bung hole) drum and labeled as "Used Oil."

b) Use separate containers for used antifreeze, fuels and all other liquids. Antifreeze, water or any other liquid must not be mixed with waste oil.

c) The name of the contents and appropriate warning labels shall be identified on the container.

d) Lock the lid opening or place drum in a secured location to control the contents being added to the container. Initial and record the date in the Waste Oil Log (See SOP 335, Sec. G).

e) When the drum or container is full, complete the Request for Waste Determination in accordance with NFS-GH-38 and submit it to Environmental Safety. Further handling and sampling will be provided by Environmental Safety.

f) The drums or containers will be held for off-site recycling or disposal at the direction of Environmental Safety and Transportation & Waste Management (T&WM).

g) Lids and/or bung openings on containers must always be tightly secured unless adding contents to a container.

3.2.6 Miscellaneous Safety Items

1) Tools, ladders, safety equipment, extension cords, etc. must be stored in appropriate areas. These items will not be left in walking areas where they can become tripping hazards.

2) Material Handling and lifting activities will include the following:

   a) Wear protective gloves.

   b) Use lifting equipment for the purpose it was designed.

   c) Use proper lifting techniques for manual lifting (such as keeping your back straight and lifting with your legs).

   d) Use equipment to lift when possible.

   e) Check travel path of moved load prior to moving the load.

   f) Secure loads by using tie-down straps when using a forklift.

3) Through training and pre-job briefings, personnel will familiarize themselves with the physical characteristics of the facility including:

   a) Emergency equipment.

   b) The nearest emergency and facility area access and egress.

   c) Access to co-workers, equipment and vehicles.

   d) Communications equipment at the facility.

   e) Areas of known or suspected contamination.

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3.2.7 Environmental Safety

1) Potentially hazardous waste shall be managed in accordance with NFS-GH-38.
2) All spills of oil, chemicals, ground water from the excavation, and radioactive material must be reported to the Decommissioning Manager and Environmental Safety immediately in accordance with NFS-GH-35 and/or NFS-HS-E-05.
3) Wet down or use fixatives for dry soils in controlled areas when necessary to prevent airborne contamination from spreading into clean areas as directed by the Supervisor. The work area shall be maintained such that dust is kept to a minimum.

3.2.8 Supervisors shall conduct a pre-job briefing with the HEU Material Handlers prior to conducting daily operations.

3.2.9 Radios shall be used to facilitate communication for workers inside the excavator or primary containment and support staff outside the primary containment.

1) Radios shall be placed on the charger at the end of each shift.
2) Batteries inside the headset shall be changed a minimum of once a quarter to ensure proper headset functionality.
3) Radio checks shall be performed prior to entry to ensure proper functionality.
4) Batteries shall be placed in a labeled "Universal Waste Used Batteries." Non-contaminated batteries shall not be disposed of in common trash containers or as radiologically contaminated waste. Non-contaminated batteries will be collected in accordance with SOP 335 G, current revision. When the container is full, complete a Request for Waste Determination form in accordance with NFS-GH-38 and submit it to Environmental Safety.

3.2.10 Safety glasses or goggles and safety shoes shall be worn at all times during waste packaging unless instructed otherwise by area Health Physics or Radiation Technicians. All operations personnel shall wear work gloves when handling materials or equipment.

3.2.11 Survey release limits for plutonium are 20 dpm/100 cm^2 smearable and 100 dpm/100 cm^2 for direct.

3.3 Nuclear Criticality Safety Requirements

Nuclear Criticality Safety (NCS) Analyses are addressed in the memo titled "Nuclear Safety Controls on Operations in Building 234." The only NCS requirement is to report all fissile loadings to Nuclear Criticality Safety.

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3.4 Supplemental

3.4.1 General Overview of PU Soil Excavation

The PU soil excavation process includes the excavation of soil, addition and mixing of absorbent material, transport of soil within the primary containment, and final packaging of processed soil in the 234 Excavation Facility. Soil will be excavated using the Komatsu excavator and staged adjacent to the dig site. The soil batch will be mixed with absorbent to dry the soil. The mixed soil batch will then be transported inside the primary containment for final packaging in either a burial box or a 55-gallon drum, depending on analytical results of the soil batch. Groundwater will be addressed and processed in accordance with NFS-DC-130. In the event that a breach of containment, to include small holes in walls, is discovered, HEU Material Handlers shall notify area Supervisor and HP for further guidance.

It is imperative to maintain a clean working environment. All areas need to be kept free of debris, trash, and dust on a daily basis in accordance with NFS-OPS-001 Conduct of Operations.

3.4.2 Sampling, Analysis, and Protocols

Sampling will be conducted in accordance with NFS-DC-135, Building 234 Soil, Groundwater, and Groundwater Sludge Sampling and Analysis Plan.

3.4.3 Packaging of Contaminated Trash

Trash will be collected inside one of two trash collection bins located inside the personnel airlock on the north side of the primary containment. The bags of trash will be removed and double-bagged prior to disposal inside a burial box. The bags of trash shall not be compressed without approval from area HP to remove excess air and void space due to radiological airborne issues. The burial box will be radiologically characterized prior to shipment to NTS. HEU Material Handlers shall minimize the generation of waste as much as possible and shall not take unnecessary equipment inside the primary containment until the equipment is needed.

4.0 DEFINITIONS

4.1 Class A Waste – Waste classified as having < 10 nCi/g transuranic isotopes

4.2 Class C Waste – Waste classified as having 10 to < 100 nCi/g transuranic isotopes

4.3 Competent Person – The person responsible for determining the safety requirements for trench and excavation work to maintain compliance with 29 CFR 1926, Subpart P as described in NFS-GH-59. This person must be capable of identifying the hazards that are present and take action to diminish them.

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4.4 Controlled Area – A site area where uncontained radioactive material is present, such that contamination levels are likely to be encountered in excess of acceptable levels for unrestricted use.

4.5 Debris - Man made items such as long handled tools, used personal protective equipment, ladders, air hose, and other items encountered during excavation that is packaged and loaded in greater than 50% of the burial box or 55-gallon drum volume.

4.6 Decontamination - The act of removing radioactive materials (contamination) from the surface of an object to an acceptable level.

4.7 Emergency – An unplanned event characterized by sufficient risk to require immediate action to avoid or mitigate an abruptly deteriorating situation.

4.8 Enrichment – The %, by weight, of U-235 in uranium.

4.9 Excavation - Any man made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

4.10 Fire Watch – Employee who watches for fires and fire hazards in areas where hot work is being performed. This employee must be fire extinguisher trained.

4.11 Hazardous Waste – Any material (solid, liquid or gas) that can potentially cause serious harm to employees or the environment if it is not properly used, stored, transported or managed.

4.12 HEU - High Enriched Uranium.

4.13 HP - Health Physicist.

4.14 IDLH – Immediately Dangerous to Life and Health.

4.15 Intermodal Container - A 19-23 cubic yard metal container (approximately 7 ft. wide x 18 ft. long x 5 ft. high) designed to be moved on a trailer chassis or railcar.

4.16 Letter of Authorization (LOA) – A written document that authorizes temporary additional instructions or minor changes to a procedure and contains all actions required for the changes.

4.17 LEU - Low Enriched Uranium.

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4.18 LLW – Low Level Waste, classified as having < 100 nCi/g transuranic isotopes, which can be either Class A or Class C waste depending on the concentration.

4.19 NDA - Non Destructive Assay - Analyzing for radionuclides by detecting the gamma rays emitted from the material.

4.20 NTS – Nevada Test Site.

4.21 NTS-WAC – Nevada Test Site Waste Acceptance Criteria.

4.22 NUMAC – Nuclear Material Accounting and Control.

4.23 PAPR – A powered air purifying respirator.

4.24 PIRCS - Problem Identification, Resolution and Correction System. A computer program designed to document and track various safety issues and corrective actions taken to resolve them.

4.25 PPE – Personal Protective Equipment.

4.26 Pu – Plutonium.

4.27 Restricted area – The area of the site encompassed by a physical barrier, such as a chain link fence or yellow line to which access is generally controlled.

4.28 RT – Radiation Technician.

4.29 Safety Work Permit (SWP) – A permit designed to provide guidance on performing work that is not routine. The permit protects workers from hazards by addressing radiological and industrial safety issues.

4.30 SNM - Special Nuclear Material.

4.31 Soil Batch – Soil removed from an approximate one-foot lift from one quadrant.

4.32 Special Work Instruction (SWI) – A procedural document used to identify step-by-step actions or requirements, including sketches, drawings and data documentation and reporting, to control and guide actual work.

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4.33 Super Sack - A woven polypropylene bag used to contain soil, waste and/or debris. Typical size is 48" x 48" x 72" and containing approximately 90 cubic feet of material.

4.34 TCLP - Toxicity Characteristics Leaching Procedure. An analysis used to determine if a waste is characteristically hazardous.

4.35 TRU – Transuranic Waste classified as having ≥ 100 nCi/g.

4.36 Utility – Any water, sewer, electrical, or communication line.

4.37 VAGAS – Versatile Automated Gamma Assay System. A special group of detectors set up to measure the radiological characteristics of a container for shipping purposes.

4.38 Waste Materials - Bulk discarded material other than soil or debris uncovered during excavation.

4.39 WIPP – Waste Isolation Pilot Plant.

4.40 WWTF - Waste Water Treatment Facility.

5.0 RESPONSIBILITIES

All personnel are responsible for adhering to the requirements of this and all procedures that apply to work performed within the scope of this SOP.

A Health Physicist is a specially trained person, who is responsible for radiological data interpretation, and generation of SWPs.

NDA Personnel are responsible for providing radiological data on environmental samples.

Process Engineering are responsible for reviewing run sheets, maintaining area processes, and resolving technical issues.

Senior Project Managers are accountable for overall project implementation, including project schedule and budget.

Transportation and Waste Management Personnel are responsible for preparing the shipping papers and tracking the shipments. Audio/video packaging requirements will be captured in accordance with SOP 335-L.

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HEU Material Handlers sample, excavate, monitor and package all waste materials and debris and are responsible for adhering to all procedures, SWPs and work instructions.

Decommissioning Operations Specialist is responsible for preparation of work requests, ordering of supplies, and resolution of issues to facilitate operations.

Decommissioning Operations Manager is responsible for all operations activities, the Daily Stand-Up meeting, and Daily Ops Briefing if work occurs on multiple shifts.

Decommissioning Supervisors are responsible for all HEU Material Handler activities performed in the Decommissioning Group. They are responsible for compliance of SWP work. They shall maintain a logbook and document the following as needed:

- All work (soil condition, absorbent added or needed, soil batches excavated, waste containers loaded, staged, moved, water pumped, areas excavated, etc.)
- HuP implementation
- All SWP work initiated and terminated
- SWP pre-job briefings
- Employee safety concerns
- All accidents and injuries
- All unusual events
- Shift staffing including absences
- RT shift coverage and shortages

Radiation Technicians (RT) are responsible for performing release surveys and shipping surveys, as well as all regulatory required routine surveys and specific job coverage surveys.

The Environmental Specialist, Scientist or designee oversees sampling and environmental aspects of excavation. The Environmental Specialist also specifies which attributes shall be analyzed for waste verification.

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6.0 SYSTEM PREPARATION

6.1 Disconnect Drum Haulers from respective charging stations and ensure the battery has sufficient charge to operate during the shift as indicated by the green indicator light.

6.2 Ensure the air compressor is turned on prior to using the air pallet by checking the display on the south side of the compressor.

6.3 Perform a visual inspection on all airline connections and whip checks to ensure they are in place.

6.4 Disconnect electric pallet jack from the charging station prior to use.

6.5 Ensure placement of herculite or other Health Physics approved floor covering is secured with tape in drum loading areas and north equipment airlock prior to conducting airlock operations.

6.6 Replace or re-tape floor coverings that are damaged or show excessive signs of wear.

6.7 Soil sampling and associated analysis is addressed in the Building 234 Soil, Groundwater, and Groundwater Sludge Sampling and Analysis Plan. NFS-approved SWIs will be used to provide specific instructions for sample collection and handling.

6.8 Burial Box Preparation

1) Transport an empty burial box inspected and approved by Transportation and Waste Management with lid attached inside the 234 Excavation Facility.

NOTE: Ensure the lid is secured on the empty burial box prior to transport outside during rain or snow to prevent water collection inside the box.

2) Remove the lid from the empty burial box.

CAUTION: The lid weighs approximately 200 pounds. Use proper lifting techniques when removing the lid.

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3) Raise the height of the burial box using the electric pallet jack.
4) Install the burial box i-beam extensions by sliding the extensions over the ends of the outer i-beams if needed.

CAUTION: Do not place any part of the body underneath the i-beams on the bottom of the burial box during installation.

5) Lower the height of the burial box until the box is stationary on the ground.
6) Place a super sack inside the empty burial box and remove excess void space between the sack and the burial box.
7) Place super sack flaps on the outside of the burial box and ensure hoisting straps are accessible.
8) Wrap the exterior of the burial box, including super sack flaps, with plastic wrap.

6.9 Drum Preparation

1) Obtain a T&WM-approved and inspected empty 7 A 55-gallon drum, which is indicated by two labels "Container Approved for NTS Disposal" and "Container Approved for WIPP Disposal, " with lid, drum ring, bolt, and container filter vent and transfer into the 234 Excavation Facility.

NOTE: Ensure the lid is placed on the empty drum prior to transport outside during rain or snow to prevent water collection inside the drum.

2) Remove the lid from the empty 55-gallon drum if present.
3) Obtain a clean transfer bag equipped with a filter and rigid 90-mil liner and transfer into the 234 Excavation Facility.
4) Place a clean transfer bag inside the empty 55-gallon drum and remove excess void space between the bag and the drum.
5) Position excess clean transfer bag on the outside of the empty 55-gallon drum. Excess bag should cover the entire outside of the empty 55-gallon drum at a minimum.
6) When loading soil and gravel, place the rigid 90-mil liner inside the 55-gallon drum such that the clean transfer bag resides between the empty 55-gallon drum and the 90-mil liner. Do not use a rigid 90-mil

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liner when packaging or repackaging debris.

NOTE: Area Process Engineering may approve placement of the 90-mil liner inside the clean transfer bag followed by placement of the bagged 90-mil liner into the 55-gallon drum in lieu of Steps 4 through 6.

7) Determine the tare weight of the configured 55-gallon drum to include the 90-mil liner, clean transfer bag, 4 – 8 inches of absorbent as specified by Process Engineer, lid, ring, and bolt. This step is only required once and only needs to be conducted again if the drum configuration changes.

NOTE: Ensure that Steps 2 through 6 are monitored by the camera system in accordance with SOP 335-L where applicable.

6.10 Bag Out Preparation

1) Place the assembled 55-gallon drum on the drum cart carousel.

NOTE: Inspect drum cart and carousel prior to use to ensure proper functionality.

2) Position the drum cart inside the drum packaging station specified by supervision and engage the cart brake.

NOTE: Handheld barcode scanners may be utilized to capture bar codes on video recording prior to placement of the drum cart inside the drum packaging station as applicable in SOP 335 L.

NOTE: The drum cart may be raised during waste loading if specified by area Process Engineer.

3) Close the drum packaging station door and lower the top enclosure sashes to the lowest position.
4) If present, position the existing elastic band, Velcro strap, or Process Engineer approved equivalent off of the existing bag stub from the previous drum bag out.

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5) Lower the existing bag stub from above the top bagging ring to a position in between the upper and lower bagging rings.
6) Position the new clean transfer bag above the top bagging ring such that the new bag completely encloses the old bag stub.
7) Position the elastic band, Velcro strap, or Process Engineer approved equivalent off of the drum port in between the bungee cord of the clean transfer bag and the top bagging ring.
8) Use the excess of the clean transfer bag to grab the bottom of the existing bag stub, and pull the stub off of the drum port into the bottom of the empty drum.
9) Place excess bag around the outside diameter of the empty drum or to the top of the drum port and secure using an elastic band, Velcro strap, or Process Engineer approved equivalent.
10) Raise the top enclosure sashes and secure in the closed position.
11) Visually ensure that all openings to the enclosure are closed and secure and bag integrity is maintained.

6.11 CO Monitor Bump Test

1) The RT, with assistance from the HEU Material handler, will inspect CO monitor and remove any debris or dirt present on the bump test cup.
2) HEU Material Handler will affix the bump test cup to the CO monitor sensor inside the primary containment.
3) RT will partially open the regulator and attach the regulator to the bump test gas bottle.
4) RT will attach the tubing to test fitting and open the isolation valve.
5) RT will open the regulator valve and allow valve to stabilize
6) RT will open the containment isolation valve.
7) .
8) HEU Material Handler will communicate the bump test reading to the RT for the respective CO monitors.
9) RT will record bump test information on Attachment#1.
10) RT will close the containment isolation valve and immediately close the regulator isolation valve.
11) Proceed to the next CO monitor and repeat steps 1 – 9 until remaining bump testing has been completed.
12) If the bump check indicates failure for any of the CO monitors, calibration can be performed on the failed monitor or a new monitor with successful calibration can replace the failed monitor. Operations

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inside the primary containment shall be suspended until functioning monitors are in place.

6.11 CO Monitor Alarm

1)If one or more CO monitors reach ≥ 25 ppm to ≤ 35 ppm, proceed with the following steps:

a. Position the excavator and all other processing equipment inside the primary containment to a safe shut down position.

b. Turn the excavator engine off.

c. Monitor each of the five CO monitors and allow building ventilation to remove excess carbon monoxide build-up.

d. Proceed with routine operations once all CO monitors indicate carbon monoxide levels of ≤ 25 ppm.

2)If one or more CO monitors reach > 35 ppm, proceed with the following steps:

a. Position the excavator and all other processing equipment inside the primary containment to a safe shut down position.

b. Turn the excavator engine off.

c. Safely exit the primary containment.

d. Monitor each of the five CO monitors from outside the primary containment and allow building ventilation to remove excess carbon monoxide build-up.

e. Proceed with routine operations once all CO monitors indicate carbon monoxide levels of ≤ 25 ppm.

3)If CO monitors alarm, HEU Material Handlers shall notify Supervisor or Process Engineer for system inspection.

7.0 DEBRIS ABOVE WET CELL CAP

Debris currently resides above the wet cell cap from previous Building 234 activities. This debris must be removed prior to removal of the wet cell cap. This work scope will be captured in an approved Specific Work Instructions (SWI).

8.0 WET CELL CAP

The wet cell cap consists of fiberglass decking and beams with ethylene propylene diene monomer (EPDM) rubber on top of the decking. This cap and a portion of adjacent concrete must be removed prior to soil excavation. This work scope will be captured in an approved SWI.

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9.0 SOIL EXCAVATION

The total area requiring excavation has been divided into two separate excavation phases. The first phase of excavation consists of the footprint of the wet cell area. The second phase of excavation consists of the footprint of the concrete slab and soil on which the excavator is currently located.

Two different waste classifications will be encountered during operations. These consist of low-level waste (Class A and Class C) and transuranic waste (TRU). Each waste classification has a specific set of requirements that must be met in order to ensure packaging compliance with the respective disposal facility.

9.1 Wet Cell Excavation

Soil processing consists of three phases. The first phase focuses on handling debris that may be present on the top surface of the quadrant selected for excavation. The second phase focuses on soil excavation, sample analysis screening, and absorbent addition. The final phase focuses on the packaging method that will be used and is based on analytical screening results obtained. A soil batch is identified as a batch with approximate dimensions of 11 feet wide by 14 feet long by 1 foot deep.

The first phase of excavation consists of the footprint of the wet cell area. This footprint has been divided into a total of 7 quadrants. The approximate dimensions of each quadrant are 11 feet wide by 14 feet long. Soil will be excavated at approximate 1 foot depth increments, thus comprising a soil processing batch of approximately 154 ft^3.

Each quadrant will be excavated until soil activity concentration reaches Class A (< 10 nCi/g) limits, bedrock refusal is encountered, or the excavator arm has reached full extension. When one of the three criteria listed above is reached for a given quadrant, sampling will be conducted and verified. The quadrant will then be backfilled with a flowable-fill low-strength concrete. Backfill will be addressed in an approved SWI. Sampling will be conducted in accordance with NFS-DC-135.

HEU Material Handlers shall complete Attachment #4 "Use every time check list for packaging CH-TRU Soil and Gravel" for each container of transuranic waste that is packaged. This form will be attached to the respective drum upon packaging.

9.2 Soil Excavation

1) Use the excavator to level the top surface of the adjacent quadrant for soil staging.
2) Use the excavator to excavate a soil batch of approximately 11 feet wide by 14 feet long by 1 foot deep.

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3) Stage the excavated soil batch on the top surface of the adjacent quadrant using the excavator.
4) Add the amount of an approved absorbent specified by Area Process Engineer or Supervision to the excavator bucket.
5) Use the excavator to deliver absorbent to the soil batch.
6) Use the excavator to thoroughly mix the absorbent and soil batch.
7) Collect one grab sample and one duplicate and place in 2 sample jars from the mixed soil batch using the excavator bucket for paint filter testing. Ensure that the bucket is lowered and the hydraulic activation control lever is disengaged prior to the HEU Material Handler approaching the bucket for sample collection.
8) Transport the sample jars from the excavation site to the paint filter test assembly for paint filter testing.
9) Perform paint filter testing in accordance with Attachment #2 of this procedure and document sample number and paint filter test results in a sample log book. Sample nomenclature will be named by the quadrant and the lift depth. For example, when digging in quadrant 2 at a 7 foot depth, the sample identification will be Q2L7-01. The sequence will be increased to Q2L7-02 for a second sample pulled. These results will also be recorded on the Waste Container Packaging Form in accordance with SOP 335-L.
10) If paint filter test results indicate the treated soil batch fails the paint filter test, then repeat Steps 4 through 9 using approximately 50 pounds of additional absorbent until paint filter test results indicate the treated soil batch passes paint filter testing.
11) Prepare one 500 ml poly sample jar with a latex glove to sleeve or other suitable radiological contamination control methods specified by area HP or RT.
12) Collect one sample in accordance with NFS-DC-103, current revision, and place in one 500 mL sample jar from the mixed soil batch using the excavator bucket for non-destructive assay (NDA) analysis.
13) Transport the sample jar from the excavation site to the north personnel airlock door and remove jar sleeving as specified by area HP or RT.
14) Perform decontamination on the 1 sample jar.
15) Sample will require surveys prior to release from the radiologically controlled area and shall be transported to the NDA lab for NDA analysis as specified by area HP or RT.
16) Supervisors will document sample number, batch name, and analytical results in a sample log book.

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17) Sample will require surveys prior to release from the radiologically controlled area and shall be transported to the NDA lab for NDA analysis as specified by area HP or RT.

18) Stage approximately 12 empty stainless steel drums adjacent to the excavator.

19) Fill the bottom of each of the 12 drums with 4 – 8 inches of absorbent using the absorbent transfer bucket as specified by area Process Engineering.

20) Use the excavator to fill each of the 12 drums with the treated soil batch.

NOTE: An aluminum portable hopper is available inside the primary containment to assist loading treated soil into stainless steel drums if needed to minimize spillage. The excavator is equipped with an arm-mounted camera and monitor system, which should be used by the excavator operator to ensure the drum is not over-filled.

21) Ensure that the soil in the drum is approximately level with the top surface of the drum.

NOTE: Do not use hands to level the contents of a 55-gallon drum. Use long handled tools or equivalent for soil leveling purposes.

22) Proceed to Section 9.2.1 for NDA analytical screening results that indicate the treated soil batch is low level waste.

23) Proceed with Section 9.2.2 for NDA analytical screening results that indicate the treated soil batch is 90% or greater of the transuranic limits.

NOTE: The limits listed in 9.2, Steps 21 and 22 can be adjusted by area Process Engineering based on operations experience.

24) Rocks will be processed according to the following:

a. A jack hammer or other appropriate equipment may be used to reduce rock size.

b. Rock which are less than 6" in diameter are considered soil and will be processed as such.

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c. Rock over 6" and less than 10" in diameter will be considered debris. The hopper on the Lexan enclosures cannot accept rock greater than 10" in diameter.

NOTE: Do not mix the contents of two different batches into the same stainless steel drum inside the primary containment. Soil remaining in a quantity smaller than a 55-gallon drum shall be mixed with the next batch that is excavated.

9.2.1 Soil Packaging Method for Low Level Waste

1) Use electric pallet jack or forklift in accordance with manufacturer's recommendations to retrieve a T&WM-approved burial box prepared in accordance with Section 6.8 from the burial box staging area.
2) Transport burial box from the staging area to the inside of the north side equipment airlock.
3) Use the air pallet in accordance with the manufacture's recommendations to transfer the burial box from the inside of the equipment airlock to the inside of the primary containment.

NOTE: Herculite or equivalent plastic floor covering should be placed on the metal floor inside the primary containment prior to burial box staging to minimize the potential for radiological contamination on the bottom of the burial box.

4) Shut off the air to the air pallet and let residual air bleed off completely.
5) Remove the air pallet from underneath the burial box and return it to the inside of the equipment airlock.
6) Close the door separating the inside of the primary containment from the inside of the equipment airlock.
7) Use Drum Hauler to transport a stainless steel drum filled with an approved absorbent specified by Area Process Engineer or Supervisor and transport the drum to the empty burial box.
8) Use Drum Hauler to raise the top of the stainless steel drum to approximately 36 inches above the opening of the empty burial box.
9) Use Drum Hauler to rotate the stainless steel drum to transfer the contents from the drum into the burial box. Contents may be leveled using hand tools if needed.
10) Use Drum Hauler to transport a stainless steel drum containing processed soil from the stainless steel drum staging area adjacent to the excavator and transport the drum to the empty burial box.

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a. NOTE: Personnel shall remain 5 feet clear of materials or equipment when lifted above floor level.

11) Use Drum Hauler to raise the stainless steel drum to approximately 36 inches above the opening of the empty burial box.

12) Use Drum Hauler to rotate the stainless steel drum to transfer the contents from the drum into the burial box.

13) Repeat steps 10 through 12 until the burial box is a minimum of 90% full (approximately 4 inches of void space from the top of the box).

14) Use shovels, rakes, or other suitable methods to level the contents inside the burial box after the addition of each drum.

15) Don a clean pair of outer gloves and cut the plastic wrap off of the burial box and place removed plastic inside the burial box.

16) Close the super sack per the manufacturer's instructions.

17) HEU Material Handlers inside the equipment airlock will open the door separating the inside of the primary containment from the inside of the equipment airlock.

18) Transport the air pallet from the equipment airlock to the inside of the primary containment.

19) Position the air pallet underneath the full burial box.

20) Engage compressed air for the air pallet until the air bladders are fully inflated.

21) Transport the full burial box to the inside of the equipment airlock.

22) Close the door separating the inside of the primary containment from the inside of the equipment airlock.

23) Perform lid closure of the full burial box in accordance with Attachment #3.

24) HEU Material Handlers will perform any necessary box decontamination prior or after the box is surveyed.

25) RTs will perform necessary surveys prior to releasing the box for transport outside the equipment airlock.

9.2.2 Soil Packaging Method for Transuranic Waste

1) Ensure that the 55-gallon drum is in place on the drum bagout station in accordance with Section 6.9 of this procedure.

2) Use Drum Hauler to transport a stainless steel drum containing treated soil from the stainless steel drum staging area adjacent to the excavator to one of four drum dumping stations.

3) Stage stainless steel drum on the drum roller conveyor.

4) Use the drum roller conveyor to position the stainless steel drum on the base of the drum dumper.

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5) Secure the yellow drum clamps to the top of the stainless steel drum.

6) Drum dumping operations will be controlled by personnel outside the primary containment in accordance with Section 9.2.3 of this procedure.

> **NOTE:** Personnel inside the primary containment may need to stand on the upper platform behind the fixed handrail during drum dumping operations to use long handled tools to facilitate dumping or inspection of wastes during the transfer.

> **CAUTION:** Operations personnel inside the primary containment shall stand clear of the drum dumpers when the yellow beacons are signaling drum dumping operations. Personnel outside the primary containment shall provide communications to personnel inside the primary containment prior to initiating drum dumping.

7) Operations personnel will remove the empty stainless steel drums from the drum dumpers and stage the empty drums back in the stainless steel drum staging area adjacent to the excavator.

9.2.3 Bag Out Operation

1) Visually verify through the Lexan wall that the yellow drum clamps on the drum dumper are securing the drum inside the primary containment.
2) Push and hold the hand controller for the respective drum dumper to raise the stainless steel drum until the waste contents have been completely transferred. The camera system shall be utilized for verification of transfer.

> **NOTE:** Operations personnel may disengage the hand controller for drum dumping to facilitate inspection of waste as needed in accordance with SOP 335-L.

3) Push and hold the hand controller to lower the empty stainless steel drum after the waste has been transferred.
4) Visually inspect the clean transfer bag and verify the bag integrity was not compromised during waste transfer.
5) Ensure the entire contents of the stainless steel drum were transferred through the use of camera system and/or radio communications.

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NOTE: If the bag integrity has been compromised during waste transfer, stop bag out operations and contact area supervisor. Area supervision will notify radiological safety for further instructions.

6) If the bag integrity was not compromised during waste transfer, lower the top enclosure sashes.
7) Remove the strap securing the excess bag from the drum or the drum port.
8) Rotate the drum on the drum carousel until a "horsetail" with an approximate length of 8 to 10 inches is formed.
9) Ensure that the bag filter is located between the top of the drum and the bottom of the "horsetail ."
10) Place and tighten one ziptie at each end of the "horsetail."
11) Use tape approved by Process Engineer to cover the "horsetail."
12) Prepare two sections of tape or vinyl "dots" to be utilized to cover exposed ends after "horsetail" is cut.
13) Use ratcheting PVC cutter to cut the center of the "horsetail."
14) Place the two previously prepared pieces of tape or vinyl "dots" over the exposed ends.
15) Contact area Radiation Technician to perform survey on the drum, the bag, and the horsetail stub. Additional surveys may be requested by by the area Health Physicist.
16) Decontamination of the drum and/or the lexan enclosure will be performed as directed by area Radiation Technicians based on survey results.
17) Open the drum packaging station door and release the drum cart brake.
18) Transport the drum cart to the outside of the enclosure and close drum packaging station door.
19) Place the lid on the top of the drum and ensure the lid and drum ring are properly seated on the drum.
20) Secure lid with drum ring and bolt.
21) Torque bolt to 55 to 60 ft-lbs and ensure drum ring ends do not contact using tools specified by Area Process Engineer or Supervisor.

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22) Install tamper indicating device.

NOTE: Ensure that steps 18 through 21 are monitored by the camera system in accordance with SOP 335-L where applicable. All requirements of SOP 335-L shall be met during bag-out operations.

23) RTs perform off site shipping survey.

24) Ensure the calibration on the scale is current.

25) Use Drum Hauler to place drum on the scale located inside 234 Excavation Facility and weigh the drum.

26) Record the drum weight on burial certification

27) NuMAC transactions for this container will be performed in accordance with Attachment #5 of this procedure.

28) Use Drum Hauler to stage the drum for future NDA analysis.

10.0 SYSTEM SHUT DOWN

10.1 Communications radios shall be placed on chargers at the end of each shift.

10.2 Drum Haulers shall be staged and connected to their respective charging stations at the end of each shift.

10.3 The excavator shall be placed in a safe shut down with the entrance to the cab facing the west wall of the primary containment at the end of each shift.

10.4 The air compressor shall be turned off at the end of each shift.

11.0 NON ROUTINE OPERATIONS AND PROCESS UPSETS

11.1 Abnormal Operations Responses

Abnormal operations responses will be addressed in NFS-DC-136, "Emergency Preparedness and Adverse Condition Procedure for the 234 Facility."

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ATTACHMENT #1 – CO MONITOR BUMP CHECK DOCUMENTATION FORM

Date	Station Number	Time	Result (Pass/Fail)	Monitor Calibration Date

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ATTACHMENT #2 – EPA PAINT FILTER TEST METHOD

METHOD 9095B
PAINT FILTER LIQUIDS TEST

1.0 SCOPE AND APPLICATION

1.1 This method is used to determine the presence of free liquids in a representative sample of waste.

1.2 The method is used to determine compliance with 40 CFR 264.314 and 265.314.

2.0 SUMMARY OF METHOD

2.1 A predetermined amount of material is placed in a paint filter. If any portion of the material passes through and drops from the filter within the 5-min test period, the material is deemed to contain free liquids.

3.0 INTERFERENCES

3.1 Filter media were observed to separate from the filter cone on exposure to alkaline materials. This development causes no problem if the sample is not disturbed.

3.2 Temperature can affect the test results if the test is performed below the freezing point of any liquid in the sample. Tests must be performed above the freezing point and can, but are not required to, exceed room temperature of 25° C.

4.0 APPARATUS AND MATERIALS

4.1 Conical paint filter -- Mesh number 60 +/- 5% (fine meshed size). Available at local paint stores such as Sherwin-Williams and Glidden.

4.2 Glass funnel -- If the paint filter, with the waste, cannot sustain its weight on the ring stand, then a fluted glass funnel or glass funnel with a mouth large enough to allow at least 1 in. of the filter mesh to protrude should be used to support the filter. The funnel should be fluted or have a large open mouth in order to support the paint filter yet not interfere with the movement, to the graduated cylinder, of the liquid that passes through the filter mesh.

4.3 Ring stand and ring, or tripod.

4.4 Graduated cylinder or beaker -- 100-mL.

5.0 REAGENTS

5.1 None.

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6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

A 100-mL or 100-g representative sample is required for the test. If it is not possible to obtain a sample of 100 mL or 100 g that is sufficiently representative of the waste, the analyst may use larger size samples in multiples of 100 mL or 100 g, i.e., 200, 300, 400 mL or g. However, when larger samples are used, analysts shall divide the sample into 100-mL or 100-g portions and test each portion separately. If any portion contains free liquids, the entire sample is considered to have free liquids. If the sample is measured volumetrically, then it should lack major air spaces or voids.

7.0 PROCEDURE

7.1 Assemble test apparatus as shown in Figure 1.

7.2 Place sample in the filter. A funnel may be used to provide support for the paint filter. If the sample is of such light bulk density that it overflows the filter, then the sides of the filter can be extended upward by taping filter paper to the inside of the filter and above the mesh. Settling the sample into the paint filter may be facilitated by lightly tapping the side of the filter as it is being filled.

7.3 In order to assure uniformity and standardization of the test, material such as sorbent pads or pillows which do not conform to the shape of the paint filter should be cut into small pieces and poured into the filter. Sample size reduction may be accomplished by cutting the sorbent material with scissors, shears, a knife, or other such device so as to preserve as much of the original integrity of the sorbent fabric as possible. Sorbents enclosed in a fabric should be mixed with the resultant fabric pieces. The particles to be tested should be reduced smaller than 1 cm (i.e., should be capable of passing through a 9.5 mm (0.375 inch) standard sieve). Grinding sorbent materials should be avoided as this may destroy the integrity of the sorbent and produce many "fine particles" which would normally not be present.

7.4 For brittle materials larger than 1 cm that do not conform to the filter, light crushing to reduce oversize particles is acceptable if it is not practical to cut the material. Materials such as clay, silica gel, and some polymers may fall into this category.

7.5 Allow sample to drain for 5 min into the graduated cylinder.

7.6 If any portion of the test material collects in the graduated cylinder in the 5-min period, then the material is deemed to contain free liquids for purposes of 40 CFR 264.314 and 265.314.

8.0 QUALITY CONTROL

8.1 Duplicate samples should be analyzed on a routine basis as specified by area Process Engineer.

9.0 METHOD PERFORMANCE

9.1 No data provided.

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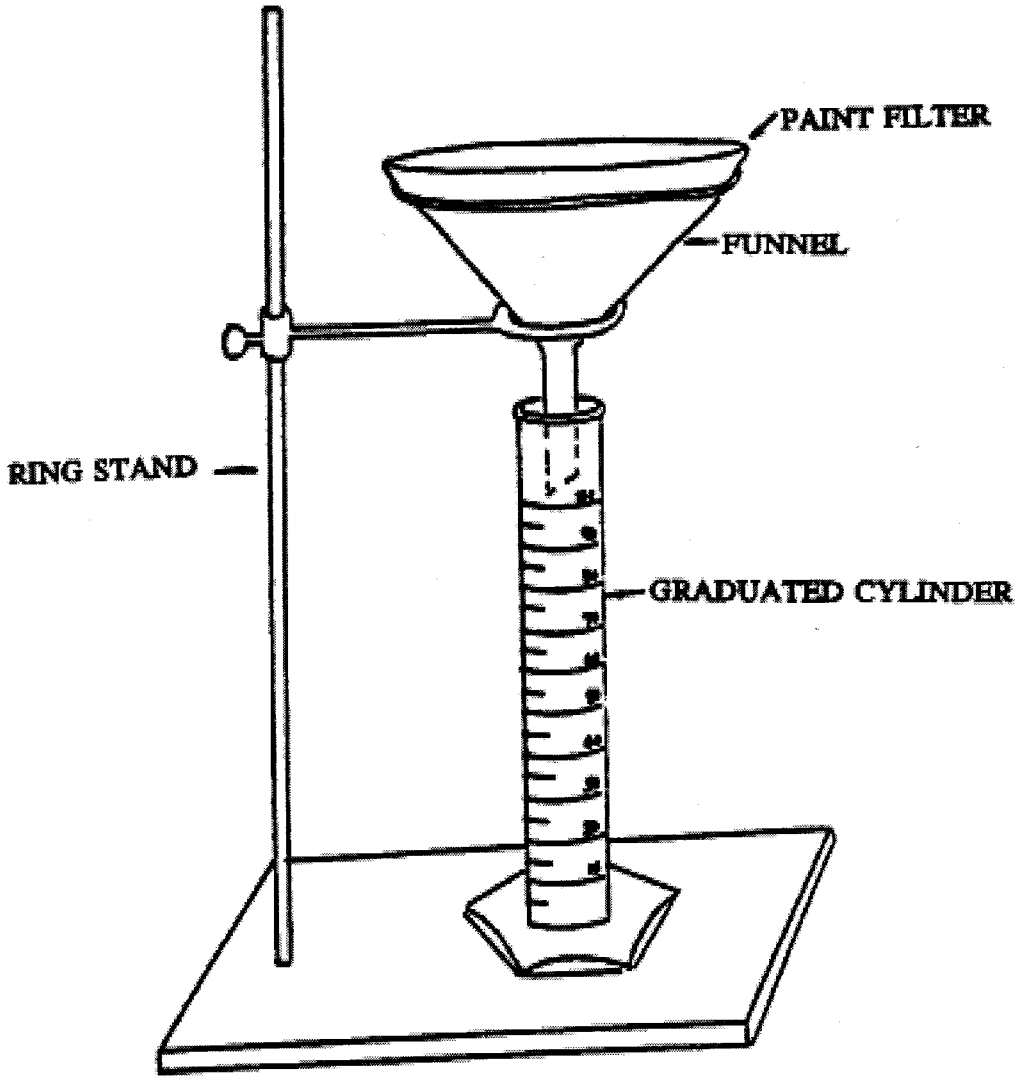
10.0 REFERENCES

10.1 None provided.

FIGURE 1
PAINT FILTER TEST APPARATUS
METHOD 9095B



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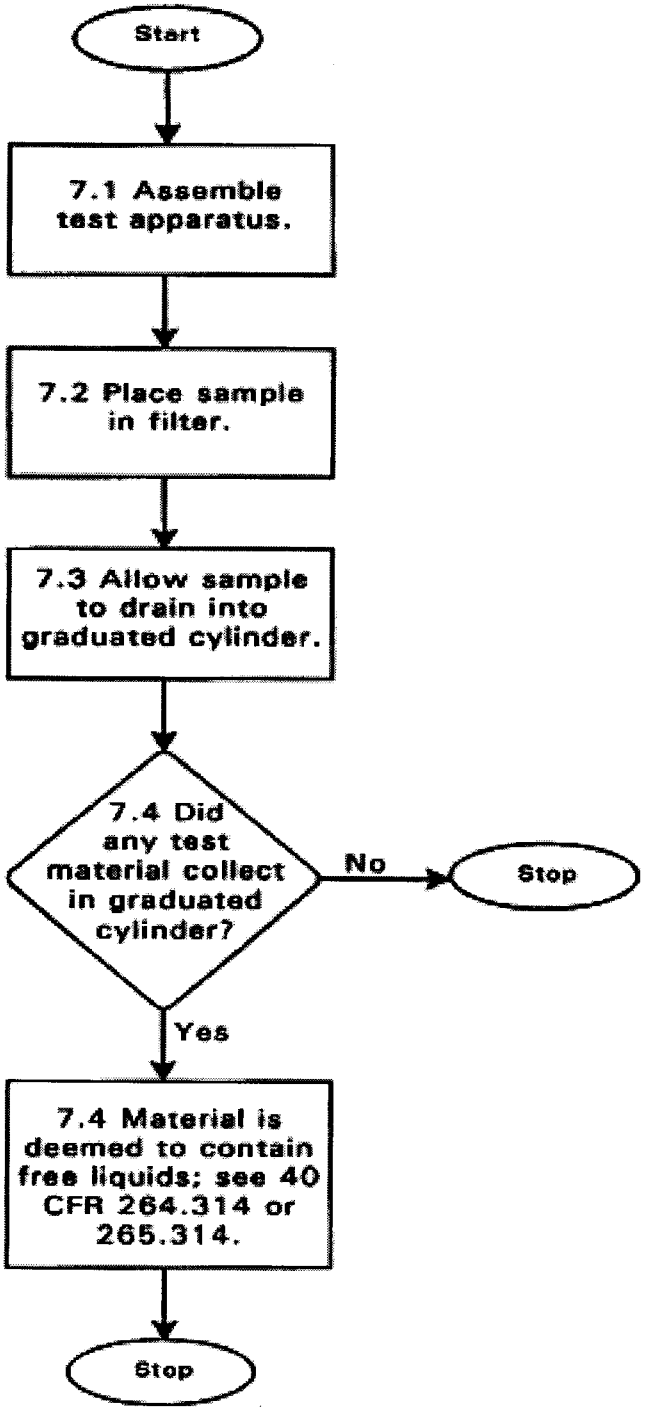
METHOD 9095B
PAINT FILTER LIQUIDS TEST



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ATTACHMENT #3 – BURIAL BOX LID CLOSURE INSTRUCTIONS

1.0 PURPOSE:
The purpose of this attachment is to provide documented instructions for closure of the Blue Burial Boxes per manufacturer's instructions.

2.0 INSTRUCTIONS:
The HEU material handlers will perform the closure of the Blue Burial Boxes.

CAUTION: Be alert to all pinch points while performing this process. Never place part of your body beneath suspended load.

2.1 Prepare Blue Burial Boxes by:

2.1.1 Verify the lid gasket is firmly sealed to the bottom of the lid and has not been damaged or dislocated. If gasket is not installed, contact T&WM Specialist prior to box use.

2.1.2 Verify gasket seating area on the rim of the box is clean and free of debris.

2.1.3 Place lid on Burial Box.

2.2 Install bolts and washers as follows:

2.2.1 If the nut is serrated, place bolt with single flat washer through container and lid followed by another flat washer and serrated nut.

2.2.2 If the nut is non-serrated, place bolt with single flat washer through container and lid followed by another flat washer and lock washer then the non-serrated nut.

2.3 Tighten each bolt until snug.

2.4 Torque each bolt using a calibrated torque wrench per the sequence pattern shown in Figure I to 15 ft. lbs.

2.5 Re-torque each bolt using a calibrated torque wrench to 30 ft. lbs. Figure I sequence is not required.

2.6 Gasket compression is now complete.

2.7 After container card is printed write the following in the "Remarks" section: **"Lid torqued to 30 ft. lbs." Then initial and date.** Only one person's initials are required.

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ATTACHMENT #3 – BURIAL BOX LID CLOSURE INSTRUCTIONS
FIGURE I

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ATTACHMENT #4 - USE EVERY TIME CHECK LIST FOR PACKAGING CH-TRU SOIL AND GRAVEL

1) Ensure video recording was performed by T&WM representative on all 55-gallon drum loading with an audio narration per Section 22 of SOP-335-L. ☐ Yes ☐ No
2) Document a written record of waste packaging on the WCPF, WBIF, and RPCR, place in a 1-gallon liner and attach to top of drum. Provide T&WM Specialist with the original attachments. ☐ Yes ☐ No
3) Package TRU waste into a 55-gallon drum using as few closed plastic bag layers as possible, but no more than two closed plastic bag layers. ☐ Yes ☐ No
4) Ensure that the outer bag consists of a WIPP approved filter bag. ☐ Yes ☐ No
5) If inner bags are used, please obtain approval from the T&WM Specialist and ensure the inner bag is either vented or open. ☐ Yes ☐ No
6) Each bag, if closed, shall be closed by the twist-and-tape method (horse-tail) and equipped with a filter per DOE Memo, "Contact-Handled Transuranic Waste Packaging Instructions "Rev. 0 final 9-30-08[1], Section 7.1. ☐ Yes ☐ No
7) Waste packages shall be loaded to ensure that the interior volume is as efficiently loaded as practical to minimize void space. ☐ Yes ☐ No
8) Document the unique container identification number on the WCPF and RPCR. ☐ Yes ☐ No
9) Document on the WCPF and RPCR a description of each item of waste placed into the receiving container including estimated weight percent composition of each waste constituents: ☐ Yes ☐ No
10) When waste is treated (i.e. absorbent added) for any reason prior to packaging, document the waste form, treatment method, absorbent used, solidification agent, and product name and manufacturer of all materials added on the WCPF and the RPCR: ☐ Yes ☐ No ☐N/A
11) Ensure the WCPF has been completed per the instructions in Section 32 of SOP-335-L. ☐ Yes ☐ No
12) Complete the RPCR per the instructions in SOP 335 A. ☐ Yes ☐ No
13) Prior to packaging, determine that each batch of Soil and Gravel does not contain free liquid using EPA Publication SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Method 9095B (Paint Filter Liquids Test). ☐ Yes ☐ No
14) When liquid is determined to be present, add approved absorbent in a quantity sufficient to absorb all liquid. ☐ Yes ☐ No ☐N/A
15) Following mixing with absorbent and prior to packaging, determine that the batch of waste no longer contains free liquid by repeating the Method 9095B Paint Filter Liquids Test. ☐ Yes ☐ No ☐N/A
16) If liquid is determined to be present, add additional approved absorbent until the Soil and Gravel is determined not to contain free liquid using the Method 9095B Paint Filter Liquids Test. ☐ Yes ☐ No ☐N/A
17) Document the result of the Method 9095B Paint Filter Liquids Test performed on the WCPF and RPCR. ☐ Yes ☐ No

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Packer Date Packer Date Supervisor Date

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ATTACHMENT #5 – NuMAC TRANSACTION

Perform a "Remove Material From Process" and "Apply a Seal" transaction in NUMAC. Use the following process information:

Process Group:	Facility Decommission/Cleanup
Process:	Pu Decommissioning/Cleanup
Process Step:	Pu Decommissioning/Cleanup
I/O Stream:	I/O Stream-Pu Soil/Gravel or Debris
	I/O Stream-Pu Homogenous Solids
	I/O Stream-Pu PPE
	I/O Stream-Pu D&D Organics (oils, coolants, etc.)

I/O Stream	**Batch Mask**
I/O Stream-Pu Soil/Gravel or Debris	QUAD-##-##
I/O Stream-Pu Homogenous Solids	QUAD-##
I/O Stream-Pu PPE	Julian date
I/O Stream-Pu D&D Organics	Julian date

Material Descriptions
Pu Debris Drum
Pu Soil & Gravel Drum
Pu Homogenous Solids Drum
Pu Debris Box
Pu Soil & Gravel Box
Pu Organics Drum

Note: Quadrant identification will be handled by quadrant number and lift depth. For example, soil removed from quadrant 2 at 4 foot depth will be shown as QUAD-02-04.

NUCLEAR FUEL SERVICES, INC.
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▪ www.nuclearfuelservices.com

20G-10-0052
GEN
WRH-10-065
August 30, 2010

Mr. Don Coffey
TRU Project
Building 7880Y
100 WIPP Road
Lenoir City, TN 37771

SUBJECT: Approval for Limited Use of NFS Proprietary Information

Dear Mr. Coffey:

In accordance with your recent request and similar offerings by Nuclear Fuel Services, Inc. (NFS) on previous dates, you are hereby granted certain approvals to the Transuranic Waste Process Center (TWPC) Acceptable Knowledge (AK) team related to the following NFS documents which are being transmitted herewith. The enclosed documents are:

1) *Building 234 Soil, Groundwater, and Groundwater Sludge Sampling and Analysis Plan*; NFS-DC-135, March 15, 2010.

2) *Operating Procedure for the Operation of the 234 Excavation Facility Groundwater Pretreatment System*; NFS-DC-130, Revision 0, June 8, 2010.

3) *Operating Procedure for Soil Excavation, Treatment, and Packaging for the 234 Excavation Facility*; NFS-DC-133, Revision 0, May 17, 2010.

4) *Waste Packaging for WIPP Disposal*; SOP 335, Section L, Revision 0, August 1, 2010.

5) *234 Wet Cell Characterization Summary, Nuclear Fuel Services, Inc. Erwin, TN*; Reference: 44T-09-0056, May 2010.

6) *Radiological Characterization Onsite Waste Burial Areas, Nuclear Fuel Services, Inc. Erwin, TN*; Reference: 84N-87-0405, Gov-01-55-04, Final Report September 1987.

7) *Radiological Survey of the Nuclear Fuel Services, Inc. Erwin Plant Burial Site Draft Report*; Reference: NRC-02-80-034, January 1983.

These documents may be copied or shared with other USDOE and USEPA personnel, State of New Mexico agencies, and DOE contractors solely and exclusively in connection with the final disposal of transuranic (TRU) waste which originated at NFS and is now stored at Oak Ridge.

Although the documents may be used for the purpose stated above, they are not to be released for general publication or for public access via printed or electronic media, or otherwise.

Your cooperation with these restrictions regarding use and release is requested. Please advise me if you have any further questions on this matter.

Sincerely,

William R. Hull
Director, Corporate Services
Nuclear Fuel Services, Inc.

cc: D. Boss, NFS
M. Wetherill, NFS

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Name: _____

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TITLE:

OPERATING PROCEDURE FOR SOIL EXCAVATION, TREATMENT AND PACKAGING FOR THE 234 EXCAVATION FACILITY

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CROSS REFERENCE

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Decommissioning

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RECORD OF REVISIONS

Change Section	Description
N/A	This is a new procedure

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COMMITMENT LOG

Revision Number	Section containing Commitment	Commitment (include PIRCS reference)
N/A	This is a new procedure	

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1.0 PURPOSE

This procedure provides the instructions to safely excavate, process, and package transuranic (TRU) waste in compliance with the Contact-Handled Transuranic Waste Packaging Instructions and low-level waste (LLW) in compliance with the Nevada Test Site (NTS) waste acceptance criteria (WAC). System mock up testing will be performed with non-radiologically contaminated soil to establish the most effective processing sequence. Revision 0 of this procedure will be used to perform system mock up testing. Normal operations shall not be conducted with Revision 0 of this procedure. This procedure will be revised to incorporate lessons learned and red-line changes from system mock up testing prior to operations. Red line changes will be tracked using Attachment #6 of this procedure and must be approved by the responsible Senior Project Manager and Industrial Safety representative.

2.0 SCOPE

This procedure covers excavation of soil, absorbent addition, soil testing, soil transport, and final packaging of excavated soil from the 234 Excavation Facility. Standby and shutdown conditions, non-routine processing and operations are also provided. Letters Of Authorization (L.O.A.s) or Specific Work Instructions (SWIs) may be written to supplement this Standard Operating Procedure (SOP) and to address any situation not covered within this document. The SOP will not require a revision for LOAs and SWIs. Sign-off of LOAs will consist of the same approval level as this SOP and SWIs must be approved by the Nuclear Safety Engineer, Process Engineer, Senior Project Manager, and Health Physicist.

3.0 GENERAL INFORMATION

3.1 Safety Related Equipment

There is no Safety Related Equipment (SRE) associated with the 234 Excavation Facility.

3.2 Safety Hazards and Precautions

3.2.1 Industrial Safety

General Information

1) All injuries must be reported in accordance with NFS-GH-04.
2) HEU Material Handlers will check equipment and tools prior to their use.
    a. Only equipment with properly operating controls and safety devices shall be used in accordance with NFS-GH-37 (PIT procedure and inspections).

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b. The manufacturer's safety devices on the equipment must be present, not altered, and in good working order when in use.

3) A Hot Work Permit is required in accordance with NFS-GH-25 for all welding, spark producing activities or in the presence of open flames.

4) Combustibles will be minimized in accordance with NFS-GH-62.

5) Hand and power tools will be used in accordance with NFS-GH-67.

6) Ladders will be used in accordance with NFS-GH-05.

7) Employees working in confined spaces shall be trained and shall perform the work in accordance with NFS-GH-30.

3.2.2 Personal Protective Equipment (PPE) shall be used in accordance with NFS-GH-19 and will be worn as described in the following sections.

1) Safety toe shoes shall be worn in controlled areas at all times and when performing all work in accordance with NFS-OS-001.

2) Hearing protection shall be worn for high noise activities such as jack hammering or shearing. The headsets used for radio communication can also be used for hearing protection.

3) NOTE: Safety Work Permits (SWPs) may require additional protective clothing.

4) HEU Material Handlers loading debris by hand will wear cut-resistant gloves or equivalent.

5) Personnel will properly dispose of used PPE and practice good housekeeping in accordance with NFS-OS-001, maintaining the step off pad free of all obstacles and allowing for unimpeded emergency egress of personnel.

3.2.3 Vehicle and Equipment Use

1) Training and Inspection shall be conducted in accordance with NFS-GH-37.

2) Vehicle Operations

a. All decommissioning personnel who operate vehicles or equipment will follow all manufacturer operations manual instructions.

b. Spotters will be used during use of the excavator, Drum Hauler, electric and air pallets, when the view of the HEU Material Handler is impaired, or at the discretion of the supervisor. Pay attention to the following:

- Buildings and power lines
- Primary containment wall boundaries
- Low clearances
- Pedestrians
- Excavation edges

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- All other hazards associated with vehicle/heavy equipment movement.

3) HEU Material Handlers shall operate vehicle and heavy equipment in accordance with NFS-GH-37.
4) The company speed limit is 9 miles per hour. Adhere to the posted speed limits. Situations can occur (carrying heavy loads, creating excessive dust, operating in areas of pedestrians) which may require a slower rate of speed.
5) All accidents and near misses must be reported to Decommissioning Supervisor, Decommissioning Manager, Industrial Safety, the Plant Superintendant, and to the Security Operations Supervisor (SOS) and in accordance with NFS-GH-04.

3.2.4 Excavation and Trenching

1) All excavation activities shall be performed in accordance with NFS-GH-59.
2) A competent person for excavation, trenching and shoring will be present during excavation activities. His/her duties shall be performed in accordance with OSHA requirements for this work.
3) Underground work permits shall be obtained prior to initial excavation activities in accordance with SOP 392. A copy of this permit will be posted in the Supervisors office or in the work area.
4) Employees shall not walk between the safety railing and the excavation.

3.2.5 Chemical Safety, Storage, Disposal and Use

1) All chemicals shall be stored in approved cabinets when not in use.
2) Flammable chemicals must be stored in flammable storage cabinets when not in use.
3) All chemical containers must be labeled in accordance with NFS-GH-68.
4) Wear the appropriate PPE before using and handling chemicals.
5) Eyewash stations are available inside the 234 Excavation Facility if needed.
6) Follow the precautions in the Material Safety Data Sheets (MSDSs) located in 234 Excavation Facility for handling solutions and chemicals within the 234 Excavation Facility.
7) A face shield with safety glasses or goggles, apron and gloves are worn as directed by Industrial Safety when handling corrosive chemicals outside of containment.

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NOTE: If no sleeves are attached to the chemical resistant apron, sleeve protectors are additionally required.

8) Collection and disposal of used oil, fuels, antifreeze, and other liquids must be handled in the following manner:
    a) Used oil collected from equipment oil changes, pumps or equipment will be placed in a 55-gallon closed head (bung hole) drum and labeled as "Used Oil."
    b) Use separate containers for used antifreeze, fuels and all other liquids. Antifreeze, water or any other liquid must not be mixed with waste oil.
    c) The name of the contents and appropriate warning labels shall be identified on the container.
    d) Lock the lid opening or place drum in a secured location to control the contents being added to the container. Initial and record the date in the Waste Oil Log (See SOP 335, Sec. G).
    e) When the drum or container is full, complete the Request for Waste Determination in accordance with NFS-GH-38 and submit it to Environmental Safety. Further handling and sampling will be provided by Environmental Safety.
    f) The drums or containers will be held for off-site recycling or disposal at the direction of Environmental Safety and Transportation & Waste Management (T&WM).
    g) Lids and/or bung openings on containers must always be tightly secured unless adding contents to a container.

3.2.6 Miscellaneous Safety Items

1) Tools, ladders, safety equipment, extension cords, etc. must be stored in appropriate areas. These items will not be left in walking areas where they can become tripping hazards.
2) Material Handling and lifting activities will include the following:
    a) Wear protective gloves.
    b) Use lifting equipment for the purpose it was designed.
    c) Use proper lifting techniques for manual lifting (such as keeping your back straight and lifting with your legs).
    d) Use equipment to lift when possible.
    e) Check travel path of moved load prior to moving the load.
    f) Secure loads by using tie-down straps when using a forklift.
3) Through training and pre-job briefings, personnel will familiarize themselves with the physical characteristics of the site including:
    a) Emergency equipment.

b) The nearest emergency and site area access and egress.

c) Access to co-workers, equipment and vehicles.

d) Communications equipment at the site.

e) Areas of known or suspected contamination.

3.2.7 Environmental Safety

1) Potentially hazardous waste shall be managed in accordance with NFS-GH-38.

2) All spills of oil, chemicals, excavation water and radioactive material must be reported to the Decommissioning Manager and Environmental Safety immediately in accordance with NFS-GH-35 and/or NFS-HS-E-05.

3) Wet down or use fixatives for dry soils in controlled areas when necessary to prevent airborne contamination from spreading into clean areas as directed by the Supervisor. The work area shall be maintained such that dust is kept to a minimum.

3.2.8 Supervisors shall conduct a pre-job briefing with the HEU Material Handlers prior to conducting daily operations.

3.2.9 Radios shall be used to facilitate communication for workers inside the excavator or primary containment and support staff outside the primary containment.

1) Radios shall be placed on the charger at the end of each shift.

2) Batteries inside the headset shall be changed a minimum of once a quarter to ensure proper headset functionality.

3) Radio checks shall be performed prior to entry to ensure proper functionality.

4) Batteries shall be placed in a labeled "Universal Waste Used Batteries." Non-contaminated batteries shall not be disposed of in common trash containers or as radiologically contaminated waste. Non-contaminated batteries will be collected in accordance with SOP 335 G, current revision. When the container is full, complete a Request for Waste Determination form in accordance with NFS-GH-38 and submit it to Environmental Safety.

3.2.10 Safety glasses or goggles and safety shoes shall be worn at all times during waste packaging unless instructed otherwise by area Health Physics or Radiation Technicians. All operations personnel shall wear work gloves when handling materials or equipment.

3.2.11 Survey release limits for plutonium are 20 dpm/100 cm^2 smearable and 100 dpm/100 cm^2 for direct.

3.3 Nuclear Criticality Safety Requirements

Nuclear Criticality Safety (NCS) Analyses are addressed in the memo titled "Nuclear Safety Controls on Operations in Building 234." The only NCS

requirement is to report all fissile loadings to Nuclear Criticality Safety.

3.4 Supplemental

3.4.1 General Overview of PU Soil Excavation

The PU soil excavation process includes the excavation of soil, addition and mixing of absorbent material, transport of soil within the primary containment, and final packaging of processed soil in the 234 Excavation Facility. Soil will be excavated using the Komatsu excavator and staged adjacent to the dig site. The soil batch will be mixed with absorbent to dry the soil. The mixed soil batch will then be transported inside the primary containment for final packaging in either a burial box or a 55-gallon drum, depending on analytical results of the soil batch. Groundwater will be addressed and processed in accordance with NFS-DC-130. In the event that a breach of containment, to include small holes in walls, is discovered, HEU Material Handlers shall notify area Supervisor and HP for further guidance.

It is imperative to maintain a clean working environment. All areas need to be kept free of debris, trash, and dust on a daily basis in accordance with NFS-OPS-001 Conduct of Operations.

3.4.2 Sampling, Analysis, and Protocols

Sampling will be conducted in accordance with NFS-DC-135, Building 234 Soil, Groundwater, and Groundwater Sludge Sampling and Analysis Plan.

3.4.3 Packaging of Contaminated Trash

Trash will be collected inside one of two trash collection bins located inside the personnel airlock on the north side of the primary containment. The bags of trash will be removed and double-bagged prior to disposal inside a burial box. The bags of trash shall not be compressed without approval from area HP to remove excess air and void space due to radiological airborne issues. The burial box will be radiologically characterized prior to shipment to NTS. HEU Material Handlers shall minimize the generation of waste as much as possible and shall not take unnecessary equipment inside the primary containment until the equipment is needed.

4.0 DEFINITIONS

4.1 Class A Waste – Waste classified as having < 10 nCi/g

4.2 Class C Waste – Waste classified as having 10 to < 100 nCi/g

4.3 Competent Person – The person responsible for determining the safety requirements for trench and excavation work to maintain compliance with 29 CFR 1926, Subpart P as described in NFS-GH-59. This person must be capable of identifying the hazards that are present and take action to diminish them.

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4.4 Controlled Area – A site area where uncontained radioactive material is present, such that contamination levels are likely to be encountered in excess of acceptable levels for unrestricted use.

4.5 Debris - Man made items such as long handled tools, used personal protective equipment, ladders, air hose, and other items encountered during excavation that is packaged and loaded in greater than 50% of the burial box or 55-gallon drum volume.

4.6 Decontamination - The act of removing radioactive materials (contamination) from the surface of an object to an acceptable level.

4.7 Emergency – An unplanned event characterized by sufficient risk to require immediate action to avoid or mitigate an abruptly deteriorating situation.

4.8 Enrichment – The %, by weight, of U-235 in uranium.

4.9 Excavation - Any man made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

4.10 Fire Watch – Employee who watches for fires and fire hazards in areas where hot work is being performed. This employee must be fire extinguisher trained.

4.11 Hazardous Waste – Any material (solid, liquid or gas) that can potentially cause serious harm to employees or the environment if it is not properly used, stored, transported or managed.

4.12 HEU - High Enriched Uranium.

4.13 HP - Health Physicist.

4.14 IDLH – Immediately Dangerous to Life and Health.

4.15 Intermodal Container - A 19-23 cubic yard metal container (approximately 7 ft. wide x 18 ft. long x 5 ft. high) designed to be moved on a trailer chassis or railcar.

4.16 Letter of Authorization (LOA) – A written document that authorizes temporary additional instructions or minor changes to a procedure and contains all actions required for the changes.

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4.17 **LEU** - Low Enriched Uranium.

4.18 **LLW** – Low Level Waste, classified as having < 100 nCi/g, which can be either Class A or Class C waste depending on the concentration.

4.19 **NDA** - Non Destructive Assay - Analyzing for radionuclides by detecting the gamma rays emitted from the material.

4.20 **NTS** – Nevada Test Site.

4.21 **NTS-WAC** – Nevada Test Site Waste Acceptance Criteria.

4.22 **NUMAC** – Nuclear Material Accounting and Control.

4.23 **PAPR** – A powered air purifying respirator.

4.24 **PIRCS** - Problem Identification, Resolution and Correction System. A computer program designed to document and track various safety issues and corrective actions taken to resolve them.

4.25 **PPE** – Personal Protective Equipment.

4.26 **Pu** – Plutonium.

4.27 **Restricted area** – The area of the site encompassed by a physical barrier, such as a chain link fence or yellow line to which access is generally controlled.

4.28 **RT** – Radiation Technician.

4.29 **Safety Work Permit (SWP)** – A permit designed to provide guidance on performing work that is not routine. The permit protects workers from hazards by addressing radiological and industrial safety issues.

4.30 **SNM** - Special Nuclear Material.

4.31 **Soil Batch** – Soil removed from an approximate one-foot lift from one quadrant.

4.32 **Special Work Instruction (SWI)** – A procedural document used to identify step-by-step actions or requirements, including sketches, drawings and data documentation and reporting, to control and guide actual work.

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4.33 Super Sack - A woven polypropylene bag used to contain soil, waste and/or debris. Typical size is 48" x 48" x 72" and containing approximately 90 cubic feet of material.

4.34 TCLP - Toxicity Characteristics Leaching Procedure. An analysis used to determine if a waste is characteristically hazardous.

4.35 TRU – Transuranic Waste classified as having ≥ 100 nCi/g.

4.36 Utility – Any water, sewer, electrical, or communication line.

4.37 VAGAS – Versatile Automated Gamma Assay System. A special group of detectors set up to measure the radiological characteristics of a container for shipping purposes.

4.38 Waste Materials - Bulk discarded material other than soil or debris uncovered during excavation.

4.39 Waste Pocket – Debris or hazardous waste that has been discarded in a concentrated manner or location (e.g. group of drums), having been previously covered over with soil.

4.40 WIPP – Waste Isolation Pilot Plant.

4.41 WWTF - Waste Water Treatment Facility.

5.0 RESPONSIBILITIES

All personnel are responsible for adhering to the requirements of this and all procedures that apply to work performed within the scope of this SOP.

A Health Physicist is a specially trained person, who is responsible for radiological data interpretation, and generation of SWPs.

NDA Personnel are responsible for providing radiological data on environmental samples.

Process Engineering are responsible for reviewing run sheets, maintaining area processes, and resolving technical issues.

Senior Project Managers are accountable for overall project implementation, including project schedule and budget.

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Transportation and Waste Management Personnel are responsible for preparing the shipping papers and tracking the shipments. Audio/video packaging requirements will be captured in accordance with SOP 335-L.

HEU Material Handlers sample, excavate, monitor and package all waste materials and debris and are responsible for adhering to all procedures, SWPs and work instructions.

Decommissioning Operations Specialist is responsible for preparation of work requests, ordering of supplies, and resolution of issues to facilitate operations.

Decommissioning Operations Manager is responsible for all operations activities, the Daily Stand-Up meeting, and Daily Ops Briefing if work occurs on multiple shifts.

Decommissioning Supervisors are responsible for all HEU Material Handler activities performed in the Decommissioning Group. They are responsible for compliance of SWP work. They shall maintain a logbook and document the following as needed:

- All work (soil condition, absorbent added or needed, soil batches excavated, waste containers loaded, staged, moved, water pumped, areas excavated, etc.)
- HuP implementation
- All SWP work initiated and terminated
- SWP pre-job briefings
- Employee safety concerns
- All accidents and injuries
- All unusual events
- Shift staffing including absences
- RT shift coverage and shortages

Radiation Technicians (RT) are responsible for performing release surveys and shipping surveys, as well as all regulatory required routine surveys and specific job coverage surveys.

The Environmental Specialist, Scientist or designee oversees sampling and environmental aspects of excavation. The Environmental Specialist also specifies which attributes shall be analyzed for waste verification.

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6.0 SYSTEM PREPARATION

6.1 Disconnect Drum Haulers from respective charging stations and ensure the battery is fully charged as indicated by the green indicator light.

6.2 Ensure the air compressor is turned on prior to using the air pallet by checking the display on the south side of the compressor.

6.3 Disconnect electric pallet jack from the charging station prior to use.

6.4 Ensure placement of herculite or other Health Physics approved floor covering is secured with tape in drum loading areas and north equipment airlock prior to conducting airlock operations.

6.5 Replace or re-tape floor coverings that are damaged or show excessive signs of wear.

6.6 Soil sampling and associated analysis is addressed in the Building 234 Soil, Groundwater, and Groundwater Sludge Sampling and Analysis Plan. NFS-approved SWIs will be used to provide specific instructions for sample collection and handling.

6.7 Burial Box Preparation

1) Transport an empty burial box inspected and approved by Transportation and Waste Management with lid attached inside the 234 Excavation Facility.

NOTE: Ensure the lid is secured on the empty burial box prior to transport outside during rain or snow to prevent water collection inside the box.

2) Remove the lid from the empty burial box.

CAUTION: The lid weighs approximately 200 pounds. Use proper lifting techniques when removing the lid.

3) Raise the height of the burial box using the electric pallet jack.
4) Install the burial box i-beam extensions by sliding the extensions over the ends of the outer i-beams.

CAUTION: Do not place any part of the body underneath the i-beams on the bottom of the burial box during installation.

5) Lower the height of the burial box until the box is stationary on the ground.
6) Place a super sack inside the empty burial box and remove excess void space between the sack and the burial box.
7) Place super sack flaps on the outside of the burial box and ensure hoisting straps are accessible.
8) Wrap the exterior of the burial box, including super sack flaps, with plastic wrap.

6.8 Drum Preparation

1) Obtain an inspected and T&WM-approved empty 55-gallon drum, which is indicated by two labels "Container Approved for NTS Disposal" and "Container Approved for WIPP Disposal, " with lid, drum ring, and bolt and transfer the empty drum into the 234 Excavation Facility.

NOTE: Ensure the lid is placed on the empty drum prior to transport outside during rain or snow to prevent water collection inside the drum.

2) Remove the lid from the empty 55-gallon drum if present.
3) Obtain a clean transfer bag equipped with a filter and rigid 90-mil liner and transfer into the 234 Excavation Facility.
4) Place a clean transfer bag inside the empty 55-gallon drum and remove excess void space between the bag and the drum.
5) Position excess clean transfer bag on the outside of the empty 55-gallon drum. Excess bag should cover the entire outside of the empty 55-gallon drum at a minimum.
6) When loading soil and gravel, place the rigid 90-mil liner inside the 55-gallon drum such that the clean transfer bag resides between the empty 55-gallon drum and the 90-mil liner. Do not use a rigid 90-mil liner when packaging or repackaging debris.

NOTE: Area Process Engineering may approve placement of the 90-mil liner inside the clean transfer bag followed by placement of the bagged 90-mil liner into the 55-gallon drum in lieu of Steps 4 through 6.

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7) Determine the tare weight of the configured 55-gallon drum to include the 90-mil liner, clean transfer bag, lid, ring, and bolt. This step is only required once and only needs to be conducted again if the drum configuration changes.

NOTE: Ensure that Steps 2 through 6 are monitored by the camera system in accordance with SOP 335-L where applicable.

6.9 Bag Out Preparation

1) Place the assembled 55-gallon drum on the drum cart carousel.

NOTE: Inspect drum cart and carousel prior to use to ensure proper functionality.

2) Position the drum cart inside the drum packaging station specified by supervision and engage the cart brake.

NOTE: Handheld barcode scanners may be utilized to capture bar codes on video recording prior to placement of the drum cart inside the drum packaging station as applicable in SOP 335 L.

NOTE: The drum cart may be raised during waste loading if specified by area Process Engineer.

3) Close the drum packaging station door and lower the top enclosure sashes to the lowest position.
4) If present, position the existing elastic band, Velcro strap, or Process Engineer approved equivalent off of the existing bag stub from the previous drum bag out.
5) Lower the existing bag stub from above the top bagging ring to a position in between the upper and lower bagging rings.
6) Position the new clean transfer bag above the top bagging ring such that the new bag completely encloses the old bag stub.
7) Position the elastic band, Velcro strap, or Process Engineer approved equivalent off of the drum port in between the bungee cord of the clean transfer bag and the top bagging ring.
8) Use the excess of the clean transfer bag to grab the bottom of the existing bag stub, and pull the stub off of the drum port into the bottom of the empty drum.

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9) Place excess bag around the outside diameter of the empty drum and secure to the side of the drum using a strap.
10) Raise the top enclosure sashes and secure in the closed position.
11) Visually ensure that all openings to the enclosure are closed and secure and bag integrity is maintained.

6.10 CO Monitor Bump Test

1) The RT, with assistance from the HEU Material handler, will inspect CO monitor and remove any debris or dirt present on the bump test cup.
2) HEU Material Handler will affix the bump test cup to the CO monitor sensor inside the primary containment.
3) RT will partially open the regulator and attach the regulator to the bump test gas bottle.
4) RT will attach the tubing to test fitting and open the isolation valve.
5) RT will open the containment isolation valve.
6) RT will open the regulator valve and allow valve to stabilize.
7) HEU Material Handler will communicate the bump test reading to the RT for the respective CO monitors.
8) RT will record bump test information on Attachment#1.
9) RT will close the regulator isolation valve and immediately close the containment isolation valve.
10) Proceed to the next CO monitor and repeat steps 1 – 9 until remaining bump testing has been completed.
11) If the bump check indicates failure for any of the CO monitors, calibration can be performed on the failed monitor or a new monitor with successful calibration can replace the failed monitor.

6.11 CO Monitor Alarm

1)If one or more CO monitors reach $\geq$ 35 ppm to $\leq$ 50 ppm, proceed with the following steps:

a. Position the excavator and all other processing equipment inside the primary containment to a safe shut down position.
b. Turn the excavator engine off.
c. Monitor each of the five CO monitors and allow building ventilation to remove excess carbon monoxide build-up.
d. Proceed with routine operations once all CO monitors indicate carbon monoxide levels of $\leq$ 25 ppm.

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2)If one or more CO monitors reach > 50 ppm, proceed with the following steps:

a. Position the excavator and all other processing equipment inside the primary containment to a safe shut down position.
b. Turn the excavator engine off.
c. Safely exit the primary containment.
d. Monitor each of the five CO monitors from outside the primary containment and allow building ventilation to remove excess carbon monoxide build-up.
e. Proceed with routine operations once all CO monitors indicate carbon monoxide levels of 25 ppm.

3)If CO monitors alarm, HEU Material Handlers shall notify Supervisor or Process Engineer for system inspection.

7.0 DEBRIS ABOVE WET CELL CAP

Debris currently resides above the wet cell cap from previous Building 234 activities. This debris must be removed prior to removal of the wet cell cap. This work scope will be captured in an approved Specific Work Instructions (SWI).

8.0 WET CELL CAP

The wet cell cap consists of fiberglass decking and beams with ethylene propylene diene monomer (EPDM) rubber on top of the decking. This cap and a portion of adjacent concrete must be removed prior to soil excavation. This work scope will be captured in an approved SWI.

9.0 SOIL EXCAVATION

The total area requiring excavation has been divided into two separate excavation phases. The first phase of excavation consists of the footprint of the wet cell area. The second phase of excavation consists of the footprint of the concrete slab and soil on which the excavator is currently located.

Two different waste classifications will be encountered during operations. These consist of low-level waste (Class A and Class C) and transuranic waste (TRU). Each waste classification has a specific set of requirements that must be met in order to ensure packaging compliance with the respective disposal facility.

9.1 Wet Cell Excavation

Soil processing consists of three phases. The first phase focuses on handling debris

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that may be present on the top surface of the quadrant selected for excavation. The second phase focuses on soil excavation, sample analysis screening, and absorbent addition. The final phase focuses on the packaging method that will be used and is based on analytical screening results obtained. A soil batch is identified as a batch with approximate dimensions of 11 feet wide by 14 feet long by 1 foot deep.

The first phase of excavation consists of the footprint of the wet cell area. This footprint has been divided into a total of 7 quadrants. The approximate dimensions of each quadrant are 11 feet wide by 14 feet long. Soil will be excavated at approximate 1 foot depth increments, thus comprising a soil treatment batch of approximately 154 ft^3.

Each quadrant will be excavated until soil activity concentration reaches Class A (< 10 nCi/g) limits, bedrock refusal is encountered, or the excavator arm has reached full extension. When one of the three criteria listed above is reached for a given quadrant, sampling will be conducted and verified. The quadrant will then be backfilled with a flowable-fill low-strength concrete. Backfill will be addressed in an approved SWI. Sampling will be conducted in accordance with NFS-DC-135.

HEU Material Handlers shall complete Attachment #4 "Use every time check list for packaging CH-TRU Soil and Gravel" for each container of transuranic waste that is packaged. This form will be attached to the respective drum upon packaging.

9.2 Soil Excavation

1) Use the excavator to level the top surface of the adjacent quadrant for soil staging.
2) Use the excavator to excavate a soil batch of approximately 11 feet wide by 14 feet long by 1 foot deep.
3) Stage the excavated soil batch on the top surface of the adjacent quadrant using the excavator.
4) Add the amount of an approved absorbent specified by Area Process Engineer or Supervision to the excavator bucket.
5) Use the excavator to deliver absorbent to the soil batch.
6) Use the excavator to thoroughly mix the absorbent and soil batch.
7) Collect one grab sample and one duplicate and place in 2 sample jars from the mixed soil batch using the excavator bucket for paint filter testing. Ensure that the Hydraulic Activation Control Lever is disengaged prior to the HEU Material Handler approaching the bucket for sample collection.
8) Transport the sample jars from the excavation site to the paint filter test assembly for paint filter testing.

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9) Perform paint filter testing in accordance with Attachment #2 of this procedure and document sample number and paint filter test results in a sample log book. These results will also be recorded on the Waste Container Packaging Form in accordance with SOP 335-L.

10) If paint filter test results indicate the treated soil batch fails the paint filter test, then repeat Steps 4 through 9 using approximately 50 pounds of additional absorbent until paint filter test results indicate the treated soil batch passes paint filter testing.

11) Prepare one 500 ml poly sample jar with a latex glove to sleeve or other suitable radiological contamination control methods specified by area HP or RT.

12) Collect one sample in accordance with NFS-DC-103, current revision, and place in one 500 mL sample jar from the mixed soil batch using the excavator bucket for non-destructive assay (NDA) analysis.

13) Transport the sample jar from the excavation site to the north personnel airlock door and remove jar sleeving as specified by area HP or RT.

14) Perform decontamination on the 1 sample jar.

15) Sample will require surveys prior to release from the radiologically controlled area and shall be transported to the NDA lab for NDA analysis as specified by area HP or RT.

16) Supervisors will document sample number and analytical results in a sample log book.

17) Sample will require surveys prior to release from the radiologically controlled area and shall be transported to the NDA lab for NDA analysis as specified by area HP or RT.

18) Stage approximately 12 empty stainless steel drums adjacent to the excavator.

19) Fill the bottom of each of the 12 drums with 4 – 8 inches of absorbent using the absorbent transfer bucket as specified by area Process Engineering.

20) Use the excavator to fill each of the 12 drums with the treated soil batch.

NOTE: An aluminum portable hopper is available inside the primary containment to assist loading treated soil into stainless steel drums if needed to minimize spillage. The excavator is equipped with an arm-mounted camera and monitor system, which should be used by the excavator operator to ensure the drum is not over-filled.

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21) Ensure that the soil in the drum is approximately level with the top surface of the drum.

22) Proceed to Section 9.2.1 for NDA analytical screening results that indicate the treated soil batch is low level waste.

23) Proceed with Section 9.2.2 for NDA analytical screening results that indicate the treated soil batch is 90% or greater of the transuranic limits.

NOTE: The limits listed in 9.2, Steps 21 and 22 can be adjusted by area Process Engineering based on operations experience.

24) Rocks will be processed according to the following:

a. A jack hammer or other appropriate equipment may be used to reduce rock size.

b. Rock which are less than 6" in diameter are considered soil and will be processed as such.

c. Rock over 6" and less than 10" in diameter will be considered debris. The hopper on the Lexan enclosures cannot accept rock greater than 10" in diameter.

NOTE: Do <u>not</u> mix the contents of two different batches into the same stainless steel drum inside the primary containment. Soil remaining in a quantity smaller than a 55-gallon drum shall be mixed with the next batch that is excavated.

9.2.1 Soil Packaging Method for Low Level Waste

1) Use electric pallet jack in accordance with manufacturer's recommendations to retrieve an empty T&WM-approved burial box from the burial box staging area.

2) Transport burial box from the staging area to the inside of the north side equipment airlock.

3) Use the air pallet in accordance with the manufacture's recommendations to transfer the burial box from the inside of the equipment airlock to the inside of the primary containment.

NOTE: Herculite or equivalent plastic floor covering should be placed on the metal floor inside the primary containment prior to burial box staging to minimize the potential for radiological contamination on the bottom of the burial box.

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4) Shut off the air to the air pallet and let residual air bleed off completely.
5) Remove the air pallet from underneath the burial box and return it to the inside of the equipment airlock.
6) Close the door separating the inside of the primary containment from the inside of the equipment airlock.
7) Use Drum Hauler to transport a stainless steel drum filled approximately half full with an approved absorbent specified by Area Process Engineer or Supervisor and transport the drum to the empty burial box.
8) Use Drum Hauler to raise the top of the stainless steel drum to approximately 24 inches above the opening of the empty burial box.
9) Use Drum Hauler to rotate the stainless steel drum to transfer the contents from the drum into the burial box. Contents may be leveled using hand tools if needed.
10) Use Drum Hauler to transport a stainless steel drum containing treated soil from the stainless steel drum staging area adjacent to the excavator and transport the drum to the empty burial box.
    a. NOTE: Personnel shall remain 5 feet clear of materials or equipment when lifted above floor level.
11) Use Drum Hauler to raise the stainless steel drum to approximately 24 inches above the opening of the empty burial box.
12) Use Drum Hauler to rotate the stainless steel drum to transfer the contents from the drum into the burial box.
13) Repeat steps 10 through 12 until the burial box is a minimum of 80% full (approximately 9 inches of void space from the top of the box).
14) Use shovels, rakes, or other suitable methods to level the contents inside the burial box after the addition of each drum.
15) Don a clean pair of outer gloves and cut the plastic wrap off of the burial box and place removed plastic inside the burial box.
16) Close the super sack per the manufacturer's instructions.
17) HEU Material Handlers inside the equipment airlock will open the door separating the inside of the primary containment from the inside of the equipment airlock.
18) Engage compressed air for the air pallet until the air bladders are fully inflated.
19) Position the air pallet underneath the full burial box.
20) Transport the full burial box to the inside of the equipment airlock.
21) Close the door separating the inside of the primary containment from the inside of the equipment airlock.

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22) Perform lid closure of the full burial box in accordance with Attachment #3.

9.2.2 Soil Packaging Method for Transuranic Waste

1) Ensure that the 55-gallon drum is in place on the drum bagout station in accordance with Section 6.9 of this procedure.
2) Use Drum Hauler to transport a stainless steel drum containing treated soil from the stainless steel drum staging area adjacent to the excavator to one of four drum dumping stations.
3) Stage stainless steel drum on the drum roller conveyor.
4) Use the drum roller conveyor to position the stainless steel drum on the base of the drum dumper.
5) Secure the yellow drum clamps to the top of the stainless steel drum.
6) Drum dumping operations will be controlled by personnel outside the primary containment in accordance with Section 9.2.3 of this procedure.

> **NOTE:** Personnel inside the primary containment may need to stand on the upper platform behind the fixed handrail during drum dumping operations to use long handled tools to facilitate dumping or inspection of wastes during the transfer.

> **CAUTION:** Operations personnel inside the primary containment shall stand clear of the drum dumpers when the yellow beacons are signaling drum dumping operations.

7) Operations personnel will remove the empty stainless steel drums from the drum dumpers and stage the empty drums back in the stainless steel drum staging area adjacent to the excavator.

9.2.3 Bag Out Operation

1) Visually verify through the Lexan wall that the yellow drum clamps on the drum dumper are securing the drum inside the primary containment.
2) Push and hold the hand controller for the respective drum dumper to raise the stainless steel drum until the waste contents have been completely transferred. The camera system may be utilized for verification of transfer.

> **NOTE:** Operations personnel may disengage the hand controller for drum dumping to facilitate inspection of waste as needed in accordance with SOP 335-L.

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3) Push and hold the hand controller to lower the empty stainless steel drum after the waste has been transferred.
4) Visually inspect the clean transfer bag and verify the bag integrity was not compromised during waste transfer.
5) Ensure the entire contents of the stainless steel drum were transferred through the use of camera system and/or radio communications.

> **NOTE:** If the bag integrity has been compromised during waste transfer, stop bag out operations and contact area supervisor. Area supervision will notify radiological safety for further instructions.

6) If the bag integrity was not compromised during waste transfer, lower the top enclosure sashes.
7) Remove the strap securing the excess bag from the drum.
8) Rotate the drum on the drum carousel until a "horsetail" with an approximate length of 8 to 10 inches is formed.
9) Ensure that the bag filter is located between the top of the drum and the bottom of the "horsetail ."
10) Place and tighten one ziptie at each end of the "horsetail."
11) Use tape approved by Process Engineer to cover the "horsetail."
12) Prepare two sections of tape or vinyl "dots" to be utilized to cover exposed ends after "horsetail" is cut.
13) Use ratcheting PVC cutter to cut the center of the "horsetail."
14) Place the two previously prepared pieces of tape over the exposed ends.
15) Contact area Radiation Technician to perform necessary survey as directed by the area Health Physicist.
16) Decontamination of the drum and/or the lexan enclosure will be performed as directed by area Radiation Technicians based on survey results.
17) Open the drum packaging station door and release the drum cart brake.
18) Transport the drum cart to the outside of the enclosure and close drum packaging station door.
19) Place the lid on the top of the drum and secure lid with drum ring and bolt.
20) Torque bolt to 55 to 60 ft-lbs and ensure drum ring ends do not contact using tools specified by Area Process Engineer or Supervisor.
21) Install tamper indicating device.

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NOTE: Ensure that steps 18 through 21 are monitored by the camera system in accordance with SOP 335-L where applicable. All requirements of SOP 335-L shall be met during bag-out operations.

22) Ensure the lid and drum ring are properly seated on the drum.
23) RTs perform off site shipping survey.
24) Use Drum Hauler to place drum on the scale located inside 234 Excavation Facility and weigh the drum.
25) Record the drum weight on burial certification
26) Ensure the calibration on the scale is current.
27) NuMAC transactions for this container will be performed in accordance with Attachment #5 of this procedure.
28) Use Drum Hauler to stage the drum for future NDA analysis.

10.0 SYSTEM SHUT DOWN

10.1 Communications radios shall be placed on chargers at the end of each shift.
10.2 Drum Haulers shall be staged and connected to their respective charging stations at the end of each shift.
10.3 The excavator shall be placed in a safe shut down with the entrance to the cab facing the west wall of the primary containment at the end of each shift.
10.4 The air compressor shall be turned off at the end of each shift.

11.0 NON ROUTINE OPERATIONS AND PROCESS UPSETS

11.1 Abnormal Operations Responses

Abnormal operations responses will be addressed in NFS-DC-136, "Emergency Preparedness and Adverse Condition Procedure for the 234 Facility."

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ATTACHMENT #1 – CO MONITOR BUMP CHECK DOCUMENTATION FORM

Date	Station Number	Time	Result (Pass/Fail)	Monitor Calibration Date

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ATTACHMENT #2 – EPA PAINT FILTER TEST METHOD

METHOD 9095B
PAINT FILTER LIQUIDS TEST

1.0 SCOPE AND APPLICATION

1.1 This method is used to determine the presence of free liquids in a representative sample of waste.

1.2 The method is used to determine compliance with 40 CFR 264.314 and 265.314.

2.0 SUMMARY OF METHOD

2.1 A predetermined amount of material is placed in a paint filter. If any portion of the material passes through and drops from the filter within the 5-min test period, the material is deemed to contain free liquids.

3.0 INTERFERENCES

3.1 Filter media were observed to separate from the filter cone on exposure to alkaline materials. This development causes no problem if the sample is not disturbed.

3.2 Temperature can affect the test results if the test is performed below the freezing point of any liquid in the sample. Tests must be performed above the freezing point and can, but are not required to, exceed room temperature of 25° C.

4.0 APPARATUS AND MATERIALS

4.1 Conical paint filter -- Mesh number 60 +/- 5% (fine meshed size). Available at local paint stores such as Sherwin-Williams and Glidden.

4.2 Glass funnel -- If the paint filter, with the waste, cannot sustain its weight on the ring stand, then a fluted glass funnel or glass funnel with a mouth large enough to allow at least 1 in. of the filter mesh to protrude should be used to support the filter. The funnel should be fluted or have a large open mouth in order to support the paint filter yet not interfere with the movement, to the graduated cylinder, of the liquid that passes through the filter mesh.

4.3 Ring stand and ring, or tripod.

4.4 Graduated cylinder or beaker -- 100-mL.

5.0 REAGENTS

5.1 None.

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6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

A 100-mL or 100-g representative sample is required for the test. If it is not possible to obtain a sample of 100 mL or 100 g that is sufficiently representative of the waste, the analyst may use larger size samples in multiples of 100 mL or 100 g, i.e., 200, 300, 400 mL or g. However, when larger samples are used, analysts shall divide the sample into 100-mL or 100-g portions and test each portion separately. If any portion contains free liquids, the entire sample is considered to have free liquids. If the sample is measured volumetrically, then it should lack major air spaces or voids.

7.0 PROCEDURE

7.1 Assemble test apparatus as shown in Figure 1.

7.2 Place sample in the filter. A funnel may be used to provide support for the paint filter. If the sample is of such light bulk density that it overflows the filter, then the sides of the filter can be extended upward by taping filter paper to the inside of the filter and above the mesh. Settling the sample into the paint filter may be facilitated by lightly tapping the side of the filter as it is being filled.

7.3 In order to assure uniformity and standardization of the test, material such as sorbent pads or pillows which do not conform to the shape of the paint filter should be cut into small pieces and poured into the filter. Sample size reduction may be accomplished by cutting the sorbent material with scissors, shears, a knife, or other such device so as to preserve as much of the original integrity of the sorbent fabric as possible. Sorbents enclosed in a fabric should be mixed with the resultant fabric pieces. The particles to be tested should be reduced smaller than 1 cm (i.e., should be capable of passing through a 9.5 mm (0.375 inch) standard sieve). Grinding sorbent materials should be avoided as this may destroy the integrity of the sorbent and produce many "fine particles" which would normally not be present.

7.4 For brittle materials larger than 1 cm that do not conform to the filter, light crushing to reduce oversize particles is acceptable if it is not practical to cut the material. Materials such as clay, silica gel, and some polymers may fall into this category.

7.5 Allow sample to drain for 5 min into the graduated cylinder.

7.6 If any portion of the test material collects in the graduated cylinder in the 5-min period, then the material is deemed to contain free liquids for purposes of 40 CFR 264.314 and 265.314.

8.0 QUALITY CONTROL

8.1 Duplicate samples should be analyzed on a routine basis as specified by area Process Engineer.

9.0 METHOD PERFORMANCE

9.1 No data provided.

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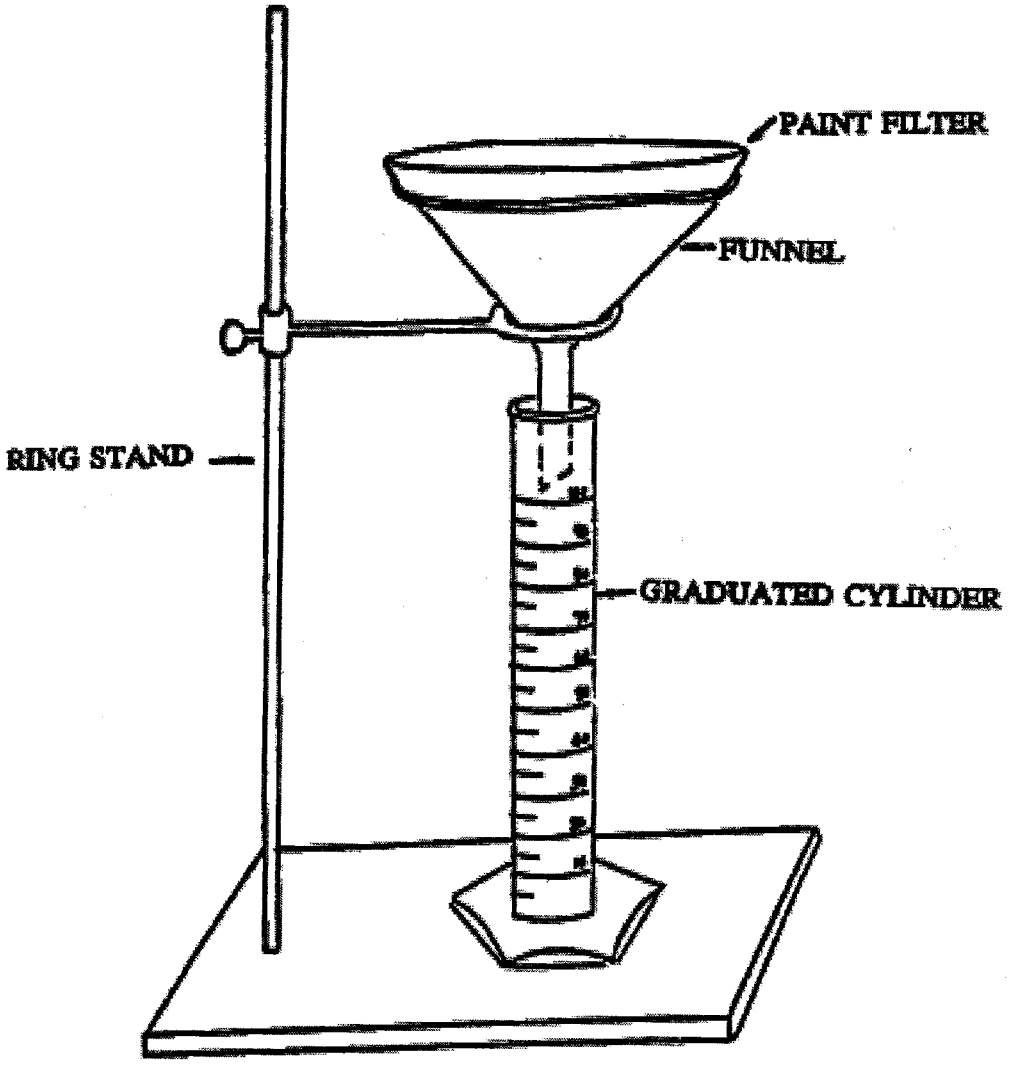
10.0 REFERENCES

10.1 None provided.

FIGURE 1
PAINT FILTER TEST APPARATUS
METHOD 9095B



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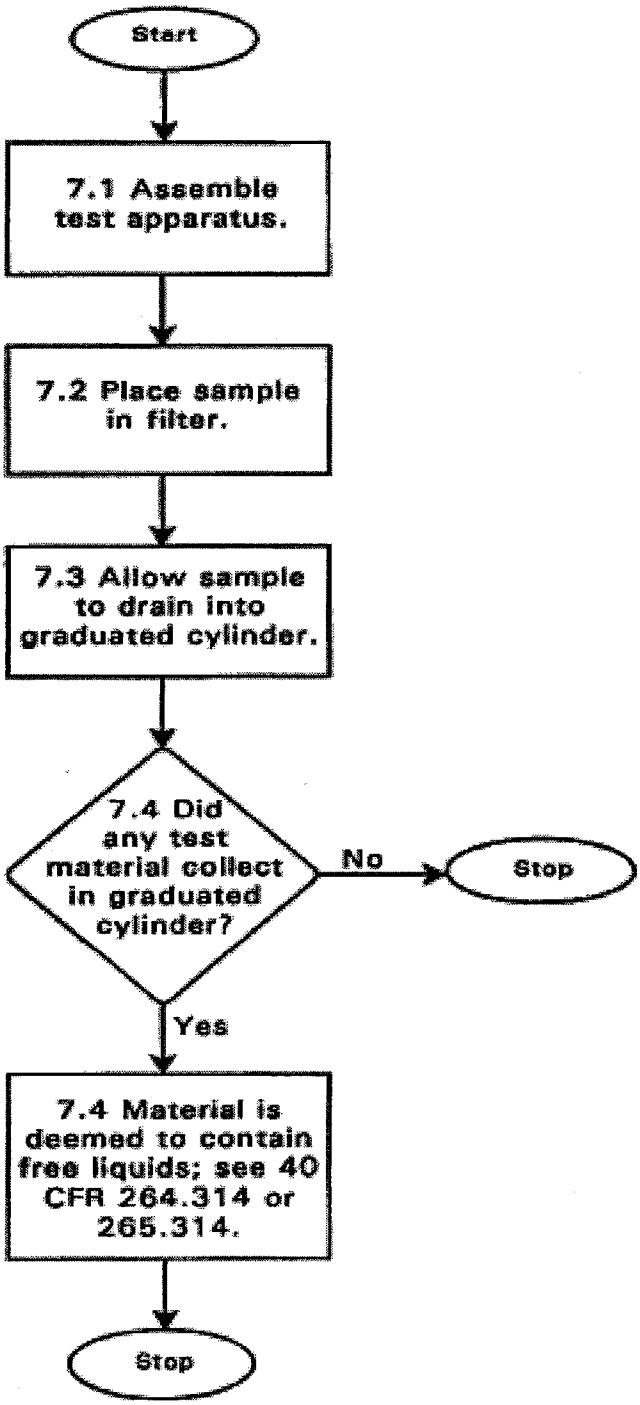
METHOD 9095B
PAINT FILTER LIQUIDS TEST



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ATTACHMENT #3 – BURIAL BOX LID CLOSURE INSTRUCTIONS

1.0 PURPOSE:

The purpose of this attachment is to provide documented instructions for closure of the Blue Burial Boxes per manufacturer's instructions.

2.0 INSTRUCTIONS:

The T&WM or Decommissioning HEU material handlers will perform the closure of the Blue Burial Boxes.

CAUTION: Be alert to all pinch points while performing this process. Never place part of your body beneath suspended load.

2.1 Prepare Blue Burial Boxes by:

2.1.1 Verify the lid gasket is firmly sealed to the bottom of the lid and has not been damaged or dislocated. If gasket is not installed, install gasket on bottom side of lid per Waste Management Specialist instructions.

2.1.2 Verify gasket seating area on the rim of the box is clean and free of debris.

2.1.3 Place lid on Burial Box.

2.2 Install bolts and washers as follows:

2.2.1 If the nut is serrated, place bolt with single flat washer through container and lid followed by another flat washer and serrated nut.

2.2.2 If the nut is non-serrated, place bolt with single flat washer through container and lid followed by another flat washer and lock washer then the non-serrated nut.

2.3 Tighten each bolt until snug.

2.4 Torque each bolt using a calibrated torque wrench per the sequence pattern shown in Attachment I to 15 ft. lbs.

2.5 Re-torque each bolt using a calibrated torque wrench to 30 ft. lbs. Attachment I sequence is not required.

2.6 Gasket compression is now complete.

2.7 After container card is printed write the following in the "Remarks" section: **"Lid torqued to 30 ft. lbs." Then initial and date.** Only one person's initials are required.

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ATTACHMENT #3 – BURIAL BOX LID CLOSURE INSTRUCTIONS
ATTACHMENT I

Online Copy

Online Copy

ATTACHMENT #4 - USE EVERY TIME CHECK LIST FOR PACKAGING CH-TRU SOIL AND GRAVEL

1) Video record all 55-gallon drum loading with an audio narration per Section 22 of SOP-335-L. ☐ Yes ☐ No
2) DOE exception received for the audio / video WIPP requirements ☐ Yes ☐ No
3) Document a written record of waste packaging on the WCPF, WBIF, and RPCR, place in a 1-gallon liner and attach to top of drum. Provide T&WM Specialist with a copy of the attachments. ☐ Yes ☐ No
4) Package TRU waste into a 55-gallon drum using as few closed plastic bag layers as possible, but no more than two closed plastic bag layers. ☐ Yes ☐ No
5) Ensure that the outer bag consists of a WIPP approved filter bag. ☐ Yes ☐ No
6) If inner bags are used, please obtain approval from the T&WM Specialist and ensure the inner bag is either vented or open. ☐ Yes ☐ No
7) Each bag, if closed, shall be closed by the twist-and-tape method (horse-tail) and equipped with a filter per DOE Memo, "Contact-Handled Transuranic Waste Packaging Instructions "Rev. 0 final 9-30-08[1], Section 7.1. ☐ Yes ☐ No
8) Waste packages shall be loaded to ensure that the interior volume is as efficiently loaded as practical to minimize void space. ☐ Yes ☐ No
9) Document the unique container identification number on the WCPF and RPCR. ☐ Yes ☐ No
10) Document on the WCPF and RPCR a description of each item of waste placed into the receiving container including estimated weight percent composition of each waste constituents: ☐ Yes ☐ No
11) When waste is treated (i.e. absorbent added) for any reason prior to packaging, document the waste form, treatment method, absorbent used, solidification agent, and product name and manufacturer of all materials added on the WCPF and the RPCR: ☐ Yes ☐ No ☐N/A
12) Complete the WCPF per the instructions in Section 32 of SOP-335-L. ☐ Yes ☐ No
13) Complete the RPCR per the instructions in SOP 335 A. ☐ Yes ☐ No
14) Prior to packaging, determine that each batch of Soil and Gravel does not contain free liquid using EPA Publication SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Method 9095B (Paint Filter Liquids Test). ☐ Yes ☐ No
15) When liquid is determined to be present, add approved absorbent in a quantity sufficient to absorb all liquid. ☐ Yes ☐ No ☐N/A
16) Following mixing with absorbent and prior to packaging, determine that the batch of waste no longer contains free liquid by repeating the Method 9095B Paint Filter Liquids Test. ☐ Yes ☐ No ☐N/A
17) If liquid is determined to be present, add additional approved absorbent until the Soil and Gravel is determined not to contain free liquid using the Method 9095B Paint Filter Liquids Test. ☐ Yes ☐ No ☐N/A
18) Document the result of the Method 9095B Paint Filter Liquids Test performed on the WCPF and RPCR. ☐ Yes ☐ No

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Packer Date Packer Date Supervisor Date

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ATTACHMENT #5 – NuMAC TRANSACTION

Perform a "Remove Material From Process" and "Apply a Seal" transaction in NUMAC. Use the following process information:

Process Group:	Facility Decommissioning/Cleanup
Process:	Pu Decommissioning/Cleanup
Process Step:	Pu Decommissioning/Cleanup
I/O Stream:	I/O Stream-Pu Soil/Gravel or Debris
	I/O Stream-Pu Homogenous Solids
	I/O Stream-Pu PPE
	I/O Stream-Pu D&D Organics (oils, coolants, etc.)

I/O Stream	**Batch Mask**
I/O Stream-Pu Soil/Gravel or Debris	QUAD-##-##
I/O Stream-Pu Homogenous Solids	QUAD-##
I/O Stream-Pu PPE	Julian date
I/O Stream-Pu D&D Organics	Julian date

Material Descriptions
Pu Debris Drum
Pu Soil & Gravel Drum
Pu Homogenous Solids Drum
Pu Debris Box
Pu Soil & Gravel Box
Pu Organics Drum

Note: Quadrant identification will be handled by quadrant number and lift depth. For example, soil removed from quadrant 2 at 4 foot depth will be shown as QUAD-02-04.

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ATTACHMENT #6 – RED LINE DOCUMENT CHANGE FORM

Date	Procedure Section	Comments	Sr. Project Manager Approval	Industrial Safety Approval

DIVIDER PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C309
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☐ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☑ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Record of Communication Subject: NFS Soil Sampling/Analysis Data Tetrachloroethylene Use	
Source Document Reference Information (author(s), document and revision number, date, publisher): Jeff Harrison, NA, Rev. NA, 06/04/2008, NA	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
WS8, WS12, S7	Throughout	The soil was shipped to ORNL as non-mixed waste based on characterization done in accordance with the WIPP-WAC in place at the time (1993/1994). They are pretty sure it was based on TCLP analyses but are not positive. They will try and find the data. I told him my concern was with data from a 1998 sampling effort (AK Source Doc. C122) in which one composite soil sample contained trace amounts of tetrachloroethylene (PCE). The sample was not from under the Wet Cell but was from under other parts of Building 234. And without the Wet Cell data from the early-1990s (that they are going to look for), I was going to conservatively apply F002 due to the presence of PCE. We discussed data from a soil sampling effort in 2001 in which soil samples were collected from under the Building 234 Wet Chemistry Cell (AK Source Doc. I053). Even though this sampling effort was done well after the more contaminated soil had been removed from this area in the early-1990s, Richard believes that PCE would still show up in this soil because of its mobility. I also asked about PCE use at NFS. They said that PCE was not used in the Wet Cell process. They speculated that it could have been used historically for cleaning in 234C which is an area in the building where they used to do welding for the fuel pins, but this process had stopped before they worked at NFS. They said there was a maintenance facility on site that definitely used PCE for cleaning at one time, but it was not that close to Building 234. They also mentioned that PCE has been discovered in the groundwater up-gradient from Building 234. They don't know for sure where it is coming from but thought it may be from historic use in off-site facilities up-gradient from NFS.

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C309
Source Document Data Limitations (if any): 1. None.	
Acceptable Knowlege Expert: Trev Greenwood Date: 11/14/2013 Print /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

Attachment 2 – Record of Communication

Waste Stream Numbers: OR-NFS-CH-SOIL, Contaminated Soil	Corresponding Source Document #: **C309**	
Interviewer: Jeff Harrison	Date: 6/4/2008	Time: 12:30 EST
Interviewees: Richard Moore & Tom Holly	Group/Organization: Job Title:	Phone: 423-743-1174 Email:ramoore@nuclearfuelservices.com
Subject: NFS Soil Sampling/Analysis Data and Tetrachloroethylene Use		

Summary:

The soil was shipped to ORNL as non-mixed waste based on characterization done in accordance with the WIPP-WAC in place at the time (1993/1994). They are pretty sure it was based on TCLP analyses but are not positive. They will try and find the data.

I told him my concern was with data from a 1998 sampling effort (AK Source Doc. C122) in which one composite soil sample contained trace amounts of tetrachloroethylene (PCE). The sample was not from under the Wet Cell but was from under other parts of Building 234. And without the Wet Cell data from the early-1990s (that they are going to look for), I was going to conservatively apply F002 due to the presence of PCE.

We discussed data from a soil sampling effort in 2001 in which soil samples were collected from under the Building 234 Wet Chemistry Cell (AK Source Doc. I053). Even though this sampling effort was done well after the more contaminated soil had been removed from this area in the early-1990s, Richard believes that PCE would still show up in this soil because of its mobility.

I also asked about PCE use at NFS. They said that PCE was not used in the Wet Cell process. They speculated that it could have been used historically for cleaning in 234C which is an area in the building where they used to do welding for the fuel pins, but this process had stopped before they worked at NFS. They said there was a maintenance facility on site that definitely used PCE for cleaning at one time, but it was not that close to Building 234.

They also mentioned that PCE has been discovered in the groundwater up-gradient from Building 234. They don't know for sure where it is coming from but thought it may be from historic use in off-site facilities up-gradient from NFS.

Drum-Specific Questions

1. There are 80 drums described as concrete generated in 1993.
   - We have conflicting information as to whether the concrete is in chunks or is chips/dust from scabbling operations. The net weights range from 320 to 690 lbs (576 lbs average).

   - The concrete should be in the form of chunks. Some scabbling was done in Building 110, but did not likely result in TRU waste.

   - Where did the concrete originate and describe the generating process.

   - The concrete originated from Building 234 and was jack hammered from the Wet Cell floor and footers in 1993 and 1994. The contamination was the result of column overflow, primarily nitric acid (Pu nitrate and depleted Uranyl nitrate. Possibly an aqueous-based fixative was applied to the concrete – not sure.

2. There are 44 drums described as Raschig rings generated in 1993.
   - Are these borosilicate glass rings about 1-in. outside diameter and 2-in. long. - ***Yes***
   - Are they from the tank associated with the high-pressure water decontamination unit that was part of the DVRF, or from the Building 110 underground tank, or something else?

   - Not from high-pressure water decontamination unit.

   - They are from the master mix tank in the Bldg. 234 Wet Cell (nitrate) and other nitrate tanks in Bldg. 234. No organics.

   - They are also from the Bldg. 110 tank that supported the two labs. The tank also contained liquids and sludge, possibly organics. These rings went through the DVRF, but still had some visible contamination.

3. There are 3 drums described as metal trash generated in mid-1992 that were not compacted.
   - The waste is relatively heavy at 558 to 709 lbs net. What is this metal, and why was is not compacted.

   - Could be equipment, such as pellet presses (hardened steel) or furnaces (Inconel). Hydraulic fluid would have been removed and shipped to SEG for incineration.

   - The hydraulic fluid was sampled and analyzed for PCBs, and did not contain regulated levels of PCBs.

4. There are 3 drums described as asbestos waste, metal, and trash generated in April 1994 that were not compacted.
   - Describe how this waste was generated, and why was it not compacted.

   - Asbestos was not compacted.

   - Could be furnace insulation.

5. There are 131 drums of compacted waste.
   - Is it primarily gloveboxes and equipment that were compacted. - ***Yes***
   - What types of equipment were disposed. Did it include items such as pumps, and was the oil drained. What was done with the oil.

   - Blenders, filter housings, ductwork.

- Could include pumps which would have been drained of oil.

6. There are 512 drums of soil generated in 1993, and several more generated in the 2000s.
   - Where did the 1993 drums originate.

   - Mostly Bldg. 234 Wet Cell; maybe a little (~2 drums) of soil from 110 tank excavation

   - Where did the 2000s drums originate.

   - Same. This is 1993 waste that was shipped later. Not new generation.

   - Was dust suppressant applied to the soil during excavation, and what specifically was it.

   - No

Waste Generating Location and Facility Mission

7. Did the decommissioning of Building 110 include just the Area C Wet Chemistry Lab and associated underground tank and piping, or did it also include the Area D Spectrographic Lab?

   - Just Area C; gloveboxes/equipment & underground tank and piping

8. What was the mission of Building 110? Did it provide analytical support to just Building 234 or also to other site operations?

   - Just Bldg. 234 analytical support

   - Early years it supported Bldg. 234 as well as LWBR program

Chemical Use and Liquid/Sludge Waste Generation and Management

9. What chemicals or commercial products were used for cleaning/decontamination? Did it include acids or oxidizers (e.g., hypochlorites, perchlorates, permanganates, peroxides)?

   - Radiac Wash (citrus-based decon. solution)

   - High-pressure water in DVRF

   - Acids or oxidizers not used.

10. Did decommissioning include draining of tanks and other vessels? If so, what TRU liquids were generated (e.g., acids, oils)? Was sludge removed from tanks?

    - Tanks were drained, but liquids were not disposed as TRU.

11. Were acids neutralized and what was the neutralizing agent used?

    - Acidic liquids from tanks were not neutralized.

12. How were liquids/sludges disposed (e.g., absorbed/solidified and placed in TRU waste containers, or transferred to a liquid waste treatment facility)?

    - Some were treated in on-site treatment facilities, some were sent to off-site treatment.

13. If liquids or sludges were absorbed/solidified, what material was used (e.g., diatomaceous earth, soda ash, Portland cement) and what were the liquids or sludges solidified in?

    - Possible that some contaminated aqueous liquids from decon operations were mixed with cement to solidify glovebox fines.

    - A few drums were rejected because of liquids. Radsorb, Radpads, or Aqualac was added to absorb the liquid.

Solid Waste Generation and Management

14. Were any of the following disposed in TRU waste containers?
    - Batteries (e.g., alkaline, nickel-cadmium, lead-acid)
    - Cadmium shielding
    - Equipment containing circuit boards (contain lead solder)
    - Lead items (e.g., glass windows, gloves, shielding, tape, incandescent light bulbs)
    - Fluorescent light tubes or mercury vapor lamps
    - Mercury thermometers, manometers, switches, pumps

    - Bulbs/ballasts – low-level waste because not inside glovebox

    - Manometer removed from a glovebox – Hg amalgamated in one drum

    - There is one cadmium-plated wrench in the same drum with the amalgamated Hg.

    - Lead shielding and bricks were not TRU waste

15. A 1/31/1992 report entitled "Final Report Waste Characterization of Wastes Generated from D&D Activity in Buildings 110 and 234 on the NFS Site" indicates that one of the samples had higher than expected cadmium which was later attributed to the discovery of a cadmium-coated wrench. Were other cadmium-coated tools used, and were they disposed as TRU waste?

    - The wrench was marked as containing cadmium and was disposed in a TRU mixed waste drum along with the amalgamated mercury. They don't know of others like it, and if there were, they would have been handled in the same way.

16. Was beryllium used, will it be in TRU waste, and what forms of beryllium could be present (e.g., metal pieces, shavings/fines, debris with Be contamination)? Will the beryllium exceed 1% by weight in the waste container? ***- No beryllium***

17. Were acid-contaminated wipes/rags generated, and were they rinsed with water and/or neutralized by adding caustic?

    - 1 to 3 Molar acid was used in production, and cleaning would have been done with more dilute acid like 0.5 Molar.

    - Was not neutralized, but there would not have been a lot of liquid used.

18. Were aerosol cans disposed in TRU waste? Were they empty? Punctured?

    - Aerosol cans were drained and punctured, but were not TRU waste.

19. Were water reactive materials used (e.g., calcium, sodium, potassium) and if so, how were they managed? ***- No water reactives***

20. Were ion-exchange resins generated as TRU waste and if so, were the resins treated (e.g., washed with sodium sulfate solution and water) before disposal? How was resin packaged?

    - No IX resin in decommissioning waste.

21. Will any of the following PCB items be in TRU waste?
    - Fluorescent light ballasts ***- Outside glovebox, not TRU waste***
    - Electrical transformers or capacitors ***- No***
    - Absorbed oils from electrical, heat transfer, or hydraulic equipment ***- No; incinerated***

Radionuclides and Radioassay

22. Are the radionuclides in Building 110 waste expected to be the same as Building 234 waste?

    - Gloveboxes used for LWBR program are not in the waste sent to Oak Ridge.

    - Plutonium gloveboxes would have some combination of Bldg. 234 Pu.

23. U-233 was only reported in 32 drums of compacted waste and 19 drums of soil. Is this an indication that the 32 drums of compacted waste are from the U-233 purification facility in Building 234? Where are the 19 soil drums from?

    - U-233 gloveboxes in Bldg. 234 were removed earlier (~1983) and will not be in waste sent to Oak Ridge.

    - U-233 probably from Bldg. 110 equipment processed through the DVRF (compacted) and soil and tank/piping from the removal of the Bldg. 110 underground tank.

24. Which isotopes were actually measured by the passive/active neutron counter versus those that were scaled?

    - Active system quantified Pu-239 and others were scaled.

    - Passive system quantified Pu-240 and others were scaled.

Waste Packaging

For each of the waste types above:

25. Describe configuration of rigid liners and drum liners, including sealing methods and use of a filter vent or vent hole.

    - Black 90-mil HDPE liner, lid has 3/8-in. vent hole, lid not glued.

26. How was waste packaged (e.g., ice cream cartons, metal cans, plastic bags)? How many plastic bag layers could there be, including the drum liner bag? How were bags closed (e.g., twist/tape)?

    - Soil and concrete have 1 layer (twist/tape) and are not heat-sealed.

    - Raschig rings are most likely the same as soil and concrete.

27. Were plastic bags heat-sealed? Do heat-sealed bags contain a filter vent? What size of heat-sealed bags were used?

    - Plastic bags containing poly bottles of cemented fines were heat-sealed

    - Pucks from compactor were heat-sealed (but the 2nd compaction at SEG would have unsealed them)

    - Heat-sealed bags do not have filter vent

28. Will the drums contain sealed containers greater than 4 liters in size? What type of containers and how are they sealed? - ***No***

Other

29. A 1/31/1992 report entitled "Final Report Waste Characterization of Wastes Generated from D&D Activity in Buildings 110 and 234 on the NFS Site" discusses the analysis of six sweepings samples. One of the samples contains arsenic, three contain barium, and four contain cadmium above the RCRA regulatory threshold. Any ideas as to the source of these metals? - ***No***

30. A 10/29/1992 report entitled "Oak Ridge National Laboratory/Nuclear Fuel Services, Inc. NFS Waste Parameter Verification Program" indicates that higher activity waste was collected in poly bottles and then passed through a 200 micron sieve. The fines <200 microns were cemented in poly bottles and packaged in their own drums separate from debris waste. Are the sweepings material described above what was cemented? - ***Yes***

31. This same 10/29/1992 report says that material that did not pass through the sieve was packaged in poly bottle and baled/compacted with other debris waste. Were the materials that did not pass through the sieve debris items, or did they include larger particle sweepings as well?

    - Sieving was done for a period of time, but they stopped doing it and cemented all of it.

Data Limitations:

Information is based on memory of activities that occurred approximately 15 years ago.

Acceptable Knowledge Expert: Lisa Watson Lisa Watson Date: 6/9/08
Print / Sign

DIVIDER

PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Waste Stream Number(s): OR-NFS-CH-HET, OR-NFS-CH-SOIL	
Site(s): Oak Ridge National Laboratory	**Source Document Tracking Number:** I053
Acceptable Knowledge Documentation Type: ✓ TRU Waste Management Program Information ✓ Waste Stream-Specific Information ✓ Supporting Information	**Category:** Correspondence Discrepancy Resolution ✓ Internal Procedure or Note Miscellaneous Published Document or Controlled Database Unpublished Documents
Title of Source Document: KAPL-TN Waste Profile for NFS Building 234 Soil	
Source Document Reference Information (author(s), document and revision number, date, publisher): Joseph W. Pugh, 44G-03-1050, NA, 09/11/2003, NFS	

AK # [a]	Source Doc. Page # [b]	AK Information Summary
PR2, PR3, PR4, PR6, PR7, WS2, WS3, WS4, WS5, WS7, WS8, WS9, WS11, WS12, S9, S16	All	This waste profile was developed for soil planned for shipment to Hanford as low-level waste. In addition to the actual profile, the "Waste Certification Sampling Plan for Transuranic Waste from Nuclear Fuel Services, Inc. Erwin, Tennessee" is attached. On the waste profile, NFS projects a total of 7160 cubic feet of soil to be disposed as low-level waste at Hanford. NFS projects the following radionuclides to be present in the soil waste: Pu-238, Pu-239, Pu-240, Pu-241, Am-241, U-232, U-233, U-234, U-235, U-238, Tc-99, Th-228, Th-232, Th-234 in concentrations of 0 to 10E-01 Ci/m3. The waste is assumed to be nonmixed and non-regulated based on analyses included in the attached "Waste Certification Sampling Plan for Transuranic Waste from Nuclear Fuel Services, Inc. Erwin, Tennessee". Waste is to be packaged in 55-gal steel drums, B-25 boxes, or 'High Integrity Containers (HIC), using sorbents to prevent moisture buildup in the containers. In the attached "Waste Certification Sampling Plan for Transuranic Waste from Nuclear Fuel Services, Inc. Erwin, Tennessee" (the Plan), NFS describes the sampling approach used for residual TRU materials (i.e., sweepings) from gloveboxes comprising the pellet production line (Area C) and the scrap dissolution and recovery lines (Areas J and K). The Plan provides a production history of Building 234, including the sources of the fuel materials processed at that building. Plutonium process capabilities at NFS include: • Dissolution of Pu • Co-precipitation of Pu and U • Wet or dry blending of mixed oxide powders • Pellet production and inspection • Rod loading • Rod welding and inspection • Scrap dissolution • Lab services A floorplan of Building 234 is included and 14 functional or operational 'areas' are described. This section also includes a discussion of the activities conducted, equipment used, and reagents used in each area. Process flow diagrams are provided for each production area in Building 234. The Plan goes on to describe sampling locations and procedures, quality assurance, sample

ORIGINAL

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: I063
AK # [a]	Source Doc. Page #[b]	AK Information Summary
		custody, transport, and health/safety requirements. Analytical results for the soil samples are also provided and include: radionuclides, TCLP VOCs, TCLP semi-VOCs, TCLP pesticides and herbicides, PCBs, TCLP metals, releasable H2S, releasable HCN, and pH. In general, all organic and inorganic analytical results were 'less than detection".

Source Document Data Limitations (if any):

1. The waste profile is for soil and is expected to be low-level waste for disposal at Hanford. However, the attached "Waste Certification Sampling Plan for Transuranic Waste from Nuclear Fuel Services, Inc. Erwin, Tennessee" provides excellent information on process operations and history at Building 234. Analytical results provide documentation of radiological and chemical contamination in the soil samples.

Acceptable Knowlege Expert:

Lisa Price-Watson / Date: 05/30/2008
Print /Sign

[a] Obtain from Acceptable Knowledge Documentation Checklist
[b] For microfilm or microfiche, identify box, tape, reel number and location.

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Attachment 3 - Acceptable Knowledge Source Document Summary

Waste Stream Number(s): OR-NFS-CH-HET	
Site(s): Oak Ridge National Laboratory	**Source Document Tracking Number:** C210
Acceptable Knowledge Documentation Type: TRU Waste Management Program Information ✓ Waste Stream-Specific Information ✓ Supporting Information	**Category:** ✓ C - Correspondence D - Discrepancy Resolution I - Internal Procedure or Note M - Miscellaneous P - Published Document or Controlled Databas U - Unpublished Documents
Title of Source Document: Interview re: NFS TRU Waste Shipped to Oak Ridge National Laboratory. Interviewees: Richard Booth, Richard Moore, Bob Hunt, Scott Toller, Marie Moore	
Source Document Reference Information (author(s), document and revision number, date, publisher): J. Harrison; L. Watson, NA, NA, 09/12/2007, NA	

AK # [a]	Source Doc. Page # [b]	AK Information Summary
WS2, WS3, WS8, WS9, WS11, WS12, S7, S16	Throughout	Summary: A meeting was held at the Training Center at NFS in Erwin, TN primarily to discuss the TRU waste generated at NFS in the early-1990s and shipped to Oak Ridge National Laboratory (ORNL). The meeting was approximately 3 hours in length. CCP (Jeff Harrison) prepared a list of questions, and had a list of several specific documents that were requested. The responses to our questions are in bold italics. The NFS personnel interviewed were: Richard Booth At NFS from 1963 to present Phone: 423-743-1726 E-mail: rlbooth@nuclearfuelservices.com Richard Moore At NFS from 1989 to present Phone: 423-743-1174 E-mail: ramoore@nuclearfuelservices.com Bob Hunt At NFS from 1988 to 1994, and is now at ORNL (BJC/WDP) Phone: 865-241-1203 E-mail: huntra@bechteljacobs.org Scott Toller At NFS from 1989 to 1994, and is now at ORNL (BJC/WGS) Phone: 865-771-1658 E-mail: fourtolers@aol.com Marie Moore At NFS from 1986 to present Phone: 423-743-1737 E-mail: bmmoore@nuclearfuelservices.com Ms. Moore was only present at the meeting for a short time and had no input to the conversation. Others in attendance were:

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: C210
AK # [a]	Source Doc. Page # [b]	AK Information Summary
		Bob Billett, WTS/CCP, 865-576-1564, bob.billett@truproject.com Fred Heacker, Energx, 865-574-2900, fred.heacker@truproject.com Don Coffey, Energx, 423-743-1737, don.coffey@truproject.com Drum-Specific Questions 1. There are 80 drums described as concrete generated in 1993. • We have conflicting information as to whether the concrete is in chunks or is chips/dust from scabbling operations. The net weights range from 320 to 690 lbs (576 lbs average). - The concrete should be in the form of chunks. Some scabbling was done in Building 110, but did not likely result in TRU waste. • Where did the concrete originate and describe the generating process. - The concrete originated from Building 234 and was jack hammered from the Wet Cell floor and footers in 1993 and 1994. The contamination was the result of column overflow, primarily nitric acid (Pu nitrate and depleted Uranyl nitrate. Possibly an aqueous-based fixative was applied to the concrete – not sure. 2. There are 44 drums described as Raschig rings generated in 1993. • Are these borosilicate glass rings about 1-in. outside diameter and 2-in. long. - Yes • Are they from the tank associated with the high-pressure water decontamination unit that was part of the DVRF, or from the Building 110 underground tank, or something else? - Not from high-pressure water decontamination unit. - They are from the master mix tank in the Bldg. 234 Wet Cell (nitrate) and other nitrate tanks in Bldg. 234. No organics. - They are also from the Bldg. 110 tank that supported the two labs. The tank also contained liquids and sludge, possibly organics. These rings went through the DVRF, but still had some visible contamination. 3. There are 3 drums described as metal trash generated in mid-1992 that were not compacted. • The waste is relatively heavy at 558 to 709 lbs net. What is this metal, and why was is not compacted. - Could be equipment, such as pellet presses (hardened steel) or furnaces (inconel). Hydraulic fluid would have been removed and shipped to SEG for incineration. - The hydraulic fluid was sampled and analyzed for PCBs, and did not contain regulated levels of PCBs. 4. There are 3 drums described as asbestos waste, metal, and trash generated in April 1994 that were not compacted. • Describe how this waste was generated, and why was it not compacted. - Asbestos was not compacted. - Could be furnace insulation. 5. There are 131 drums of compacted waste. • Is it primarily gloveboxes and equipment that were compacted. - Yes • What types of equipment were disposed. Did it include items such as pumps, and was the oil drained. What was done with the oil. - Blenders, filter housings, ductwork. - Could include pumps which would have been drained of oil. 6. There are 512 drums of soil generated in 1993, and several more generated in the 2000s. • Where did the 1993 drums originate. - Mostly Bldg. 234 Wet Cell; maybe a little (~2 drums) of soil from 110 tank excavation • Where did the 2000s drums originate. - Same. This is 1993 waste that was shipped later. Not new generation. • Was dust suppressant applied to the soil during excavation, and what specifically was it. - No Waste Generating Location and Facility Mission 7. Did the decommissioning of Building 110 include just the Area C Wet Chemistry Lab and associated underground tank and piping, or did it also include the Area D Spectrographic Lab?

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: C210
AK # [a]	Source Doc. Page #[b]	AK Information Summary
		- Just Area C; gloveboxes/equipment & underground tank and piping 8. What was the mission of Building 110? Did it provide analytical support to just Building 234 or also to other site operations? - Just Bldg. 234 analytical support - Early years it supported Bldg. 234 as well as LWBR program Chemical Use and Liquid/Sludge Waste Generation and Management 9. What chemicals or commercial products were used for cleaning/decontamination? Did it include acids or oxidizers (e.g., hypochlorites, perchlorates, permanganates, peroxides)? - Radiac Wash (citrus-based decon. solution) - High-pressure water in DVRF - Acids or oxidizers not used. 10. Did decommissioning include draining of tanks and other vessels? If so, what TRU liquids were generated (e.g., acids, oils)? Was sludge removed from tanks? - Tanks were drained, but liquids were not disposed as TRU. 11. Were acids neutralized and what was the neutralizing agent used? - Acidic liquids from tanks were not neutralized. 12. How were liquids/sludges disposed (e.g., absorbed/solidified and placed in TRU waste containers, or transferred to a liquid waste treatment facility)? - Some were treated in on-site treatment facilities, some were sent to off-site treatment. 13. If liquids or sludges were absorbed/solidified, what material was used (e.g., diatomaceous earth, soda ash, Portland cement) and what were the liquids or sludges solidified in? - Possible that some contaminated aqueous liquids from decon operations were mixed with cement to solidify glovebox fines. - A few drums were rejected because of liquids. Radsorb, Radpads, or Aqualac was added to absorb the liquid. Solid Waste Generation and Management 14. Were any of the following disposed in TRU waste containers? • Batteries (e.g., alkaline, nickel-cadmium, lead-acid) • Cadmium shielding • Equipment containing circuit boards (contain lead solder) • Lead items (e.g., glass windows, gloves, shielding, tape, incandescent light bulbs) • Fluorescent light tubes or mercury vapor lamps • Mercury thermometers, manometers, switches, pumps - Bulbs/ballasts – low-level waste because not inside glovebox - Manometer removed from a glovebox – Hg amalgamated in one drum - There is one cadmium-plated wrench in the same drum with the amalgamated Hg. - Lead shielding and bricks were not TRU waste 15. A 1/31/1992 report entitled "Final Report Waste Characterization of Wastes Generated from D&D Activity in Buildings 110 and 234 on the NFS Site" indicates that one of the samples had higher than expected cadmium which was later attributed to the discovery of a cadmium-coated wrench. Were other cadmium-coated tools used, and were they disposed as TRU waste? - The wrench was marked as containing cadmium and was disposed in a TRU mixed waste drum along with the amalgamated mercury. They don't know of others like it, and if there were, they would have been handled in the same way. 16. Was beryllium used, will it be in TRU waste, and what forms of beryllium could be present (e.g., metal pieces, shavings/fines, debris with Be contamination)? Will the beryllium exceed 1% by weight in the waste container? - No beryllium 17. Were acid-contaminated wipes/rags generated, and were they rinsed with water and/or neutralized by adding caustic? - 1 to 3 Molar acid was used in production, and cleaning would have been done with more dilute acid like 0.5 Molar. - Was not neutralized, but there would not have been a lot of liquid used. 18. Were aerosol cans disposed in TRU waste? Were they empty? Punctured? - Aerosol cans were drained and punctured, but were not TRU waste. 19. Were water reactive materials used (e.g., calcium, sodium, potassium) and if so, how were

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: C210
AK # [a]	Source Doc. Page #[b]	AK Information Summary
		they managed? - No water reactives 20. Were ion-exchange resins generated as TRU waste and if so, were the resins treated (e.g., washed with sodium sulfate solution and water) before disposal? How was resin packaged? - No IX resin in decommissioning waste. 21. Will any of the following PCB items be in TRU waste? • Fluorescent light ballasts - Outside glovebox, not TRU waste • Electrical transformers or capacitors - No • Absorbed oils from electrical, heat transfer, or hydraulic equipment - No; incinerated Radionuclides and Radioassay 22. Are the radionuclides in Building 110 waste expected to be the same as Building 234 waste? - Gloveboxes used for LWBR program are not in the waste sent to Oak Ridge. - Plutonium gloveboxes would have some combination of Bldg. 234 Pu. 23. U-233 was only reported in 32 drums of compacted waste and 19 drums of soil. Is this an indication that the 32 drums of compacted waste are from the U-233 purification facility in Building 234? Where are the 19 soil drums from? - U-233 gloveboxes in Bldg. 234 were removed earlier (~1983) and will not be in waste sent to Oak Ridge. - U-233 probably from Bldg. 110 equipment processed through the DVRF (compacted) and soil and tank/piping from the removal of the Bldg. 110 underground tank. 24. Which isotopes were actually measured by the passive/active neutron counter versus those that were scaled? - Active system quantified Pu-239 and others were scaled. - Passive system quantified Pu-240 and others were scaled. Waste Packaging For each of the waste types above: 25. Describe configuration of rigid liners and drum liners, including sealing methods and use of a filter vent or vent hole. - Black 90-mil HDPE liner, lid has 3/8-in. vent hole, lid not glued. 26. How was waste packaged (e.g., ice cream cartons, metal cans, plastic bags)? How many plastic bag layers could there be, including the drum liner bag? How were bags closed (e.g., twist/tape)? - Soil and concrete have 1 layer (twist/tape) and are not heat-sealed. - Raschig rings are most likely the same as soil and concrete. 27. Were plastic bags heat-sealed? Do heat-sealed bags contain a filter vent? What size of heat-sealed bags were used? - Plastic bags containing poly bottles of cemented fines were heat-sealed - Pucks from compactor were heat-sealed (but the 2nd compaction at SEG would have unsealed them) - Heat-sealed bags do not have filter vent 28. Will the drums contain sealed containers greater than 4 liters in size? What type of containers and how are they sealed? - No Other 29. A 1/31/1992 report entitled "Final Report Waste Characterization of Wastes Generated from D&D Activity in Buildings 110 and 234 on the NFS Site" discusses the analysis of six sweepings samples. One of the samples contains arsenic, three contain barium, and four contain cadmium above the RCRA regulatory threshold. Any ideas as to the source of these metals? - No 30. A 10/29/1992 report entitled "Oak Ridge National Laboratory/Nuclear Fuel Services, Inc. NFS Waste Parameter Verification Program" indicates that higher activity waste was collected in poly bottles and then passed through a 200 micron sieve. The fines <200 microns were cemented in poly bottles and packaged in their own drums separate from debris waste. Are the sweepings material described above what was cemented? - Yes 31. This same 10/29/1992 report says that material that did not pass through the sieve was

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: C210
AK # [a]	Source Doc. Page # [b]	AK Information Summary
		packaged in poly bottle and baled/compacted with other debris waste. Were the materials that did not pass through the sieve debris items, or did they include larger particle sweepings as well? - Sieving was done for a period of time, but they stopped doing it and cemented all of it. Data Limitations: Information is based on memory of activities that occurred approximately 15 years ago.

Source Document Data Limitations (if any):

1. Information is based on memory of activities that occurred approximately 15 years ago.

Acceptable Knowlege Expert:

Lisa Price-Watson /s/ Date: 11/21/2007

Print /Sign

[a] Obtain from Acceptable Knowledge Documentation Checklist
[b] For microfilm or microfiche, identify box, tape, reel number and location.

Attachment 2 – Record of Communication

Waste Stream Numbers: OR-NFS-CH-HET, Heterogeneous Debris OR-NFS-CH-HOM, Cemented Fines OR-NFS-CH-SOIL, Contaminated Soil	Corresponding Source Document #: **C210**	
Interviewer: Jeff Harrison, Lisa Watson	Date: 9/12/2007	Time: 1:00 EST
Interviewees: See below	Group/Organization: Job Title: See below	Phone: See below Email:
Subject: NFS TRU Waste Shipped to Oak Ridge National Laboratory		

Summary: A meeting was held at the Training Center at NFS in Erwin, TN primarily to discuss the TRU waste generated at NFS in the early-1990s and shipped to Oak Ridge National Laboratory (ORNL). The meeting was approximately 3 hours in length. CCP (Jeff Harrison) prepared a list of questions, and had a list of several specific documents that were requested. The responses to our questions are in bold italics. The NFS personnel interviewed were:

Richard Booth
At NFS from 1963 to present
Phone: 423-743-1726
E-mail: rlbooth@nuclearfuelservices.com

Richard Moore
At NFS from 1989 to present
Phone: 423-743-1174
E-mail: ramoore@nuclearfuelservices.com

Bob Hunt
At NFS from 1988 to 1994, and is now at ORNL (BJC/WDP)
Phone: 865-241-1203
E-mail: huntra@bechteljacobs.org

Scott Toller
At NFS from 1989 to 1994, and is now at ORNL (BJC/WGS)
Phone: 865-771-1658
E-mail: fourtolers@aol.com

Marie Moore
At NFS from 1986 to present
Phone: 423-743-1737
E-mail: bmmoore@nuclearfuelservices.com
Ms. Moore was only present at the meeting for a short time and had no input to the conversation.

Others in attendance were:

Bob Billett, WTS/CCP, 865-576-1564, bob.billett@truproject.com
Fred Heacker, Energx, 865-574-2900, fred.heacker@truproject.com
Don Coffey, Energx, 423-743-1737, don.coffey@truproject.com

Drum-Specific Questions

1. There are 80 drums described as concrete generated in 1993.
   - We have conflicting information as to whether the concrete is in chunks or is chips/dust from scabbling operations. The net weights range from 320 to 690 lbs (576 lbs average).

   - The concrete should be in the form of chunks. Some scabbling was done in Building 110, but did not likely result in TRU waste.

   - Where did the concrete originate and describe the generating process.

   - The concrete originated from Building 234 and was jack hammered from the Wet Cell floor and footers in 1993 and 1994. The contamination was the result of column overflow, primarily nitric acid (Pu nitrate and depleted Uranyl nitrate. Possibly an aqueous-based fixative was applied to the concrete – not sure.

2. There are 44 drums described as Raschig rings generated in 1993.
   - Are these borosilicate glass rings about 1-in. outside diameter and 2-in. long. - ***Yes***
   - Are they from the tank associated with the high-pressure water decontamination unit that was part of the DVRF, or from the Building 110 underground tank, or something else?

   - Not from high-pressure water decontamination unit.

   - They are from the master mix tank in the Bldg. 234 Wet Cell (nitrate) and other nitrate tanks in Bldg. 234. No organics.

   - They are also from the Bldg. 110 tank that supported the two labs. The tank also contained liquids and sludge, possibly organics. These rings went through the DVRF, but still had some visible contamination.

3. There are 3 drums described as metal trash generated in mid-1992 that were not compacted.
   - The waste is relatively heavy at 558 to 709 lbs net. What is this metal, and why was is not compacted.

   - Could be equipment, such as pellet presses (hardened steel) or furnaces (inconel). Hydraulic fluid would have been removed and shipped to SEG for incineration.

   - The hydraulic fluid was sampled and analyzed for PCBs, and did not contain regulated levels of PCBs.

4. There are 3 drums described as asbestos waste, metal, and trash generated in April 1994 that were not compacted.
   - Describe how this waste was generated, and why was it not compacted.

   - Asbestos was not compacted.

   - Could be furnace insulation.

5. There are 131 drums of compacted waste.
   - Is it primarily gloveboxes and equipment that were compacted. - ***Yes***
   - What types of equipment were disposed. Did it include items such as pumps, and was the oil drained. What was done with the oil.

   - Blenders, filter housings, ductwork.

- Could include pumps which would have been drained of oil.

6. There are 512 drums of soil generated in 1993, and several more generated in the 2000s.
   - Where did the 1993 drums originate.

   - Mostly Bldg. 234 Wet Cell; maybe a little (~2 drums) of soil from 110 tank excavation

   - Where did the 2000s drums originate.

   - Same. This is 1993 waste that was shipped later. Not new generation.

   - Was dust suppressant applied to the soil during excavation, and what specifically was it.

   - No

Waste Generating Location and Facility Mission

7. Did the decommissioning of Building 110 include just the Area C Wet Chemistry Lab and associated underground tank and piping, or did it also include the Area D Spectrographic Lab?

   - Just Area C; gloveboxes/equipment & underground tank and piping

8. What was the mission of Building 110? Did it provide analytical support to just Building 234 or also to other site operations?

   - Just Bldg. 234 analytical support

   - Early years it supported Bldg. 234 as well as LWBR program

Chemical Use and Liquid/Sludge Waste Generation and Management

9. What chemicals or commercial products were used for cleaning/decontamination? Did it include acids or oxidizers (e.g., hypochlorites, perchlorates, permanganates, peroxides)?

   - Radiac Wash (citrus-based decon. solution)

   - High-pressure water in DVRF

   - Acids or oxidizers not used.

10. Did decommissioning include draining of tanks and other vessels? If so, what TRU liquids were generated (e.g., acids, oils)? Was sludge removed from tanks?

    - Tanks were drained, but liquids were not disposed as TRU.

11. Were acids neutralized and what was the neutralizing agent used?

    - Acidic liquids from tanks were not neutralized.

12. How were liquids/sludges disposed (e.g., absorbed/solidified and placed in TRU waste containers, or transferred to a liquid waste treatment facility)?

    - Some were treated in on-site treatment facilities, some were sent to off-site treatment.

13. If liquids or sludges were absorbed/solidified, what material was used (e.g., diatomaceous earth, soda ash, Portland cement) and what were the liquids or sludges solidified in?

    - Possible that some contaminated aqueous liquids from decon operations were mixed with cement to solidify glovebox fines.

    - A few drums were rejected because of liquids. Radsorb, Radpads, or Aqualac was added to absorb the liquid.

Solid Waste Generation and Management

14. Were any of the following disposed in TRU waste containers?
    - Batteries (e.g., alkaline, nickel-cadmium, lead-acid)
    - Cadmium shielding
    - Equipment containing circuit boards (contain lead solder)
    - Lead items (e.g., glass windows, gloves, shielding, tape, incandescent light bulbs)
    - Fluorescent light tubes or mercury vapor lamps
    - Mercury thermometers, manometers, switches, pumps

    - Bulbs/ballasts – low-level waste because not inside glovebox

    - Manometer removed from a glovebox – Hg amalgamated in one drum

    - There is one cadmium-plated wrench in the same drum with the amalgamated Hg.

    - Lead shielding and bricks were not TRU waste

15. A 1/31/1992 report entitled "Final Report Waste Characterization of Wastes Generated from D&D Activity in Buildings 110 and 234 on the NFS Site" indicates that one of the samples had higher than expected cadmium which was later attributed to the discovery of a cadmium-coated wrench. Were other cadmium-coated tools used, and were they disposed as TRU waste?

    - The wrench was marked as containing cadmium and was disposed in a TRU mixed waste drum along with the amalgamated mercury. They don't know of others like it, and if there were, they would have been handled in the same way.

16. Was beryllium used, will it be in TRU waste, and what forms of beryllium could be present (e.g., metal pieces, shavings/fines, debris with Be contamination)? Will the beryllium exceed 1% by weight in the waste container? ***- No beryllium***

17. Were acid-contaminated wipes/rags generated, and were they rinsed with water and/or neutralized by adding caustic?

    - 1 to 3 Molar acid was used in production, and cleaning would have been done with more dilute acid like 0.5 Molar.

    - Was not neutralized, but there would not have been a lot of liquid used.

18. Were aerosol cans disposed in TRU waste? Were they empty? Punctured?

    - Aerosol cans were drained and punctured, but were not TRU waste.

19. Were water reactive materials used (e.g., calcium, sodium, potassium) and if so, how were they managed? ***- No water reactives***

20. Were ion-exchange resins generated as TRU waste and if so, were the resins treated (e.g., washed with sodium sulfate solution and water) before disposal? How was resin packaged?

    - No IX resin in decommissioning waste.

21. Will any of the following PCB items be in TRU waste?
    - Fluorescent light ballasts ***- Outside glovebox, not TRU waste***
    - Electrical transformers or capacitors ***- No***
    - Absorbed oils from electrical, heat transfer, or hydraulic equipment ***- No; incinerated***

Radionuclides and Radioassay

22. Are the radionuclides in Building 110 waste expected to be the same as Building 234 waste?

    - Gloveboxes used for LWBR program are not in the waste sent to Oak Ridge.

    - Plutonium gloveboxes would have some combination of Bldg. 234 Pu.

23. U-233 was only reported in 32 drums of compacted waste and 19 drums of soil. Is this an indication that the 32 drums of compacted waste are from the U-233 purification facility in Building 234? Where are the 19 soil drums from?

    - U-233 gloveboxes in Bldg. 234 were removed earlier (~1983) and will not be in waste sent to Oak Ridge.

    - U-233 probably from Bldg. 110 equipment processed through the DVRF (compacted) and soil and tank/piping from the removal of the Bldg. 110 underground tank.

24. Which isotopes were actually measured by the passive/active neutron counter versus those that were scaled?

    - Active system quantified Pu-239 and others were scaled.

    - Passive system quantified Pu-240 and others were scaled.

Waste Packaging

For each of the waste types above:

25. Describe configuration of rigid liners and drum liners, including sealing methods and use of a filter vent or vent hole.

    - Black 90-mil HDPE liner, lid has 3/8-in. vent hole, lid <u>not</u> glued.

26. How was waste packaged (e.g., ice cream cartons, metal cans, plastic bags)? How many plastic bag layers could there be, including the drum liner bag? How were bags closed (e.g., twist/tape)?

    - Soil and concrete have 1 layer (twist/tape) and are not heat-sealed.

    - Raschig rings are most likely the same as soil and concrete.

27. Were plastic bags heat-sealed? Do heat-sealed bags contain a filter vent? What size of heat-sealed bags were used?

    - Plastic bags containing poly bottles of cemented fines were heat-sealed

    - Pucks from compactor were heat-sealed (but the 2nd compaction at SEG would have unsealed them)

    - Heat-sealed bags do not have filter vent

28. Will the drums contain sealed containers greater than 4 liters in size? What type of containers and how are they sealed? - ***No***

Other

29. A 1/31/1992 report entitled "Final Report Waste Characterization of Wastes Generated from D&D Activity in Buildings 110 and 234 on the NFS Site" discusses the analysis of six sweepings samples. One of the samples contains arsenic, three contain barium, and four contain cadmium above the RCRA regulatory threshold. Any ideas as to the source of these metals? - ***No***

30. A 10/29/1992 report entitled "Oak Ridge National Laboratory/Nuclear Fuel Services, Inc. NFS Waste Parameter Verification Program" indicates that higher activity waste was collected in poly bottles and then passed through a 200 micron sieve. The fines <200 microns were cemented in poly bottles and packaged in their own drums separate from debris waste. Are the sweepings material described above what was cemented? - ***Yes***

31. This same 10/29/1992 report says that material that did not pass through the sieve was packaged in poly bottle and baled/compacted with other debris waste. Were the materials that did not pass through the sieve debris items, or did they include larger particle sweepings as well?

    - ***Sieving was done for a period of time, but they stopped doing it and cemented all of it.***

Data Limitations:

Information is based on memory of activities that occurred approximately 15 years ago.

Acceptable Knowledge Expert: Lisa Watson / _____ Date: 11/21/07
Print / Sign

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	SHEILA PEARCY	From:	AMY JOHNS
Ship to:	CCP RECORDS	Site:	OAKRIDGE NATIONAL LAB
	4021 NATIONAL PARKS HWY	Company:	TECHNICAL SPECIALIST, INC
	MSA GSA 203	Telephone Number:	505-302-8669
	CARLSBAD, NM 88220	Date Sent:	11/20/2007
Telephone Number:	505-234-7523		

Document Number	Title / Description	Record Date	Total Pages
C210	ATTACHMENT 3-ACCEPTABLE KNOWLEDGE SOURCE DOCUMENT SUMMARY FOR CCP-AK-ORNL-001	11/21/2007	5
	ATTACHMENT 2-RECORD OF COMMUNICATION: INTERVIEW REGARDING NFS TRU WASTE SHIPPED TO OAKRIDGE NATIONAL LABORTORY IN THE EARLY 1990'S. INTERVIEWERS: JEFF HARRISON AND LISA WATSON. INTERVIEWEES: RICHARD BOOTH, RICHARD MOORE, BOB HUNT, SCOTT TOLLER, MARIE MOORE, OTHERS IN ATTENDANCE WERE: BOB BILLET, FRED HEACKER, AND DON COFFEY. WASTE STREAM NUMBERS: OR-NFS-CH-HET-HETEROGENEOUS DEBRIS, OR-NFS-CH-HOM-CEMENTED FINES, OR-NFS-CH-SOIL-CONTAMINATED SOIL.	09/12/2007	6

Comments

NONE

Acceptance/Rejection Signature and Date

Records Accepted [✓] Jodi Saltzman (Signature) JODI SALTZMAN (Printed Name) 11/20/07 (Date)

Records Rejected [ ] _____ (Signature) _____ (Printed Name) _____ (Date)

Reason for Rejection:

Re-submittal: _____ (Signature) _____ (Printed Name) _____ (Date)

P.01

TRANSACTION REPORT

NOV-26-2007 MON 03:04 PM

FOR: CCP RECORDS 15052347014

SEND DATE START	RECEIVER	TX TIME	PAGES	TYPE	NOTE	M#	DP
NOV-26 03:03 PM	LANL CARLSBAD	16"	1	FAX TX	OK	545	

TOTAL : 16S PAGES: 1

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Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 505-234-7523
Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	SHEILA PEARCY	From:	AMY JOHNS
Ship to:	CCP RECORDS	Site:	OAKRIDGE NATIONAL LAB
	4021 NATIONAL PARKS HWY	Company:	TECHNICAL SPECIALIST, INC
	MSA GSA 203	Telephone Number:	505-302-8669
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Telephone Number:	505-234-7523		

Document Number	Title / Description	Record Date:	Total Pages
C210	ATTACHMENT 3-ACCEPTABLE KNOWLEDGE SOURCE DOCUMENT SUMMARY FOR CCP-AK-ORNL-001	11/21/2007	5
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Comments			
NONE			

AK12

Attachment 3 - Acceptable Knowledge Source Document Summary

Waste Stream Number(s): ORFWENC-001, ORFWENC-002, ORFWENC-007, ORFWENC-008, ORFWENC-010, ORFWENC-011, ORFWENC-012, ORFWENC-014, ORFWENC-016, ORFWENC-017	
Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C078
Acceptable Knowledge Documentation Type: ✔ TRU Waste Management Program Information ✔ Waste Stream-Specific Information ✔ Supporting Information	Category: ✔ C - Correspondence D - Discrepancy Resolution I - Internal Procedure or Note M - Miscellaneous P - Published Document or Controlled Databas U - Unpublished Documents
Title of Source Document: Memo to Bryan Roy transmitting Historical Survey – RCRA Information	
Source Document Reference Information (author(s), document and revision number, date, publisher): James W. Moore (ZQS), NA, NA, 04/04/2005, NA	

AK # [a]	Source Doc. Page # [b]	AK Information Summary
PR2, PR3, PR4, PR6, PR7, WS1, WS2, WS3, WS4, WS6, WS7, WS8, WS9, WS11, WS12, S5, S16	All	Document describes: An effort has been made to identify AK documentation. Efforts focused on 10 facilities that generated the most CH-TRU containers (~94%). This e-mail transmits a package that summarizes historical information (chemical use, radionuclides, processes) gathered for buildings 7920, 3019, 3508, 3028, 5505, 3038, 4508, 2026, 4501, and 3027 and provides lists of additional references. Building 7920: The primary work at the Radiochemical Engineering Development Center (REDC, Buildings 7920, 7930) was recovery and purification of transplutonium elements (Am through Fm). Radiochemical processing, solvent extraction, precipitation, and ion exchange processes were also conducted. Building 7920 contains nine heavily shielded hot cells. Most of REDC waste generation occurred in Bldg. 7920. Building 7930 was used exclusively for purifying and packaging Cf-252 for distribution. Prior to March 1976 all solid TRU waste from REDC was managed as RH-TRU. Stored casks generated prior to the mid to late 1980s have been known or suspect RCRA mixed wastes (typically lead or mercury). An interview confirmed that mercury vapor lamps from hot cells were disposed in the TRU casks, and possible that batteries and thermostats were also disposed. Chemical inventory lists maintained for the facility identify chemicals that may be expected to be present in the casks and include the following: Building 3019A: Radiochemical Development Facility (formerly Radiochemical Processing Pilot Plant), performed separation and purification of plutonium. 1945-1951 tested the REDOX Process using methyl ethyl ketone as the organic solvent and aluminum nitrate. 1948-1960 tested the PUREX process using tributyl phosphate (TBP) as the organic solvent and nitric acid. 1949-1968 tested fluoride volatility reprocessing for U-235 recovery from molten salt fuel. 1952 to present, tested the THOREX process for recovery of U-233 and thorium. Building 3019B

ORIGINAL

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: C078
AK # [a]	Source Doc. Page #[b]	AK Information Summary
		Analytical laboratory used prior to use of Building 2026 laboratory. Building 3508 Alpha Isolation Laboratory: Used to develop solvent extraction processes for transuranium and transplutonium elements and other R&D activities. An extensive variety of chemicals and potential hazardous or RCRA materials were used. Excerpts from other documents list typical materials in Building 3508, such as nitric acid, TBP, di (2-ethylhexyl) phosphoric acid, diisopropylbenzene, dodecane, hydrochloric acid, acetone, ammonium hydroxide, sodium hydroxide, mono-2-ethylhexylphosphoric acid, and xylene. Isotopes in Building 3508 include Am-241, U-233, and Pu-239. Building 3028 Processes included Short-Lived Fission Products (SLFP), Curium Source Fabrication Facilities (SFF). Chemicals in SLFP included NaOH, H2SO4, HNO3, D2EPHA, oxalic acid, lead (with byproduct Pb(NO3)2), TBP, NH4OH, HCl, H2O2, H2S, AHIBA. Chemicals used in SFF were mainly HNO3 and oxalic acid. Three additional source documents are included for Building 3028. These safety analysis/safety requirements are summarized in Source Document Tracking Numbers U007, I012, and I013. Building 5505 Transuranium Research Laboratory: Primary research in lanthanide and actinide elements, including the transuranic elements. Due to mechanical processing, the presence of iron and nickel based metals as well as mercury, lead, and other RCRA metals is likely. Small scale organic processing was performed; plastic bottles of liquid could be in the waste. An extensive variety of chemicals and potential hazardous or RCRA materials are mentioned in the references, such as HCl, ketone, xylene, carbon tetrachloride, hydrogen peroxide. Building 3038 Isotopes Research Materials Laboratory, Alpha Handling Facility: References only listed, no additional information. Building 4501 High-Level Radiochemical Laboratory (1955): Principal (perhaps sole) source of CH TRU waste generated was reactor fuel research involving the actinides and a range of basic and applied actinide chemistry and studies. The largest single source of waste was a series of Pu dioxide and Pu-dioxide-microsphere dissolution studies (1974-1983). 42 drums were generated in Building 4501 primarily from glove box facilities in Rooms 126 and 127. Two drums were generated during laboratory cleanup. Building 2026 Radioactive Materials Analytical Laboratory (1965 as replacement for the High-Level Radiation Analytical Facility in 3019B). As an analytical support facility, handled materials from a wide range of AEC/ERDA/DOE programs. Also provided analytical services support to ORNL isotopes programs as well as chemical processing steps (acid dissolutions). Most solid CH TRU waste from Bldg. 2026 originated in glove boxes and laboratory hoods, not restricted by programmatic activity. Over the past 10-15 years, a single overhead account

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: C078
AK # [a]	Source Doc. Page #[b]	AK Information Summary
		number was used for all waste disposal activities. Building 4508 (1960s through the early 1980s): Activities conducted in the Ceramic Fuels Alpha Facility (Room 265) or Interim Plutonium Laboratory (Room 136). Both facilities were decommissioned in the mid 1980s. Fuel development work was conducted for the Gas-Cooled Fast Breeder Reactor (GCFBR), Liquid Metal Fast Breeder Reactor (LMFBR), Molten Salt Reactor Experiment (MSRE), Light Water Breeder Reactor (LWBR), and High Temperature Gas-Cooled Reactor (HTGR) programs using Pu, U, Th, and 233-U fuels. Building 4508 Activities are described in annual reports of the Metals and Ceramics Division, and from 1970 through 1973, in Chemical Technology Division annual progress reports. Throughout CH TRU wastes were generated during 1971-1984 and during decommissioning activities in 1984-1986. Drums and large boxes of waste generated 1984-1986 consist of general waste, equipment from glove boxes, and the glove boxes.
WS8, WS12	Unnumbered	Chemicals 1,1,2-trichloroethane aluminum nitrate acetone benzene carbon tetrachloride cyclohexane di (2-ethylhexyl) ethylene glycol hydrazine monohydrate hydrochloric acid lead metal methanol methyl ethyl ketone naphthalene nitric acid phenol selenium metal silver nitrate sodium hydroxide sodium bromate sodium carbonate sodium nitrate sulfuric acid toluene tributyl phosphate phosphoric acid diisopropylbenzene dodecane hydrochloric acid

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: C078
AK # [a]	Source Doc. Page # [b]	AK Information Summary
		ammonium hydroxide mono-2-ethylhexylphosphoric acid xylene oxalic acid hydrogen peroxide hydrogen sulfide ketone
Source Document Data Limitations (if any):		
Acceptable Knowlege Expert: Lisa Price-Watson Lisa Price Watson Date: 4/26/07 Print /Sign		

[a] Obtain from Acceptable Knowledge Documentation Checklist
[b] For microfilm or microfiche, identify box, tape, reel number and location.

DIVIDER

PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Waste Stream Number(s): OR-REDC-CH-HET, OR-REDC-RH-HET

Site(s): Oak Ridge National Laboratory

Source Document Tracking Number: U478

Acceptable Knowledge Documentation Type:
- ✔ TRU Waste Management Program Information
- ✔ Waste Stream-Specific Information
- ✔ Supporting Information

Category:
- Correspondence
- Discrepancy Resolution
- Internal Procedure or Note
- Miscellaneous
- Published Document or Controlled Database
- ✔ Unpublished Documents

Title of Source Document: ORNL Technical Notebook No. A-102161; Chemical Technology / Finished Products / J. T. Wiggens

Source Document Reference Information (author(s), document and revision number, date, publisher): J. T.Wiggens, Logbook A-102161, NA, 2/19/1986 - 11/6/1991, Chem Tech Div / Pilot Plant / Finished products

AK # [a]	Source Doc. Page # [b]	AK Information Summary
PR2, PR4, PR7, WS2, WS4, WS7, WS8, WS9, WS11, WS12, S11	Throughout	This is a logbook from the Chemical Technology Building Finished Products Project Building 7920 written by J.T. Wiggins. Chemicals: Ammonium (NH4) Ammonium nitrate (NH4NO3) Dowex 50W-X4 Dowex 50W-X8 Hydrochloric acid (HCl) Iron Nitrate Fe(NO3) Isopropyl Alcohol Magnesium Chloride (MgCl2) NaBrO3 Nitric Acid (HNO3) Polonium (Po-209) Sodium hydroxide (NaOH) Sodium Nitrate (NaNO3) Trichloroethylene (TCE) (Pg. 6) Radionuclides: Americium Oxide (AmO2) Americium (Am-241) Berkelium (Bk-249) Californium (Cf-249) (Cf-252) Curium (Cm-248) Einsteinium (Es-253, -254) Europium (Eu) Nibbles (oxide) Fermium (Fm-255, -257) Gadolinium (Gd) Nibbles (oxide) Gadolinium (Gd-153, -157) Plutonium (Pu—238, -239, -240, -241, -242) Other: Argon Gas

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory			Source Document Tracking Number: U478
AK # [a]	Source Doc. Page # [b]	AK Information Summary	
		Butyrate Oxalic Acid Ajax	

Source Document Data Limitations (if any):

1. Best Available Copy.
2. Intentional blank pages throughout logbook.

Acceptable Knowlege Expert:

Amy Johns , Amy Johns Date: 8/27/2008
Print /Sign

[a] Obtain from Acceptable Knowledge Documentation Checklist
[b] For microfilm or microfiche, identify box, tape, reel number and location.

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PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Waste Stream Number(s): OR-REDC-CH-HET

Site(s): Oak Ridge National Laboratory	**Source Document Tracking Number:** U529
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Supporting Information	**Category:** Correspondence Discrepancy Resolution ✓ Internal Procedure or Note Miscellaneous Published Document or Controlled Database Unpublished Documents

Title of Source Document: Technical Notebook - B000334 - Chem Tech- Charles (Chuck) Alexander - Building 7920; 12/11/1985 -7/29/1988

Source Document Reference Information (author(s), document and revision number, date, publisher): Charles (Chuck) Alexander, Chem Tech Division, Logbook # B000334, NA, 12/11/1985 -7/29/1988, NA

AK # [a]	Source Doc. Page #[b]	AK Information Summary
PR7, WS2, WS3, WS4, WS8, WS11, WS12, S11	Throughout	This logbook is relative to research conducted in Labs 111 and 110 in Building 7920 (REDC) by Chuck Alexander. The following chemicals have been identified: Acetone (pages 1, 28 of logbook) AG 50W resin (MSDS submitted to records) Polystyrene-divinylbenzene sulfonic acid resin Alpha-hydroxyisobutyrate (AHIB) Aluminum (Al-28) Ammonium nitrate (NH4NO3) Aqua regia (MSDS submitted to records) Hydrochloric acid, concentrated Nitric acid, concentrated Barium (Ba-133) (page 102 of logbook) Cadmium (Cd) Chromium (Cr-51) (page 17 of logbook) Cobalt (Co-60) Desicote (page 1 of logbook) (MSDS submitted to records) Methyl chloroform 1,1,1, trichloroethane Silicone compound Dowex 50W resin polymer with ethenylbenzene and ethenylethylbenzene Hydrochloric acid (HCl) Lead (Pb) (page 44 of logbook) Magnesium dichloride (MgCl2) Neodymium oxide (Nd-148 oxide) Nitric acid (HNO3) Samarium nitrate Samarium oxide Sodium (Na-24) Sodium hydroxide (NaOH) Ultrex nitric acid (HNO3) (MSDS submitted to records)

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: U529
AK # [a]	Source Doc. Page # [b]	AK Information Summary
		Zinc (Zn-65) Radionuicides are identified as follows: Aluminum, Radioactive (Al-28) Chromium-51 Cobalt-60 Gadolinium-153 Neodymium (Nd) Promethium (Pm-145) Samarium (Sm) Sodium, Radioactive (Na-24) Zinc , Radioactive(Zn-65)

Source Document Data Limitations (if any):

1. Blank logbook pages are not included with this source document.
2. This is the best available copy of this logbook.

Acceptable Knowlege Expert:

Lisa Price-Watson _____ Date: 04/15/2008
Print /Sign

[a] Obtain from Acceptable Knowledge Documentation Checklist
[b] For microfilm or microfiche, identify box, tape, reel number and location.

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PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Waste Stream Number(s): ORFWENC-007, OR-REDC-CH-HET

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: U011
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Supporting Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure or Note ☐ Miscellaneous ☐ Published Document or Controlled Database ☑ Unpublished Documents

Title of Source Document: Safety Analysis: Transuranium Processing Plant, Building 7920

Source Document Reference Information (author(s), document and revision number, date, publisher): L. J. King, J. E. Bigelow, E. D. Collins, and W. T. McDuffee , ORNL/TM-7688, Draft, 12/1984, ORNL

AK # [a]	Source Doc. Page #[b]	AK Information Summary
DR1	All	TRU is a remotely operated hot-cell facility. Major activities include the production of

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: U011
AK # [a]	Source Doc. Page #[b]	AK Information Summary
		amount of material used in each campaign is ~10kg of light-water-reactor fuel in the form of Zircaloy-clad UO2 or mixed UO2-PuO2 fuel rods. The operating steps carried out in SETF campaigns are outline in figure 4.39. Process Description – The major activities in TRU are 1) analytical chemistry operations, 2) chemical development operations, 3) transuranium elements production, 4) target fabrication operation, 5) SETF operations, and 6) equipment maintenance operations. Precipitation, solvent extraction, and ion exchange techniques are used in the reprocessing of reactor fuels and the conversion of recovered uranium and plutonium in the fabrication of recycle reactor fuel elements. In a typical campaign, about 13 irradiated HFIR targets plus rework material from previous campaigns are processed for three months. The composition of the feed materials is shown in table 4.10 A 6"-thick cask will hold one equipment rack or 7 to 8 trash bags, each of which can hold up to 16 1-gal paint cans. A 12"-thick cask will hold the equivalent of about 2.5 bags. Approximately 12 casks are filled each year, which will have one 12"-thick variety. Liquid wastes – Rain runoff, sanitary wastes, process waste, and intermediate level radioactive wastes are discharged into ORNL waste-handling systems. High-level fission product wastes are diluted with other building wastes to low levels of radioactivity before discharge from the building. Non radioactive organic wastes are composite in 55-gallon drums for disposal. Figure 4.48 presents a schematic diagram of the TRU process and low-level liquid waste systems. Solid wastes containing high-level of radiation are place in concrete cask and transferred to the SWSA. Materials containing less radiation and high in alpha contamination are sealed in plastic and packed in 55-gallon stainless steel drums and segregated based on burnable or non-burnable waste. Low-level wastes are sorted based on whether or not they are compactible and are also packed in 55-gallon stainless steel drums. High level Solid wastes consist of leach fuel hulls, materials insoluble in acid, spent ion exchange resins, inoperable or obsolete metallic equipment and piping, glass sample bottles, plastic bags, bottles and tubing, manipulator boots, and cloth scrub pads. Gaseous wastes from TRU are monitored and are vented directly into the atmosphere through the 7911 stack. The gaseous wastes constituents include tritium, radiolodine, fission gases (Kr, Se, and their decay products), oxides of nitrogen, HCl and HNO3 vapors, organic vapor from solvents, and small quantity of dusts and entrained liquids. Routine releases - Table 4.13 shows the release of radioactive gases during dissolution of HFIR targets. Table 4.14 shows the release of radioactive gases during dissolution of irradiated power reactor fuel as part of the SETF program. Table 4.16 shows the inventory of fission product in a transuranium element dissolver and the corresponding estimated annual entrainment release in to the VOG system and the stack. The combined estimates of routine emissions of all sources are listed in Table 4.18.
PR2, PR6, WS3, WS5, WS7, WS8, WS9, WS11, S2,	4-153	Radionuclides mentioned include: Pu-242; Pu-239; Pu-237; Pu-240; Pu-242; Sr-90; Cs-137; Am-241

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: U011
AK # [a]	**Source Doc. Page # [b]**	**AK Information Summary**
S9 WS8, WS12	Throughout (4-76)	Chemicals mentioned: activated alumina; aluminum (powder); aluminum chloride; ammonium hydroxide; ammonium persulfate; ferric chloride; ferrous sulfamate; hydrazine hydrate; hydrochloric acid; hydrofloric acid; hydrogen peroxide; hydroxylamine hydrochloride; hydroxylamine nitrate; lithium chloride; lithium hydroxide; lithium hypochlorite; lithium nitrate; mercuric nitrate; nitric acid; nitric oxide; nitrogen trioxide; potassium bromate; potassium carbonate; potassium hydroxide; potassium nitrate; silica gel; sodium carbonate; sodium hydroxide; sodium nitrate; sodium thiosulfate; zinc bromide; acetic acid; acetone; adogen-364-HP; ascorbic acid; carbon tetrachloride; citric acid; deorized mineral spirits (Amsco); 2,5-di-tert-butylhydroquinone (DBHQ); Di(2-ethylhexyl) phosphoric acid (HDEHP); diisopropylbenzene (DIPB); Dowex 1-X8 and -X10; dowex 50W-X4 and -X8; ethanol; ethylenediaminetetraacedetic (EDTA); 2-ethyl-1-hexanol; hydroquinone; o-hydroxyisobutyric acid (AHIB); Ionac A-580; methanol; n-dodecane; n-paraffin (NPH); oxalic acid; stearic acid; tributylohosphate; trichloroethylene (TCE); xylene

Source Document Data Limitations (if any):

1. This is an inactive document. Some of the information provided in this SAR is inaccurate. This document is superseded by SAR/7920-CTD/01 R1 (source document 4.4).

Acceptable Knowlege Expert:

Lisa Price-Watson _____ Date: 10/31/2007
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[a] Obtain from Acceptable Knowledge Documentation Checklist
[b] For microfilm or microfiche, identify box, tape, reel number and location.

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PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Waste Stream Number(s): OR-REDC-CH-HET, OR-REDC-RH-HET

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: C600
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Supporting Information	Category: ☑ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure or Note ☐ Miscellaneous ☐ Published Document or Controlled Database ☐ Unpublished Documents

Title of Source Document: Interviews with Don Coffey and Wayne Evans re: REDC RH Waste Cask Packaging Clarification and Swipe Sample Collection

Source Document Reference Information (author(s), document and revision number, date, publisher): K. Peters; M. Doherty, NA, NA, 06/04/2008

AK # [a]	Source Doc. Page # [b]	AK Information Summary
PR7, WS2, WS4, WS8, WS11, S12	Throughout	The subject of this interview was REDC RH Waste Cask Packaging Clarification and Swipe Sample Collection; Segregation of RH and CH waste at REDC; Radiological Distribution from Analytical Laboratories and Process Development Laboratories; Chemical Contamination from Building 7930; Collection of Swipe Samples for Radiological Characterization.

Source Document Data Limitations (if any):

1. None.

Acceptable Knowlege Expert:

Lisa Price-Watson _____ Date: 06/24/2008
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[a] Obtain from Acceptable Knowledge Documentation Checklist
[b] For microfilm or microfiche, identify box, tape, reel number and location.

Attachment 2 – Record of Communication

Waste Stream Number(s): OR-REDC-RH-HET	**Corresponding Source Document Tracking No:** C600	
Interviewer: Steve Schafer Mark Doherty	**Date:** June 4, 2008	**Time:** 1:30 pm
Interviewee: Wayne Evans Don Coffey	**Group/Organization:** REDC **Job Title:** Mr. Evans: REDC Waste Coordinator (1993 – 2007)	**Phone:** (865) 574-2530 (Mr. Evans) (865) 241-2520 (Mr. Coffey) **E-mail:** evanscw@ornl.gov don.coffey@truproject.com
Subject: REDC RH Waste Cask Packaging Clarification and Swipe Sample Collection 1) Segregation of RH and CH waste at REDC 2) Radiological Distribution from Analytical Laboratories and Process Development Laboratories 3) Chemical Contamination from Building 7930 4) Collection of Swipe Samples for Radiological Characterization		

Summary:

Mr. Evans held the position of REDC Waste Coordinator from 1993 to 2004 continues to work at the REDC as a Project Lead. As Waste Coordinator, Mr. Evans was responsible for all aspects of REDC waste management and is knowledgeable regarding historical and current waste management practices within the REDC (Buildings 7920 and 7930).

Mr. Coffey worked at the REDC beginning in 1974 as a radio chemist supporting the analytical laboratories, and he worked at the REDC for 9 years. After working stable isotope separation (Y-12, Building 9204-2) for one year, Mr. Coffey moved to the Waste Examination Assay Facility (1983 - 1993) as the operation supervisor. In 1993, Mr. Coffey moved to the Radioactive Waste Department as the Facility Manager and was responsible for all Site TRU waste storage facilities until 2007.

1) Segregation of RH and CH waste at REDC

The current AK Summary Report CCP-AK-ORNL-500 summarizes the following from source documents:

> "Prior to 1976, all Building 7920 solid wastes were managed as RH TRU waste, even though a significant portion of the inventory produced was CH-TRU waste. In March 1976, operations to formally segregate RH- from CH-TRU wastes were initiated. Intensive segregation did not occur until the 1978 time frame."

Mr. Evans confirmed the accuracy of this summary and stated the segregation of RH and CH waste was accomplished by surface dose measurements. Measurements were taken from individual cans, but were also routinely taken on individual waste items. The objective of the segregation was to ensure that loaded 55-gallon waste drums did not exceed 200 mRem/hr surface dose rate. Mr. Evans could not identify any distinction between the CH waste packaged in 55-gallon drums and the RH waste packaged in casks other than the dose rate. There are generally no distinctions in physical form or area of generation. The only difference between RH and CH waste is the magnitude of the radiological contamination on the waste item. Some waste items, such as filter bed media, are generally always highly contaminated and removed as RH waste. Mr. Evans was the individual who packaged the waste in cubicle 9 of the hot cell facility.

2) Radiological Distribution from Analytical Laboratories and Process Development Laboratories

Regarding the radiological contamination on waste from the analytical laboratories (Cubical 8, Rooms 108 and 208), Mr. Evans stated the vast majority of activities performed in the analytical laboratories was, and continues to be, analysis of samples from hot cell operations. Although a small insignificant faction of the work historically performed in the analytical laboratories has been support work for the process development laboratories (Rooms 109, 209, 111, and 211), the radiological contamination on waste from the analytical laboratories has and continues to be considered identical to the contamination on waste from the hot cells. The conclusion that the radiological distribution of waste from the analytical laboratories is the same as radiological distribution of waste from the hot cell operations has been confirmed over time by several site subject mater experts and is documented in several source documents (References I044, U045, U049).

Work in the process development laboratories dealt primarily with the purification of actinides produced from the hot operations (e.g., berkelium, californium, einsteinium, fermium) and R&D activities. Radiological contamination on waste from the process development laboratories will contain the actinide products, and will be similar the hot cell isotopic distribution except much lower in gamma emitting radioisotopes, such as cesium and other fission products.

3) Chemical and Radiological Contamination from Building 7930

CCP review of detailed packaging logs received from ORNL on 5/29/2008 for cask X10C0601826 identified one waste item indicated as originating from Building 7930, Cell C. Mr. Evans stated he did not specifically recall any waste from 7930 being placed in a 7920 cask, however he believes that it is possible and he believes this is likely not a misprint in the paperwork. Mr. Evans stated that adding lower dose rate items (i.e., CH waste) to a RH cask was common. This practice was to fill void space within the RH cask prior to closing and processing the cask. The packaging documentation confirm RH casks were loaded first with higher activity waste items, then were filled with lower activity (often CH) waste items prior to cask closure. Mr. Evans stated that buildings 7920 and 7930 are connected by a pneumatic tube transfer systems used to deliver californium product from 7920 to 7930. It is conceivable that cask X10C0601826 was available and a waste item was transferred from 7930 to 7920 for disposal in the cask.

The operations in 7930 are limited primarily to only californium product finishing and are on a much smaller scale than operations in 7920. Typically Building 7930 generates only one drum of CH-TRU waste every 6 to 12 months. That waste is generated primarily from operations supporting californium product finishing operations. Additionally, 7930 uses very few chemicals. Based on a review of the Material and Chemical Input Table in CCP-AK-ORNL-500 (Table 5-3), Mr. Evans is very confident that this table bounds any waste from 7930 and that no EPA hazardous waste numbers are associated with 7930 waste that are not associated with 7920 waste.

Follow-up with Mr. Evans

Mr. Evans obtained additional information on 6/5/2008 regarding this waste item by contacting the Building Supervisor for 7930, Mr. Scott White. Since 7930 Cell C generates very little radioactive waste, Mr. White specifically remembered this waste item. The waste was debris material (probably rags and wipe) used in a decontamination activity. Based on the location (Cell C), the operation was probably to decontaminate a californium source prior to shipment. Mr. Evans again confirmed that no decontamination materials were used in Building 7930 that were not used in Building 7920.

4) Collection of Swipe Samples for Radiological Characterization

Mr. Evans stated that he was the operator who collected the swipe samples performed to obtain characterization data for REDC TRU waste. He selected waste items to sample as directed by Lien Nguyen (who was one of the experimenters for the characterization project). Sampling was performed using Q-tips based on his experience as a hot cell operator (there is no sampling procedure for the hot cell, all manipulator work is performed by hot cell operators). Sample locations were selected based on his experience and Ms. Nguyen's requests to sample all of the various materials typically found in the waste. Ms. Nguyen was present for the collection of all of the samples and assisted in selection of the waste items sampled.

Data Limitation:

Information is based on the recollection of individuals interviewed.

Acceptable Knowledge Expert: Steve Schafer / _____ Date: 6/5/08
Print Sign

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

☒ Original Record
☐ Fax Record
☐ E-mail Record

Attn:	Sheila Pearcy	From:	Lisa Price-Watson
Ship to:	CCP Central Records/ CCP Records Custodian 4021 National Parks Highway - MS GSA 203, Carlsbad, NM 88220	Site:	Oak Ridge National Laboratory
		Company:	LANL
		Telephone Number:	575-628-8946
Telephone Number:	505-234-7523	Date Sent:	9/3/08

C600	Attachment 3 - Acceptable Knowledge Source Document Summary for CCP ORNL AK	6/24/2008	1
NA 9/4/08	Interviews with Don Coffey and Wayne Evans re: REDC RH Waste Cask Packaging Clarification and Swipe Sample Collection	06/04/2008	2

Comments:

None.

Acceptance/Rejection Signature and Date

Records Accepted ☒	Dani L. Parker Signature	TAMI PARKER Printed Name	9/4/08 Date
Records Rejected ☐	_____ Signature	_____ Printed Name	_____ Date

Reason for Rejection:

Re-submittal:	_____ Signature	_____ Printed Name	_____ Date

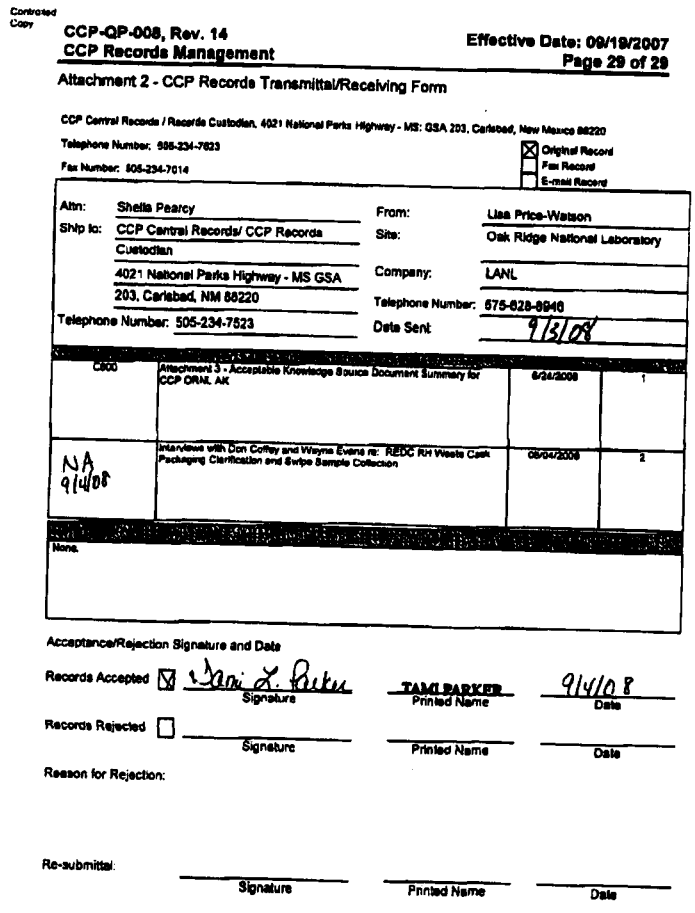
HP LaserJet *M2727nf MFP*

Fax Confirmation Report

HP LASERJET FAX

Sep-4-2008 4:32PM

Job	Date	Time	Type	Identification	Duration	Pages	Result
6840	9/ 4/2008	4:32:25PM	Send	96283238	0:24	1	OK



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CCP-QP-008, Rev. 14
CCP Records Management

Effective Date: 09/19/2007
Page 29 of 29

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 505-234-7523
Fax Number: 505-234-7014

☒ Original Record
☐ Fax Record
☐ E-mail Record

Attn: Sheila Pearcy
Ship to: CCP Central Records/ CCP Records Custodian
4021 National Parks Highway - MS GSA
203, Carlsbad, NM 88220
Telephone Number: 505-234-7523

From: Lisa Price-Watson
Site: Oak Ridge National Laboratory
Company: LANL
Telephone Number: 575-628-8940
Date Sent: 9/3/08

C600	Attachment 3 - Acceptable Knowledge Source Document Summary for CCP ORNL AK	8/28/2008	1
NA 9/4/08	Interviews with Don Coffey and Wayne Evans re: REDC RH Waste Cask Packaging Clarification and Swipe Sample Collection	08/04/2008	2

None.

Acceptance/Rejection Signature and Date

Records Accepted ☒ Signature: Tami L. Parker — Printed Name: TAMI PARKER — Date: 9/4/08

Records Rejected ☐ Signature _____ — Printed Name _____ — Date _____

Reason for Rejection:

Re-submittal: Signature _____ — Printed Name _____ — Date _____

Attachment 2 – Record of Communication

Waste Stream Numbers: OR-REDC-CH-HET & OR-REDC-RH-HET		Source Document #: **C148**
Interviewer: Jeff Harrison & Lisa Watson	Date: 6/19/2007 – 6/21/2007	Time:
Interviewees: See below	Group/Organization: Job Title: See below	Phone: See below Email:
Subject: Interview of REDC Personnel		

Summary: The following Building 7920 personnel were interviewed over the course of 3 days:

- Kenton Wilson – 6/19/07 (Ph: 865-574-6926)
- Fred Chattin – 6/19/07
- Wayne Evans – 6/20/07
- Chuck Alexander – 6/20/07
- Curtis Porter – 6/20/07
- Porter Bailey – 6/20/07
- Charles Roberts (Retired) – 6/21/07 (Ph: 865-588-8868)

Kenton Wilson

Began in 7920 in 1974 as a Lab Aid and then a Hot Cell Technician. He was a Hot Cell Shift Supervisor starting in 1980. Transferred out of 7920 to other areas at ORNL in 1987. Came back to 7920 in 1996 as an Alternate Hot Cell Operations Supervisor. Has been the REDC Facility Manger for the last 3 years, and was the Operations Manager for 6 months before that.

Building 7930 is the Californium facility. He said that the 7920 and 7930 waste drums are not commingled.

The waste from the laboratory cells upstairs is not commingled with the waste from downstairs operations.

- Lab 108 - Supported the hot cells; however there is not much waste from this room. This is an analytical lab.
- Lab 208 - Analytical lab. They do analytical work from all over.
- Lab 109 - Contains the Vault where isotopes are stored for analytical. They have done smears on all the boxes in this lab and have used the results as a composite for the waste stream for this laboratory.
- Lab 209 - The support lab for Pu research.
- Lab 210 - At one time, this lab did gamma spec, not much of anything else was done in this laboratory. (LLW from this lab)
- Lab 111 is a subset of the Hot Cells.
- Lab 211 - Research and auxiliary support lab. This lab was initially a heavy element lab, then they began to process Cm-244.
- Lab 118 - Hot Cell Lab. This lab was the transfer lab and is commonly shared with Analytical Chemistry

The Supplemental Reports and Quarterly Reports will have process information for these labs.

There is no liquid in the waste. Any Cm and Cf in liquid form goes back to the facility for recycling. They used Ajax with ammonia as a cleaning agent to clean the gloveboxes.

Kenton Wilson (cont.)

The numbering scheme was as follows: The ATN # was the first numbering scheme. Drums were numbered, i.e., 2141-2, 2141-3, 2141-4, etc. This represented different drums of waste that were picked up on the same day. They would be given the same 1st 4 numbers, and the "–X" number would be different. An example of the 2nd drum numbering sequence is X10C0300537. The first 2 numbers after the "C" indicated the year the label was printed – not necessarily the year the waste was packaged. The labels were pre-printed and handed out in batches.

CH and RH waste is moved down to Cell 9 for packaging so all hot cell waste will be commingled. There is some CH that comes out of the hot cells. The method used for the 200 mR limit is by estimating the activity when filling the drum. Waste is first packed into 1 gallon cans (buckets), and a dose is taken on the bucket. These are summed as they fill the drum.

Generally speaking, ½ of the CH waste generated from REDC comes form the Hot Cells. Am, Cm, Pu work was done in the Hot Cells. Mostly CH waste out of the Rm. 111 cave.

The types of CH waste that we will see from the hot cells will be things like manipulator boots, light bulbs (flood lights & mercury vapor lights), empty poly bottles (melted and placed in cans). There will also be empty Pb pigs that were used for material transfer. Circuit boards will also be in waste.

Resin goes into 1 liter poly bottles where it is washed with water than grouted. Then they are put into 1 gallon buckets to be transferred out of the Hot Cell. Resin will be RH waste.

Hot cell work is done in campaigns. When a campaign is complete, they profile the last Cf-252 mass and apply to the hot cell campaign. They average about 1 to 2 RH waste casks per year out of the Hot Cells. Waste cans may sit in Cell 9 for as long as 10 years to "cool."

There was no transition between the HFIR targets and the Mark-42 targets; therefore the waste for this work is commingled. There is no lab work associated with the Mark-42 targets, all this work is done in the Hot Cells.

Originally, the targets were Pu-242, then in about 1974, they started using Cm. Occasionally some Pu comes out of the reactor rods in the Hot Cells.

Fred Chattin

Started in the REDC in 1965 – the Facility went hot in 1966. The program started with Pu irradiated at SRS. Pu-239 was eventually used up, and all that was left was Pu-242, Am, and Cm-244. SRS processed this to recover the Pu-242. There was Cm, but it was necessary to have Pu-242. They made targets in gloveboxes in 4508. They were the 1st targets to go in the reactor. Eventually raffanate was brought from 4507 and processed to recover the Cm, and this started going into the reactor as targets. The first set of targets were done in about 1969. After 1969, there were no more Pu-242 targets.

In about the 1970-1971 timeframe, they received a set of irradiated Cm slugs from SRS, and then they received irradiated Mark-18 targets from SRS. They processed 20 of these in the 1970s. There about 60 Mark-18 targets still at SRS. They recovered Cm-244, -246, -248 from these and they had about 20 done in about the 1972-1974 timeframe. In 1986 the SETF started processing spent commercial reactor fuel, then in 1992, they got back into the Mark-42 targets.

Fred Chattin (cont.)
Some of the waste casks that have been managed as RH are actually CH waste. This process started in about 1977. Disposal forms started out as Form 2822 (Request for Disposal of Radioactive Solid Waste or Special Nuclear Material. This is the predecessor to the Form 2109.

Wayne Evans
Came to facility in 1988 in the Hot Cell process and worked there for 5 years processing HFIR targets and working on other processes. In 1992 he went into maintenance managing waste – TRU and solid low level waste (with Charlie Roberts and Dave Galbraith). He managed waste from the gloveboxes and Hot Cell. All TRU waste had to go through him.

In the early days, Health Physics and Management determined the 95-98% of the contamination was Cm-244. The Facility SAR for 7920 outlined waste management practices.

He developed waste profiles. There was a waste ID for each packet of waste (as well as a Form 2822). This was from 1992 to about 1997 or 1998. On the disposal records is included the cask number and a package number. These numbers can be traced back to a particular lab.

The waste is identified with the following information: the material makeup and physical characteristics. The early waste will be Cm-244 and Cf-252 and other TRU isotopes – back then it was all counted as TRU. The policy was that any waste with alpha activity went into the TRU population regardless of concentration. If the shoe covers got a "pop", they went into the TRU waste. No known alpha waste was to go into the solid low-level line. 99.9% of the waste was contaminated with Cf-252 and/or Cm-244 (from cell bank 244). The alpha in the labs may be a little different. They knew they were generating too much alpha.

The first waste management procedure was developed in about 1992 or 1993. The CH TRU procedures have been revised 1 or 2 times. In 1995, a waste profile system was developed by Bechtel-Jacobs. Anything that was going to be waste was to be put in profiles. The Master Waste Profiles have information as to what was required in the 1998 timeframe. The 2109 form has a space for a waste profile number that links back to the characterization profile.

In 1996 and 1997 a report was published (a thesis) – Wayne took samples and smears that were counted and found 30 different isotopes. 28 samples out of Cell 9. These were analyzed individually to estimate the TRU content of the waste. From this they developed scaling factors. Dose-to-curie was used CH waste, and Monte Carlo neutron scaling was used for RH casks.

Liquids went down the drain for subsequent recovery. They stopped using the drain and began vacuuming out the liquids and pouring into containers for recovery.

Saturated/wet items such as rags were dried before disposal. This practice continues today. Absorbent was not added.

Chuck Alexander
Sr. Scientist started in 1976 at ORNL. He has worked in REDC since 1982. For 2 years about 12 to 14 years ago he was responsible for Cubicles [hot cells] 1, 2, 3. Targets were his responsibility on the new target fabrication line. His lab was responsible for the Mark-42 targets.

He has worked in Labs 109, 110, 111, 209, 210, and 211 at different times. Most of his involvement has been in Lab 211.

Chuck Alexander (cont.)

Lab 211: 10 gloveboxes would collect waste in one drum. In 1982, waste drums started being placed in the labs for use. They did smears on the gloveboxes to characterize the waste. In the old days, they used process knowledge. The boxes in Lab 211 are as follows:

- Te glovebox - This glovebox did electroplating of heavy elements. Handled Cf-249 which was isotopically pure. Maybe a little NU from Sol-Gel process. There was probably not any Pu work that went on in this glovebox.
- Pu-Am box - Has the largest activity. There has been Pu (Pu-238 through Pu-242) work in this box. Most recently the waste would have been Pu-240, Pu-241, Pu-242, and a lot of Am-241 (separation from Pu). The Pu isotopes are isotopically pure (>90%). They did chemistry and source preparation in this glovebox. Most of the work is completely unrelated to the hot cell.
- 3' Glovebox – Assembly of devices, source assembly and preparation involving electroplating. This box had Am-241, Cf-249, Cf-252, Cm-244, Cm-248 all of which were 90% or greater isotopically pure, except for the Cf-252 which was 80% or less.
- Es-Fm Box – 6' box. Isotopes used is this box included Es-253, Es-254, Fm-255, Fm- 257, and maybe Cf-250. The Es-253 and Es-254 originated from HFIR targets. Everything transcurium came from Hot Cells. You will see Cf-249, Cf-250, Cf-251 in this glovebox from decay. Elemental separations was performed in this glovebox.
- Cf-252, Cm-248 box - Mostly electroplating using ammonium acetate. Grouted small amounts of resin or fix in some fashion.
- Bk Glovebox – Bk-249 or Cf-249. This box did isotopically pure separations and some electroplating.
- Old Bk Glovebox – This box had Bk, Cf-249, Cf-252 and lots of fission products. Other nuclides included Am-241, Pu-238, Pu-239, Pu-240, Pu-242. Generally speaking, work was done with isotopically pure materials.

Lab 209

About 10 gloveboxes in this lab. Chuck only worked in a couple of them.

- Furnace glovebox – this glovebox was to make Np-237 oxide
- MDD (Modified Direct Denitration) glovebox – NU, Pu-240, Np-237, Am-241, Cm-244
- Pu oxide dispensing glovebox – Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-244 oxides
- I-131 glovebox
- Ni-63. Nickel in chloride form
- Po-209 dispensing glovebox
- U-234, Th-230 dispensing glovebox – enriched materials in here
- Tc-99 dispensing glovebox box
- Lead-lined glovebox – Pu, Cm, and maybe Am in this box. Primarily Pu-244. Dissolved Pu oxides (there is a trace amount of Am and Cm in Pu oxides).

Lab 109

- RIMS glovebox – Cm-244 (80% pure); Pu-238 (99-100% pure). This box did device testing
- Welding glovebox – Cf-249
- Vault

Chuck Alexander (cont.)

Lab 111

Contained 2 junior caves and 2 gloveboxes.

- Cave – Th-229 on down. This would be low level waste; not TRU
- Cave – All Cf isotopes, Am, Cm, and Pu decay daughters
- Glovebox from each cave. Old cave had Europium, Gd, Am-243. Did Es and Fm separations. Ni-63; Es-253, Es-254

Organic solvents used were thyocynate and TCE.

Curtis Porter

He has worked at REDC since 1988. Worked in Labs 111, 109, 209, 211 and Cold Lab in 110 (low level waste). He has logbooks for these labs that identify nuclides, process steps, and chemicals used.

TCE was used to separate organics from acid in Bk process. Done about 1988 and before.

Lab 209

- Furnace box for making oxides
- Development gloveboxes were refurbished in 1989.
- The 4 dispensing gloveboxes described by Check Alexander were operations transitioned from isotope production facilities on Isotopes Circle in about 1991/1992.
- Pb-Lined glovebox dissolved Pu oxides (w/ trace Am and Cm)

Lab 211

- Work described by Chuck Alexander as electroplating was actually electrodeposition. First dissolved material in weak HCl. Electrodeposition originally used isopropyl alcohol but changed to ammonium acetate.

Porter Bailey

Went to work at REDC in January 1988. He worked primarily in the Hot Cell. He now coordinates waste from Cell 9.

Hot cell CH and RH waste was put in 2 or 3 gallon poly buckets. At one time the buckets were thermally [heat] sealed, but the sealer broke so they now seat the lid but it is not heat-sealed. No tape is used to seal the lid. The buckets were placed in a placed in a plastic bag and sealed with tape. Since the sealer broke, the bucket is placed in a plastic bag and then in another plastic bag. The first bag is not sealed, and the second bag is sealed using the twist/tape method.

They also used 1½ gallon metal buckets (primarily RH hot cell waste) that had a slip-lid and tape around the sealing surface of the lid. The lid has a pinky-size hole in it. 1-gallon paint cans were also used (primarily RH hot cell waste).

All glovebox waste is heat-sealed. Glovebox ports were 6" and 15".

Porter Bailey (cont.)

CH Drum Configuration:

- Drum lined with a single poly drum liner bag; rigid liners were not used
- Liner bag may be twist-tape, but may not be taped

RH Cask Configuration:

- Cask lined with a heavy plastic liner
- Cans were loaded in vinyl laundry bags (about 15 cans per bag)
- Laundry bags went into cask (about 6 to 7 bags per cask)
- Laundry bags were twisted and sealed with a metal tie
- Poly buckets were direct-loaded into casks (not in laundry bag)
- Plastic cask liner was twisted and cut with a heat knife, then wire was wrapped around top of the bag.

Charles Roberts

Charles (Charlie) started working at REDC when hot operations began in 1966/1967. He retired in 1994. He kept maintenance logs of all the waste packaging. The Maintenance group took care of the waste.

As many as 24 fiber/cardboard 5-gallon drums were placed into 4" floor casks. Some of the fiber drums had a liner. The 5-gallon drums had lids that were taped around the sealing surface. They were raw cardboard material; no waxy coating was present on the cardboard. The floor casks were for CH waste, not RH waste. The segregated burnable from non-burnable waste in separate casks.

On 10/7/1977 (according to his notes), they began using steel drums for CH waste, and no longer put CH waste into 4" floor casks.

Removed waste from 7930 (TURF) every couple of years (30 gallon drums). This waste was not mixed with the 7920 waste.

There were 4", 6" and 12" concrete casks. 4" casks were used if the dose was not high. A lot of the 108 and 208 labs' waste is in 4" casks. They tried to keep liquids out. He does not recall any pyrophoric or reactive materials coming from the gloveboxes that needed to be taken care of before being disposed.

Data Limitations: Information based on persons memory. Some of the information is relatively recent, but some dates back 20 or 30 years.

Acceptable Knowledge Expert: Jeff Harrison / Date: 6/24/2008
Print / Sign

DIVIDER

PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Waste Stream Number(s): OR-REDC-CH-HET	
Site(s): Oak Ridge National Laboratory	**Source Document Tracking Number:** U507
Acceptable Knowledge Documentation Type: ☐ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Supporting Information	**Category:** ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure or Note ☐ Miscellaneous ☐ Published Document or Controlled Database ☑ Unpublished Documents
Title of Source Document: Research & Technical Notebook - Notebook No.(SM-1) A-107736-G - Building 7920, MS 6384 - Charles Alexander	
Source Document Reference Information (author(s), document and revision number, date, publisher): Charles (Chuck) Alexander, A-107736-G, NA, 01/30/1997 - 02/25/1997, Chem Tech Div	

AK # [a]	Source Doc. Page #[b]	AK Information Summary
WS2, WS3, WS8, WS11, WS12, S11	Throughout	This is a logbook relative to research work done in Building 7920 by Chuck Alexander. Chemicals identified include: Aluminum oxide (Al2O3) Ceresin wax (MSDS submitted to records) Gold (Au) HNO3 Lithobraze 925 (MSDS submitted to records) Silver Lithium Copper Nickel (Ni) Polyethylene Samarium (Sm) Samarium nitrate Samarium oxide Urea powder

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: U507
Source Document Data Limitations (if any): 1. There were no transuranics identified in this logbook 2. This is the best available copy of this logbook.	
Acceptable Knowlege Expert: Lisa Price-Watson _____ Date: 04/14/2008 Print /Sign	
[a] Obtain from Acceptable Knowledge Documentation Checklist [b] For microfilm or microfiche, identify box, tape, reel number and location.	

U507

Alexander Logbook Sm-1 (A-107736-G)

Chemicals
Aluminum oxide (Al2O3)
Ceresin wax (MSDS submitted to records)
Gold (Au)
HNO3
Lithobraze 925 (MSDS submitted to records)
Silver
Lithium
Copper
Nickel (Ni)
Polyethylene
Samarium (Sm)
Samarium nitrate
Samarium oxide
Urea powder

U507

Notebook No. Sm-1

MARTIN MARIETTA

Research and Technical Notebook

MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

MARTIN MARIETTA ENERGY SYSTEMS, INC.

Site Address ORNL
Bldg. 7920
MS 6384

Research and Technical Notebook No. A-107736-G

Assigned to: C. W. Alexander Date: 2-1996

Division: Chem. Tech.

Dept./Section:

Program/Project:

Content

Research/Technical Description(s)/	Inclusive Dates	Pages

Subject Test Brazes for Stainless Steel Encapsulation

Date Jan. (Month) 30 (Day) 19 97 (Year)

Gave Jim King of M&C two stainless steel samples with different braze materials. The first braze material was Lithobraze 925 and the second braze material was 82% Au, 18% Ni. The braze conditions are the same for both materials:

Gold-Ni	Temperature: >1750° F (>954 °C) (960°-970°) Atmosphere: Argon (dry) Time: 2-3 minutes at temperature	Jim King decided that these would be the best
Lithobraze	Temperature: ~910° C Atmosphere: Argon (dry) Time: 2-3 minutes at temperature	

Continued on page _____

C.W. Alexander
Recorded by

Jan. 30, 1997
Date

Read and understood by

Date

Subject "Preparation of Sm_2O_3 for Pressings

Date Feb. (Month) 3 (Day) 1997 (Year)

Empty SiO_2 flask: 88.090 g (tared out)

Sm_2O_3: 4.952 g (99.9%)

Added 13.0 ml of concentrated HNO_3 to the flask. The reaction was instaneous with almost all of the Sm going immediately into solution. Placed the flask on a heating plate. Added 4 ml of deionized H_2O to the flask. The rest of the Sm appeared to go into solution. Solution was then dried down to convert the Sm to a nitrate form. Added 9.998 g of urea powder to the nitrate and placed back on the heating plate. Added another 4.894 g of urea powder to the flask. Turned off the heating plate at ~1530 hrs.

Continued on page ____

C.W. Alexander — Recorded by

Feb. 3, 1997 — Date

Read and understood by — Date

Subject Preparation of Sm_2O_3

Date Feb. (Month) 4 (Day) 19 97 (Year)

Turned the heating plate back on in order to drive off more of the excess urea prior to putting it into the furnace. Reduced the amount of excess urea and transferred the SiO_2 beaker to a small furnace to convert the Sm to the oxide.

Continued on page _____

C. W. Alexander — Recorded by

Feb. 4, 1997 — Date

_____ — Read and understood by

_____ — Date

ect Test Brazes for Stainless Steel Encapsulation

Date Feb. (Month) 4 (Day) 1997 (Year)

Jim King finished the brazing of the two test pieces. According to Jim (and to me also) is that the joint with the Lithobraze was too big a gap. The Lithobraze flowed nicely into the joint. However, the gap was not completely filled with the braze material. In the case of the Au-Ni braze alloy, the joint was completely filled with the braze material. The excess braze material outside the lap joint also appeared to wick into the joint. Under examination with a microscope, there appeared to be some surface porosity on the braze. I will probably request some sectioning and micrographs to check uniformity of the braze and the porosity.

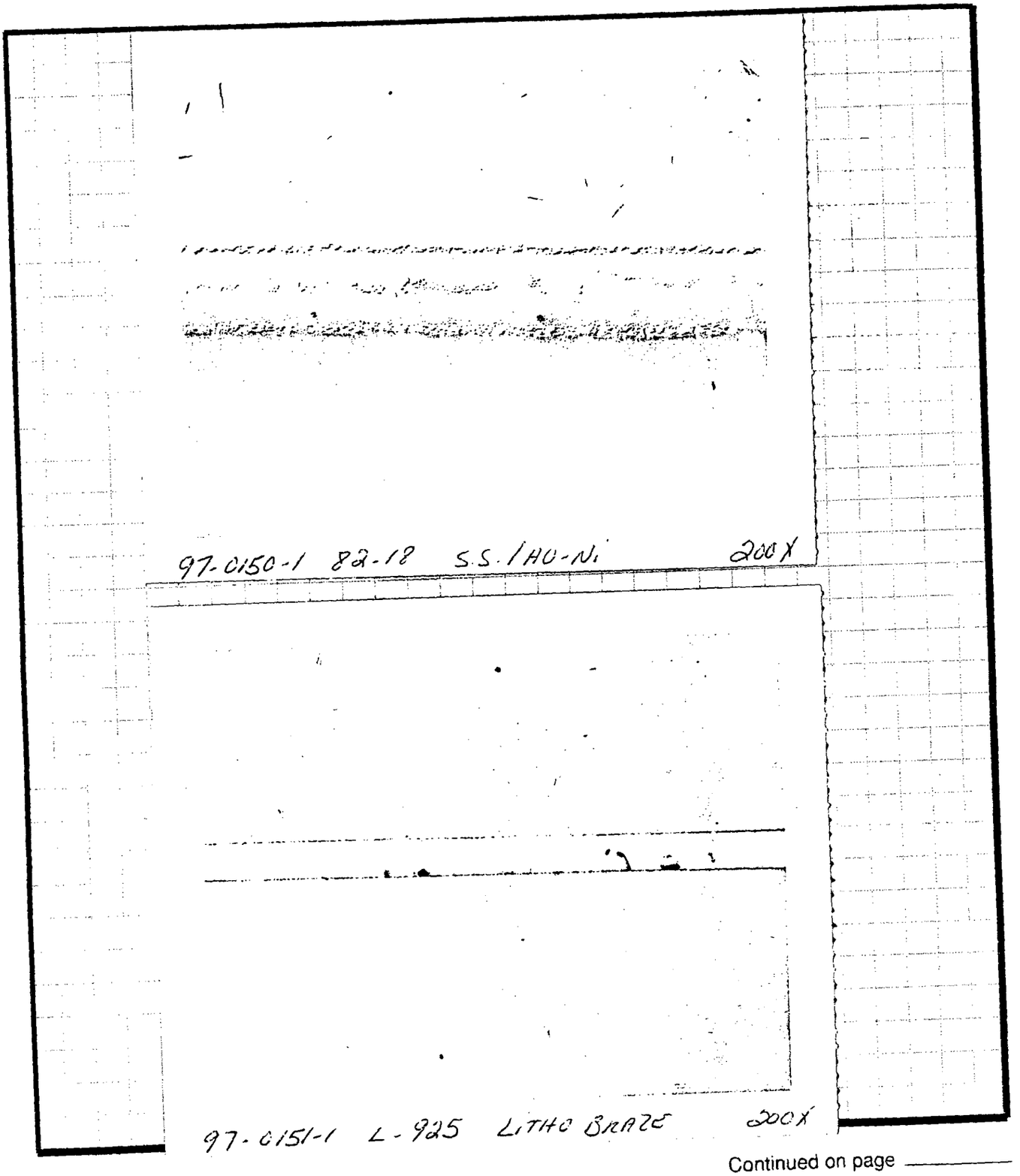
Continued on page _____

J. Alexander led by — Feb. 4, 1997 Date

Read and understood by — Date

Subject Sectioning Results of Test Brazes

Date Feb. (Month) 11 (Day) 19 97 (Year)



97-0150-1 82-18 S.S./HO-Ni 200X

97-0151-1 L-925 LITHO BRAZE 200X

Continued on page ____

C.W. Alexander — Recorded by

Feb. 11, 1997 — Date

Read and understood by

Date

Project Addition of Binders to the Sm_2O_3

Date Feb (Month) 20 (Day) 1997 (Year)

We took the following aliquots and mixed them together over low heat on a heating plate:

Sm_2O_3: 0.9960 g (from the urea precipitate method)
Ceresin wax: 0.0805 g
Polyethylene: 0.0123 g
Subtotal: 1.208 g

Beaker after heating and mixing: 30.5963 g
(material was not "sticky" so we added some more ceresin wax)

Ceresin wax: 0.1143 g

Beaker after heating and mixing: 30.7063 g (0.1100 g Δ)
(material was still not sufficiently "sticky" so we added some more ceresin wax)

Ceresin wax: 0.0983 g

Beaker after heating and mixing: 30.8203 g (0.1140 g Δ)
(material now appeared to be "sticky")

MAT'L: Tool or Carbon Steel
REQ'D: 1

Continued on page ____

T. W. Alexander — Recorded by
Feb. 20, 1997 — Date
Read and understood by — Date

Subject Loading Parameters for Pressing Sm_2O_3 Rods

Date Feb. (Month) 20 (Day) 1997 (Year)

If we desire to press a "green" rod that is 0.040" by 0.040" by 0.50", assume the following:

Sm_2O_3 T.D. : 8.347 g/cm^3

Ceresin T.D. (assumed) : 0.95 g/cm^3

Pseudo-density = (0.896/1.4206) · 8.347 + (0.313/1.4206) · 0.95

= 6.062 g/cm^3

Volume of rod = $(0.040)^2 (0.50) (2.54)^3$

= 0.0131 cm^3

Mass required/rod = 0.0795 g

Continued on page _____

C.W. Alexander — Recorded by

Feb. 20, 1997 — Date

_____ — Read and understood by

_____ — Date

#1 .066 rough edge - rough edge

.030 thick

.026 .0371 long

Post-Sinter

#4	34.834 mg	(49.7)	(70.09%)	(4.096
#3	39.908 mg	(56.0)	(71.26%)	
#2	49.004 mg	(68.8)	(71.23%)	
#1	56.122 mg	(78.9)	(71.13%)	

#4 0.360 long

0.040

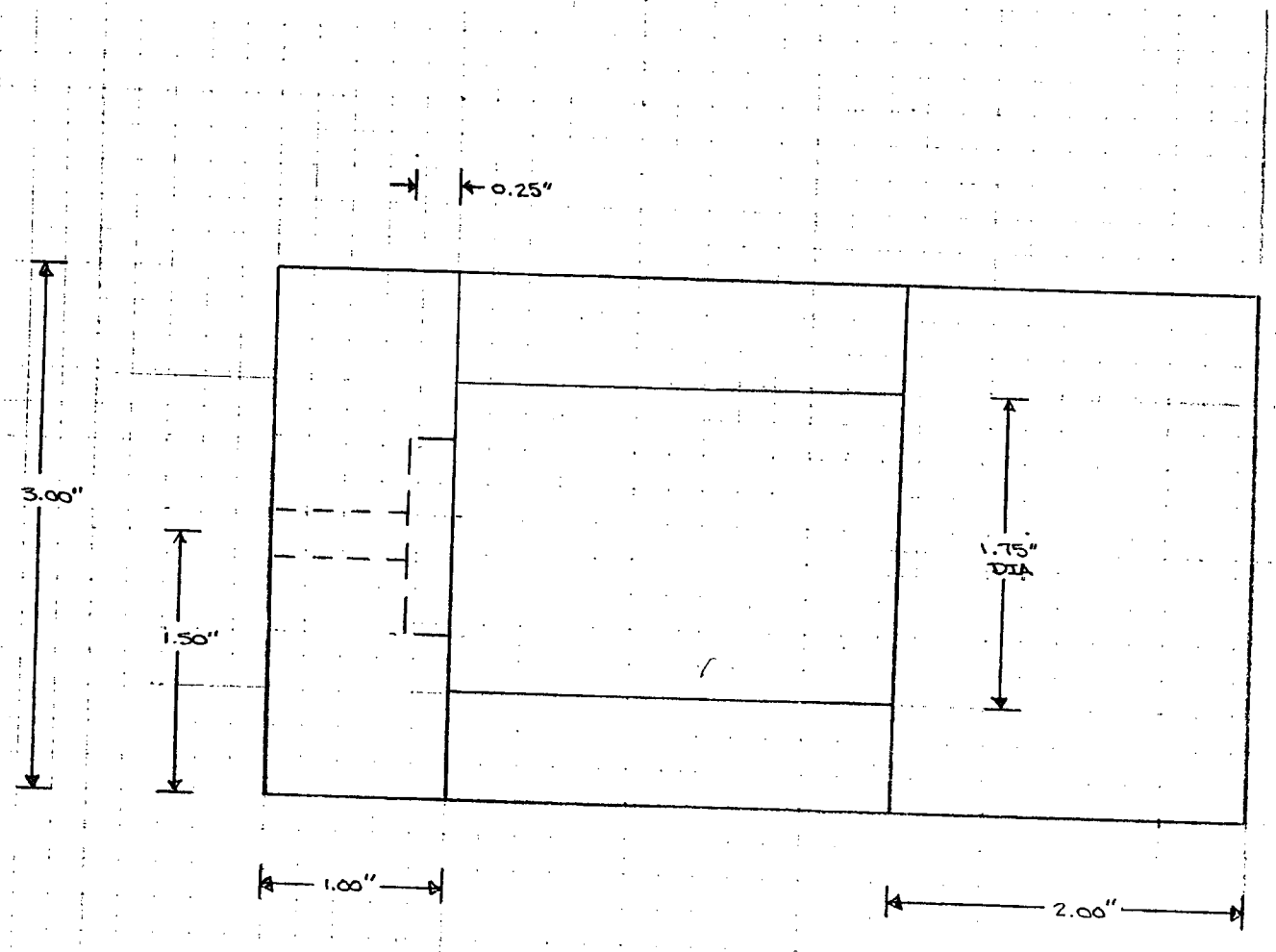
0.031"

0.0465

3-10-97

#2	20.517 mg	(69.71%)
#3	20.540 mg	(71.32%)
#4	19.424 mg	(70.63%)
#5	19.581 mg	(69.93%)

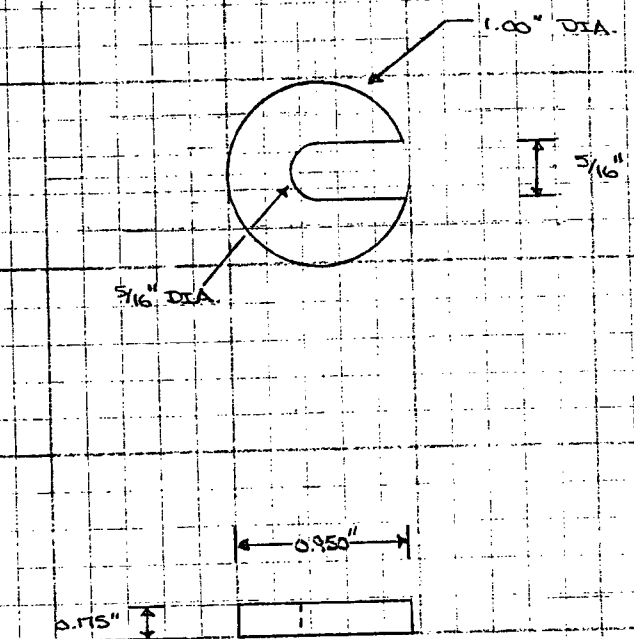
	length	diameter	original diameter 0.06250	orginal length reduct
#2	0.1725	0.0455	27.20%	26.75%
#3	0.1755	0.0445	28.80%	27.63%
#4	0.1625	0.0445	28.80%	27.62%
#5	0.1615	0.0445	28.80%	26.76%



EXTRUSION DIE HOLDER
(TOP VIEW)

MAT'L: Tool or Carbon Steel
REQ'D: 1

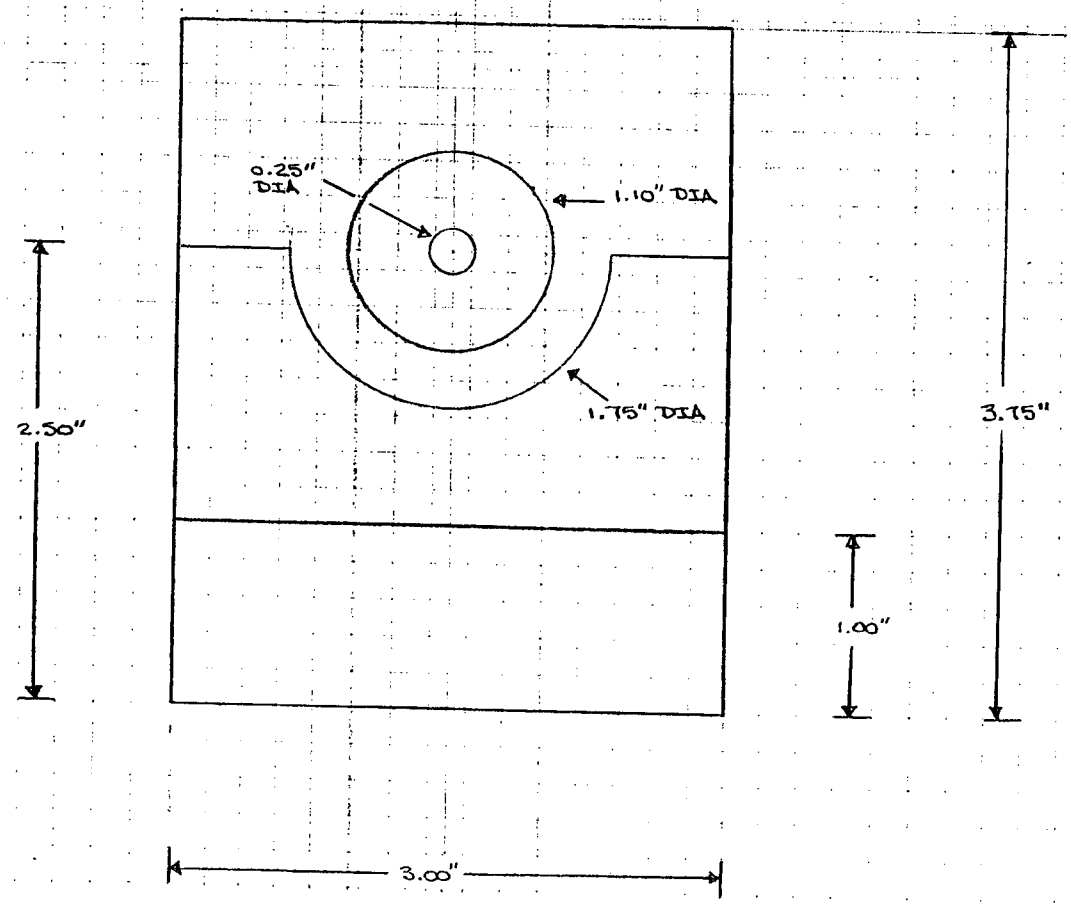
0.175 1"



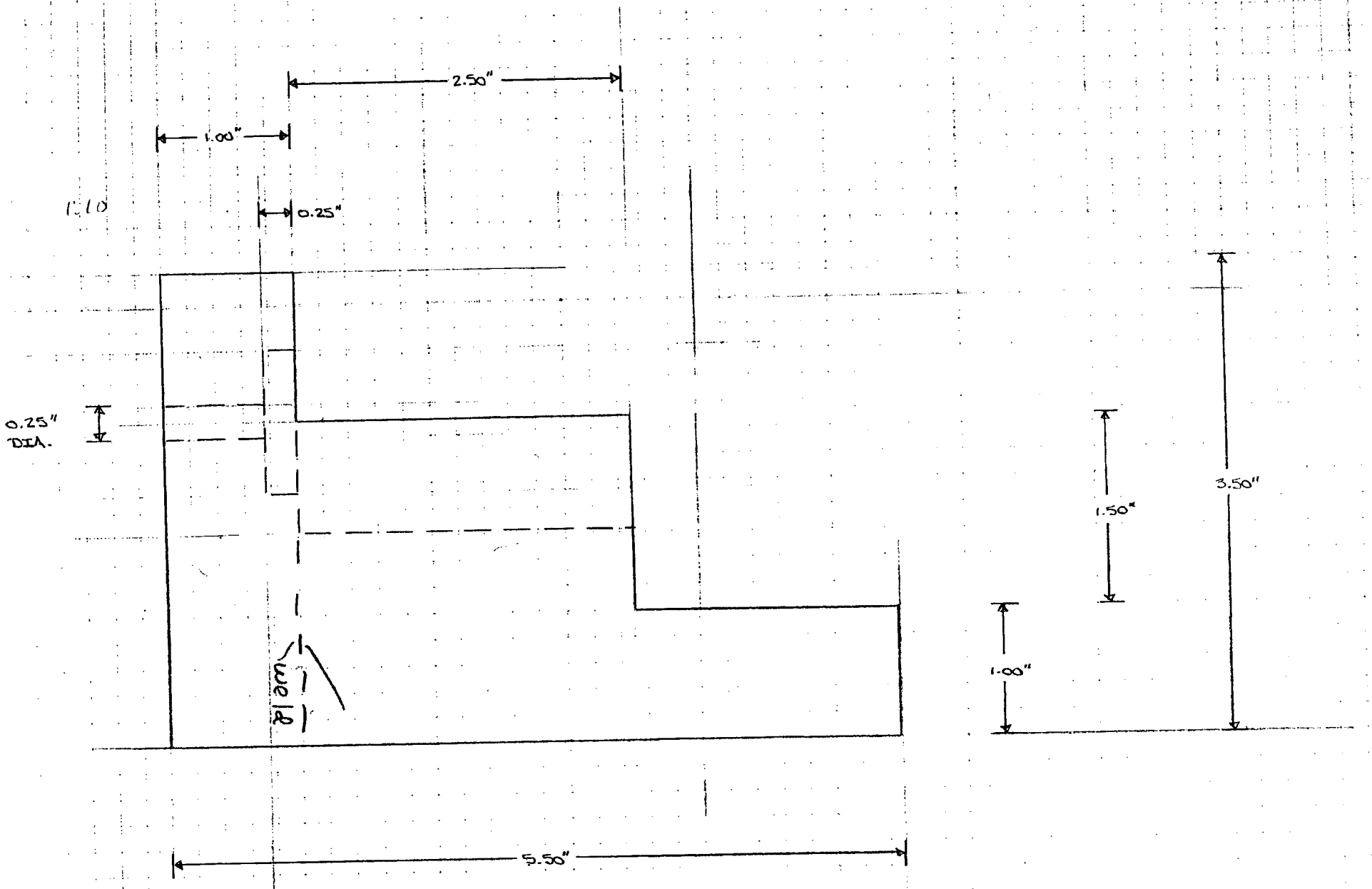
EXTRUSION DIE COLLAR

MAT'L: SS 300 Series

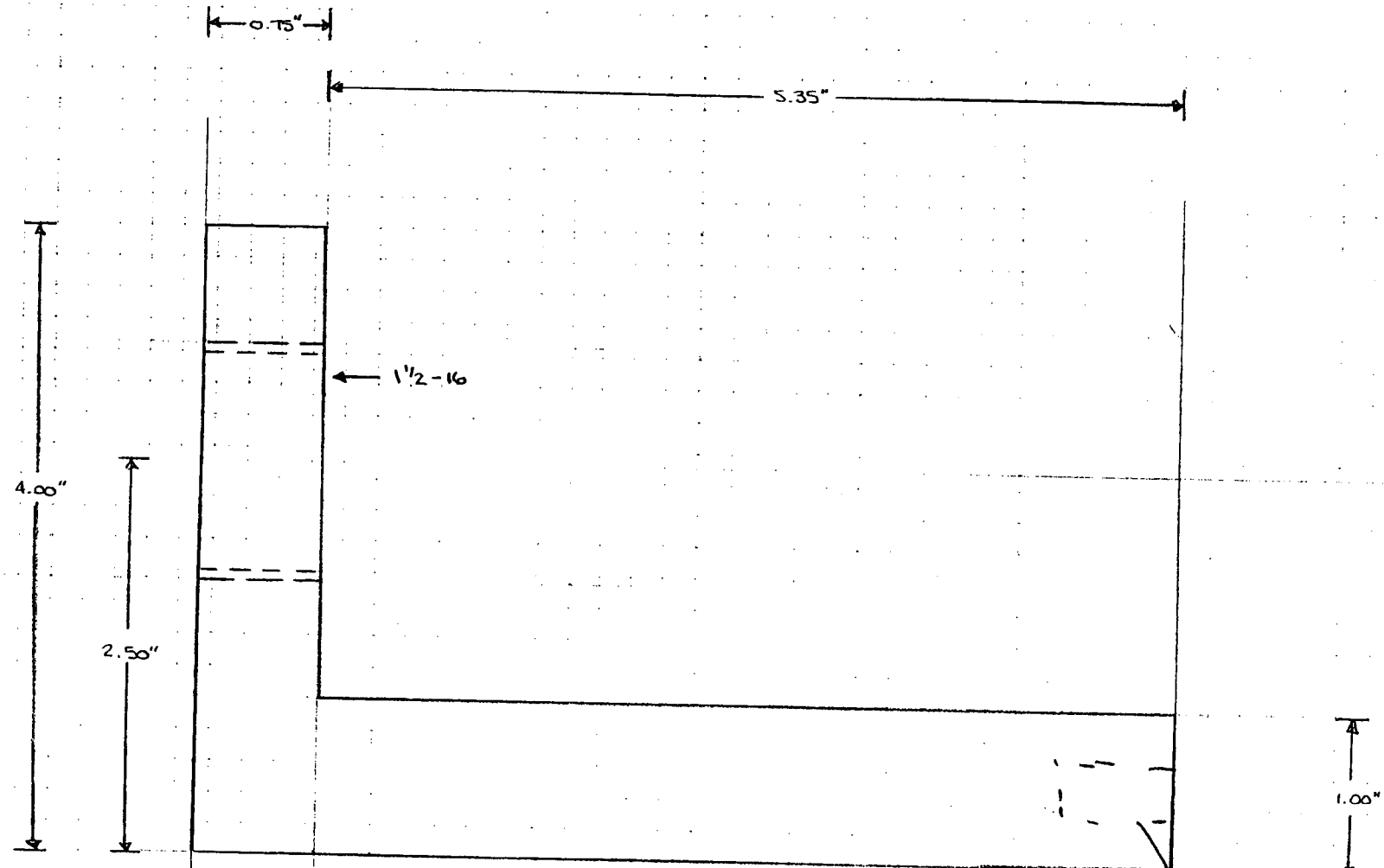
REQ'D: 1



EXTRUSION DIE HOLDER
(END VIEW)
MAT'L: Tool or Carbon Steel
REQ'D: 1



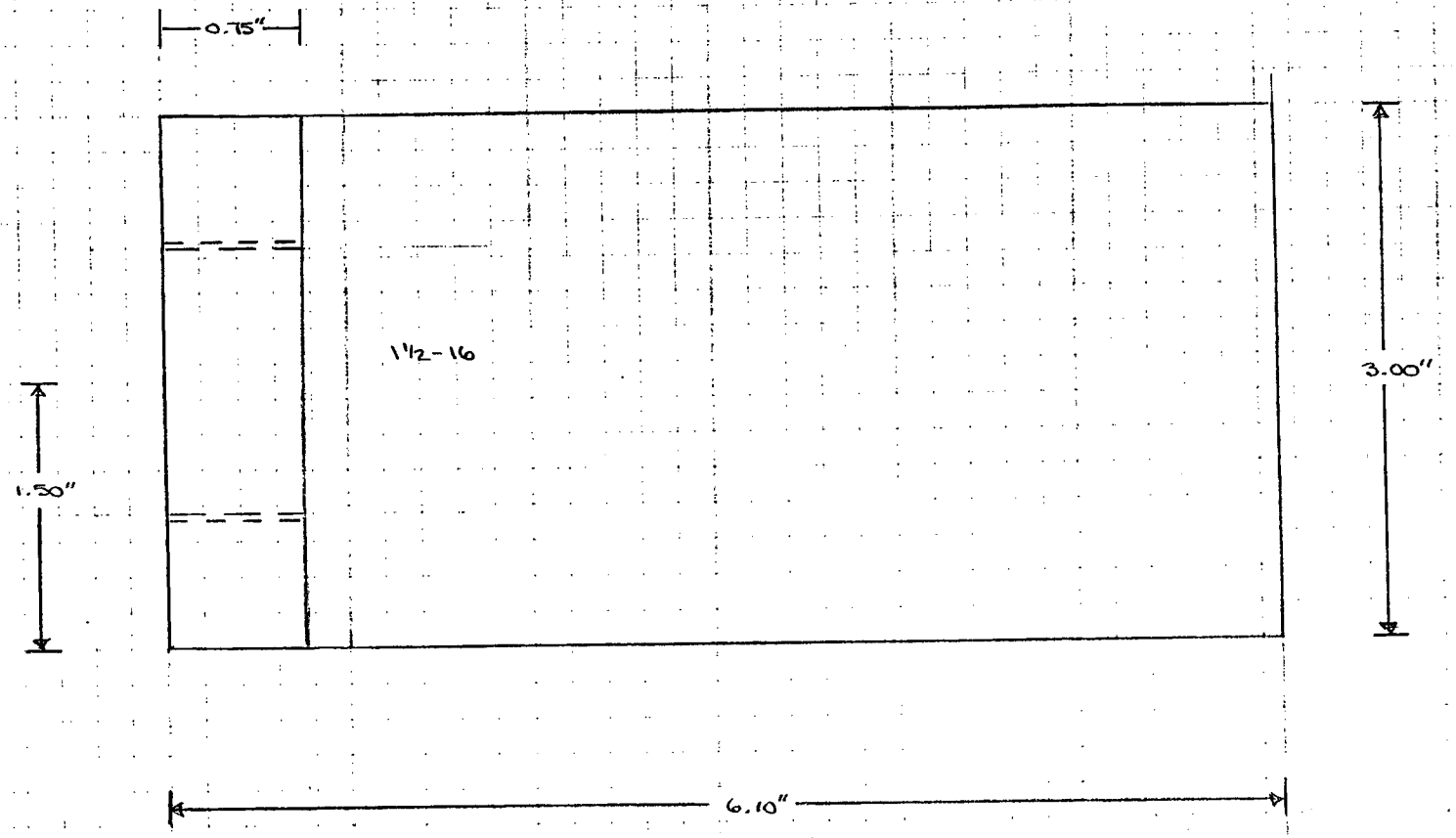
EXTRUSION DIE HOLDER
(SIDE VIEW)
MAT'L: Tool or Carbon Steel
REQ'D: 1



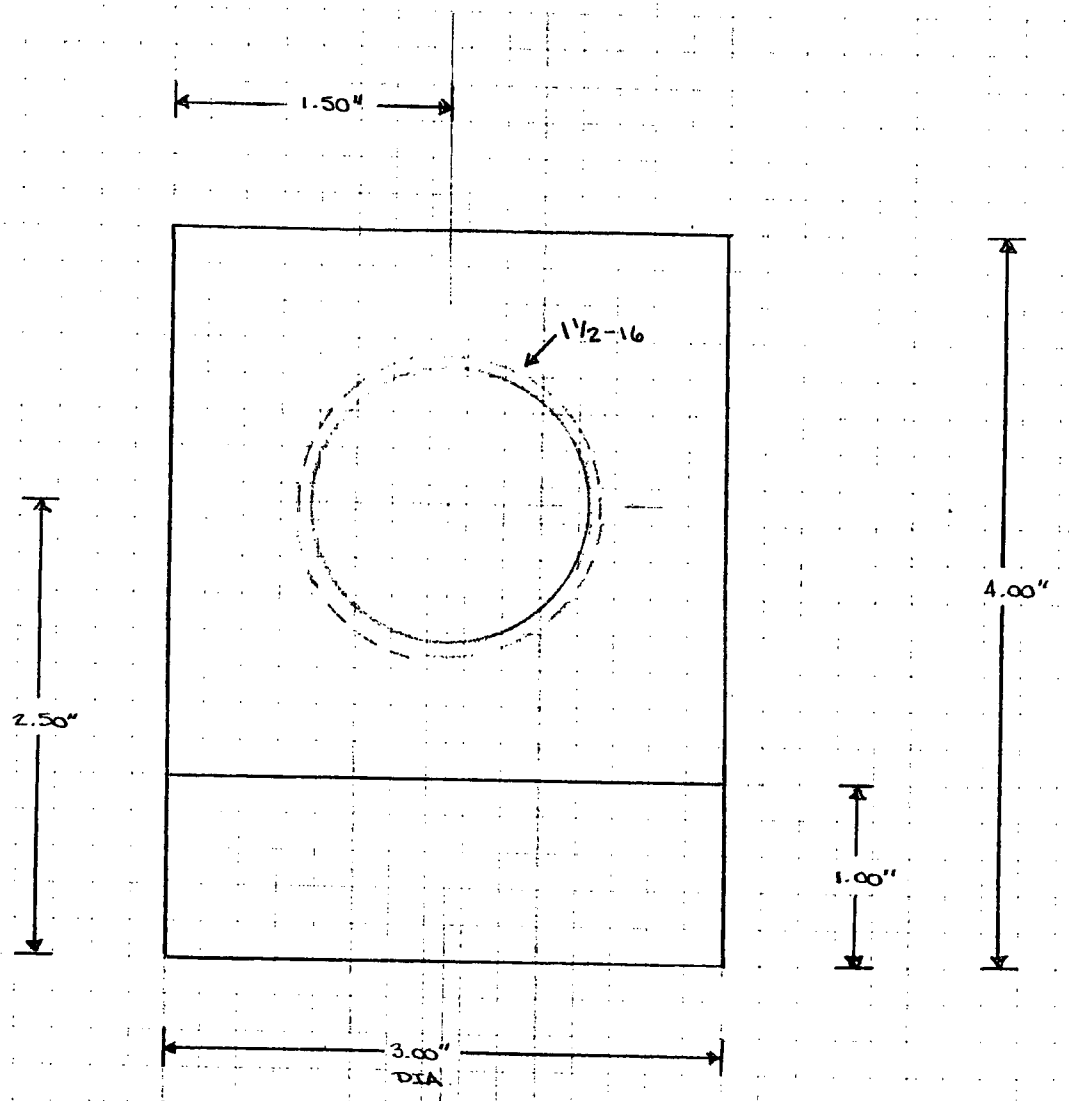
HYDRAULIC CYLINDER HOLDER
(SIDE VIEW)

MAT'L : Tool or Carbon Steel
REQ'D : 1

M14 x 1.5



HYDRAULIC CYLINDER HOLDER
(TOP VIEW)
MAT'L: Tool or Carbon Steel
REQ'D: 1



HYDRAULIC CYLINDER HOLDER
(END VIEW)

MAT'L: Tool or Carbon Steel
REQ'D: 1

Subject Rod Preparation and Sintering

Date Feb. (Month) 25 (Day) 1997 (Year)

Weighing dish: 8.6831 g (tared out)

1st Sm_2O_3 aliquot: 0.0796 g
Green rod weight: 0.0789 g (rod appears to be rectangular)

2nd Sm_2O_3 aliquot: 0.0701 g
Green rod weight: 0.0688

3rd Sm_2O_3 aliquot: 0.0593 g
Green rod weight: 0.0560 g

4th Sm_2O_3 aliquot: 0.0504 g
Green rod weight: 0.0497 g

A measure of #4, prior to sintering, was 0.5" x 0.066" x 0.0445".
These measures were made using a special reticule on the microscope.

All four green rods were loaded into the high-temperature furnace. They were placed on a bed of Al_2O_3 thermocouples.

1st Ramp:

Continued on page ____

Recorded by ____ Date ____ Read and understood by ____ Date ____

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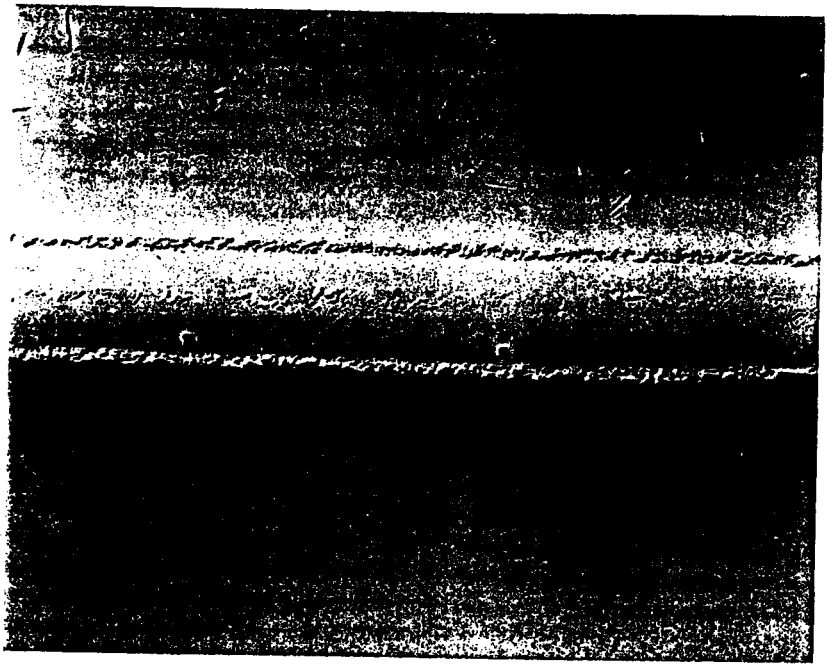
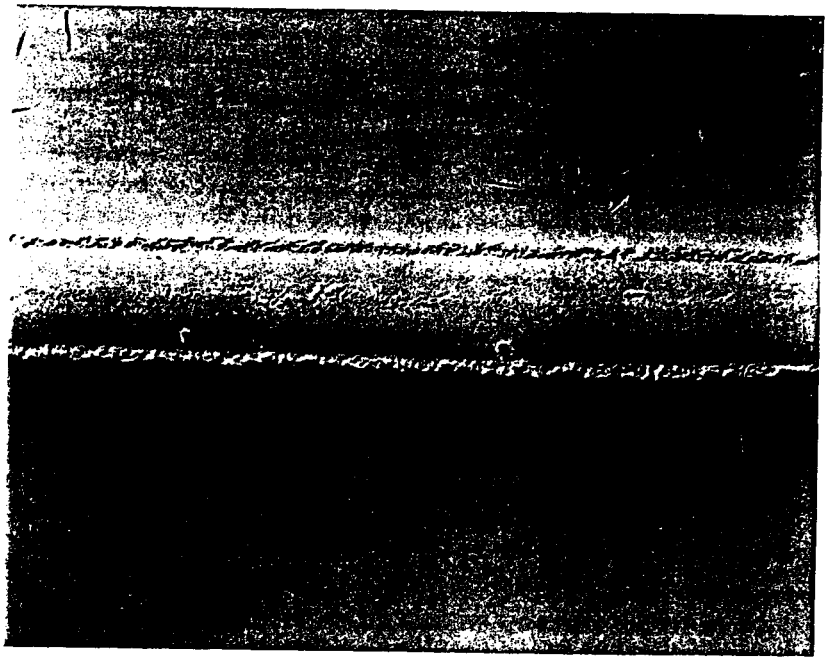


97-0150-1 82-18 S.S./AU-Ni 200X



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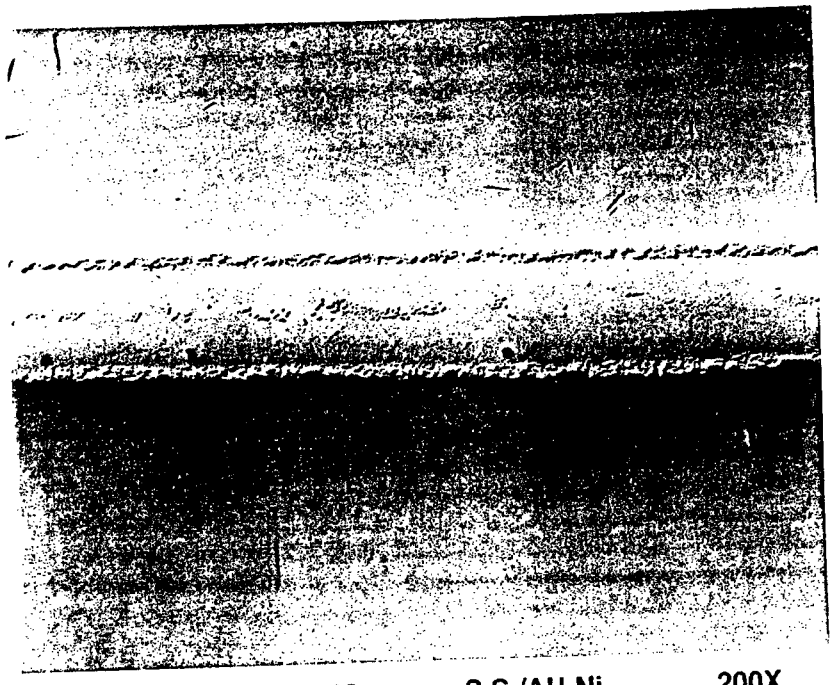

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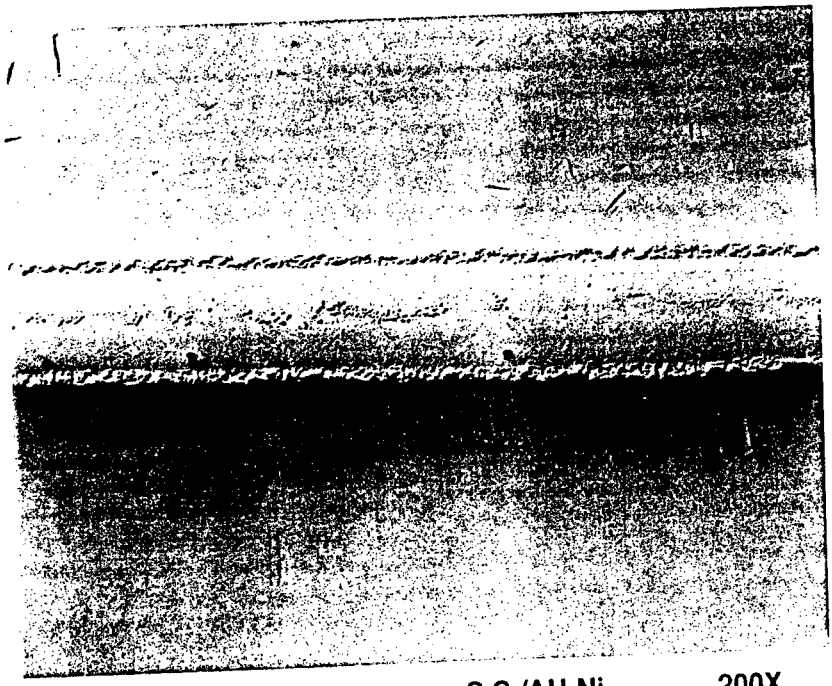

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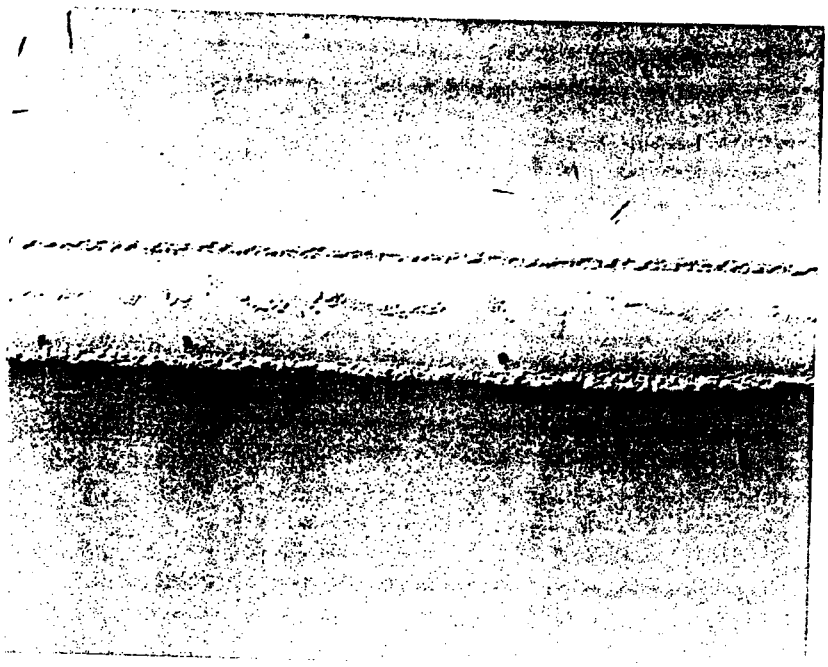

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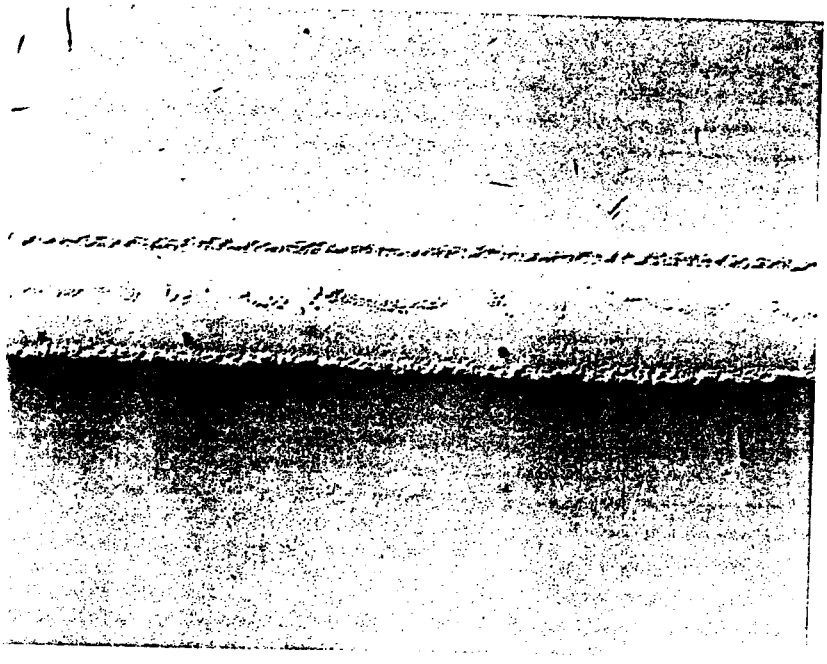

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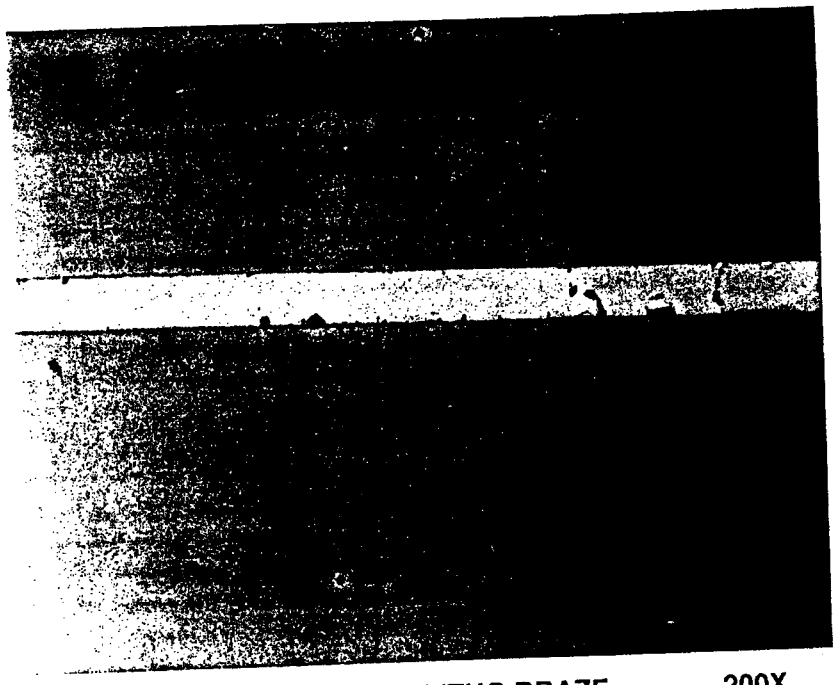

97-0151-1 L-925 LITHO BRAZE 200X

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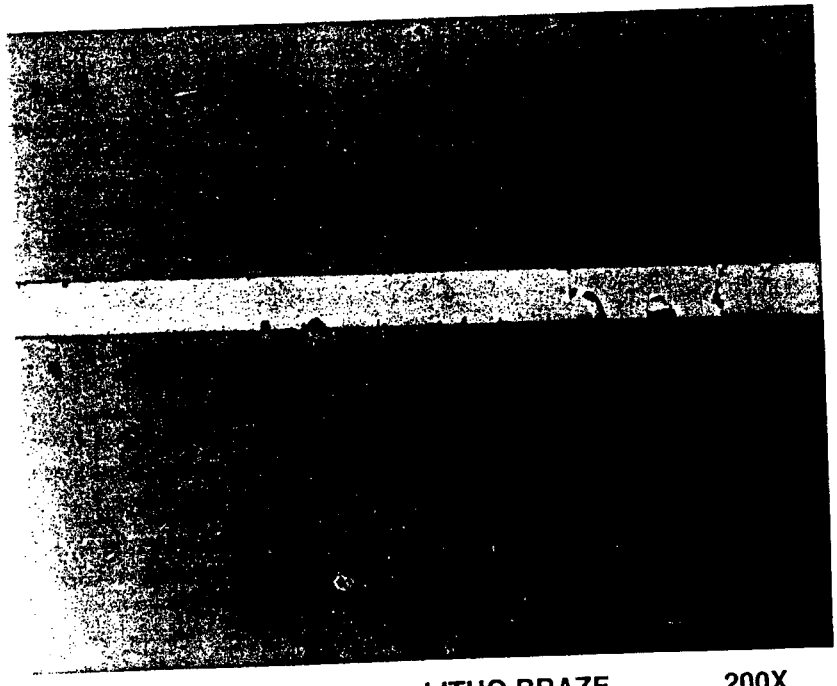

97-0151-1 L-925 LITHO BRAZE 200X

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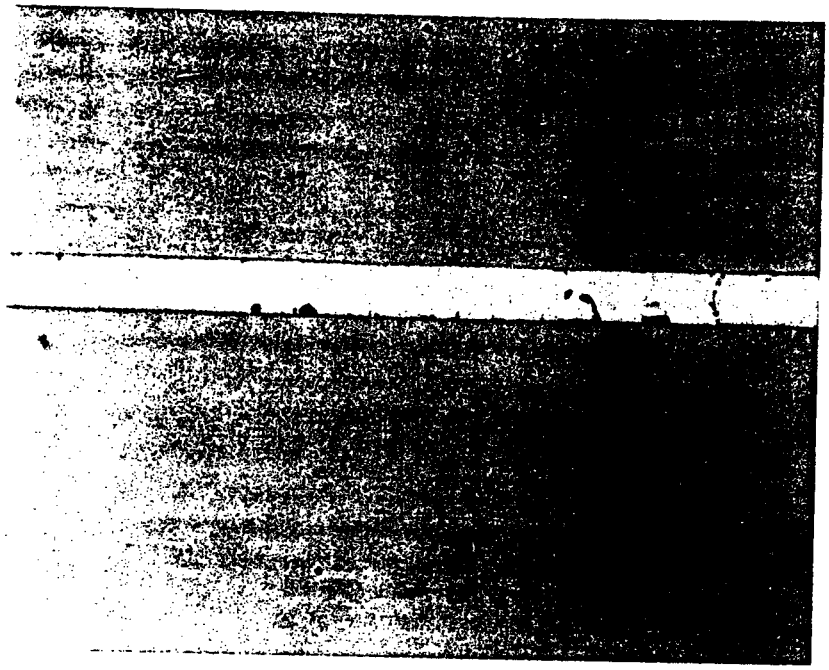
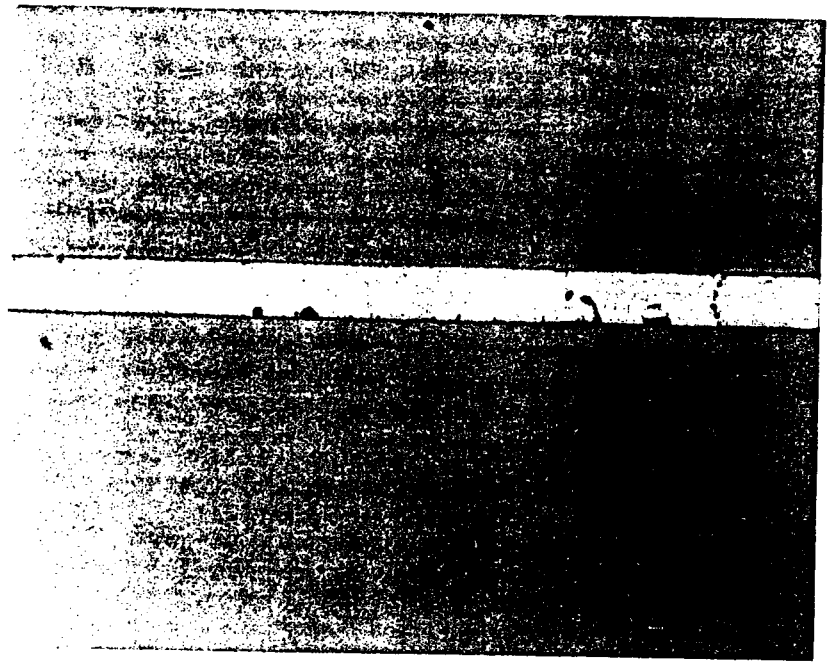
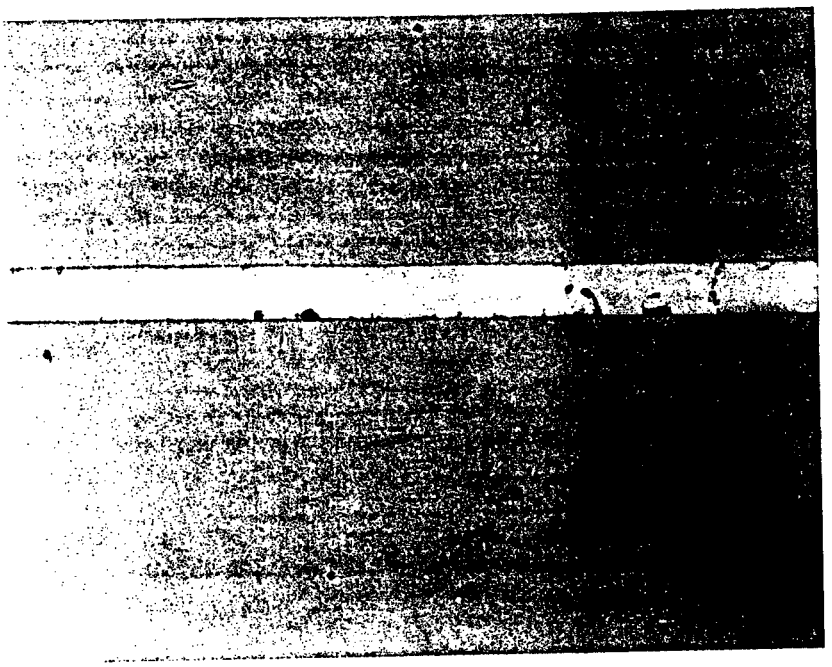


97-0151-1 L-925 LITHO BRAZE 200X



97-0151-1 L-925 LITHO BRAZE 200X



97-0151-1 L-925 LITHO BRAZE 200X

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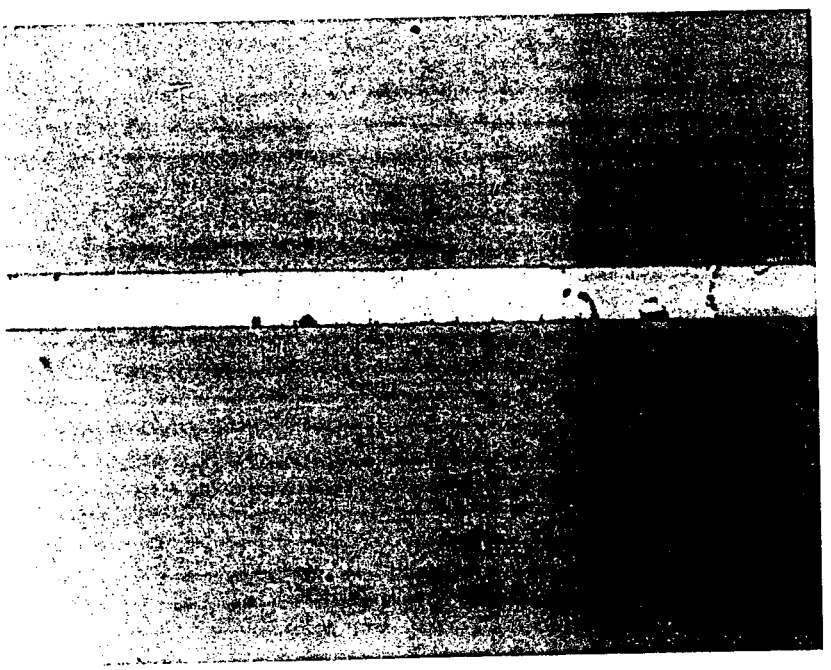

97-0151-1 L-925 LITHO BRAZE 200X

Paul Sacha
(315) 853-4900

Steve Marek

80% Au, 20% Sn
(182)

280°C } Eutectic
300°-320°C }

350°-400°C } reducing

82% Au, 18% Ni

> 1750°F

75% Ar / 25% H
dry argon, -70%
dewpoint

Lithobraze 925

> 1750°F

Argon inert
atmosphere

2-3 mins at
temperature

Nicrobraze cement (volatizes at 400°F)
Stop-Off (photo-resist)

Handy & Harman

TECHNICAL DATA SHEET—NUMBER D-38

INFORMATION ABOUT

LITHOBRAZE 925 and LITHOBRAZE 720 (BT)

		LITHOBRAZE 925	LITHOBRAZE 720 (BT)
NOMINAL COMPOSITIONS:	Silver	92.5% ± 0.5%	71.65% ± 0.5%
	Copper	Balance	Balance
	Lithium	0.20% $^{+0.10\%}_{-0.05\%}$	0.35% $^{+0.15\%}_{-0.10\%}$
	All Others	0.15% max.	0.15% max.
PHYSICAL PROPERTIES:	Color	Silver-White	Silver-White
	Solidus (Melting Point) (approx.)	1400°F (760°C)	1400°F (760°C)
	Liquidus (Flow Point) (approx.)	1635°F(890°C)	1400°F (760°C)
	Specific Gravity	10.11	9.67
	Density (Troy oz/cu in)	5.33	5.09
	Electrical Conductivity (% IACS)	55.2*	50.8**
	Electrical Resistivity (Microhm-cm)	3.12*	3.39**

*Measured on 0.030" diameter annealed wire with 0.22% lithium.
**Measured on 0.032" diameter annealed wire with 0.19% lithium.

BRAZING CHARACTERISTICS:

Lithobraze 925 is lithium modified sterling silver, designed primarily for fluxless furnace brazing of stainless steels. This alloy has been widely used for brazing honeycomb airframe structures made of precipitation hardening stainless steels such as 17-7PH, PH15-7Mo and AM350.

The use of Lithobraze 925 permits taking advantage of the maximum panel strength afforded by free node flow. This alloy is not suitable for torch brazing in air but must be used in a hydrogen or inert atmosphere of low dew point (—70°F/—55°C or drier). Argon is the most commonly used inert gas.

Lithobraze 720 (BT) is a lithium modified Braze 720 (BT). Braze 720 is the eutectic composition in the silver-copper system (72% Ag, 28% Cu). The lithium content facilitates the wetting of stainless and refractory metals when used in a hydrogen or inert atmosphere of low dew point (—70°F/—55°C or drier).

The use of endogas or exogas atmospheres, or standard fluxes, is not recommended since they react with the lithium and interfere with bonding. A minimum brazing temperature of 50°F (10°C) above the flow point is suggested for atmosphere furnace brazing. These alloys are particularly adaptable to brazing thin sections of stainless steels because solution of the base metal by the filler metal is negligible.

Lucas-Milhaupt, Inc.
A Handy & Harman Company
5656 S. Pennsylvania Avenue, Cudahy, WI 53110
Phone Number: (414) 769-6000

1900 Estes
'03 • 30400

LUCAS-MILHAUPT, INC.

5656 S. PENNSYLVANIA AVE
CUDAHY, WI 53110

FAX MESSAGE

DATE: JAN 31, 1996 SEND TO FAX#: 423-574-4928

PLEASE NOTIFY: MR. GEORGE GARNER

AT (COMPANY NAME): OAK RIDGE NATIONAL LAB

THAT THIS MESSAGE HAS ARRIVED

FROM: STEVEN MAREK OF LUCAS-MILHAUPT INC.

PLEASE CALL US IMMEDIATELY IF THE COPY YOU RECEIVE IS INCOMPLETE OR ILLEGIBLE. OUR TELEPHONE NUMBER IS (414)769-6000. FOR TRANSMISSION OF DOCUMENTS TO US, DIAL OUR FAX NUMBER: 414-769-1093.

Attached is the technical data sheet for the lithobraze filler metal you inquired about.

Lithobraze 925

1) > 1750° F (> 954° C)

2) Ar atmosphere

3) 2-3 minutes at temperature

probably ~900 °C

82% Au, 18% Ni

1) > 1750° F (> 954° C)

2) Ar atmosphere

3) 2-3 minutes at temperature

~ 970 °C

Chuck Alexander 4-11-67

Handy & Harman **LITHOBRAZE 925 and LITHOBRAZE 720 (BT)**

PROPERTIES OF BRAZED JOINTS: Joints brazed with Lithobraze 925 and Lithobraze 720 have been used for applications where operating temperatures were intermittently as high as 900°F (480°C). When continuous elevated temperature exposure to oxidizing conditions is to be expected (1000 hours or more), the maximum operating temperature should be reduced to 500°F (260°C). Joints made on heat resistant alloys with these filler metals are much more resistant to interface corrosion than flux brazed joints. Final acceptance should be based on tests made under the anticipated service conditions.

USES: The principal use to date of Lithobraze 925 has been the brazing of honeycomb panel sections. It can be used for general purpose furnace brazing of stainless steels where flux must be avoided.

Lithobraze 720 is a good general purpose, low temperature filler metal of high fluidity for fluxless furnace brazing of stainless steels when used in dry hydrogen or inert atmospheres.

SPECIFICATIONS: Lithobraze 925 conforms to the following specifications:

AWS A5.8	BAg 19
ASME Blr. Pr. Vsl. Cd.	
Sect. II-C, SFA 5-8	BAg-19
SAE-AMS 4767A	

Lithobraze 720 conforms to the following specifications:

AWS A5.8	BAg-8a
ASME Blr. Pr. Vsl. Cd.	
Sect. II-C, SFA 5-8	BAg-8a

AVAILABLE FORMS: Strip, wire, powder, paste and preforms to specification.

WARRANTY CLAUSE: Handy & Harman believes the information contained herein to be reliable However, the technical information is given by Handy & Harman without charge and the user shall employ such information at its own discretion and risk, and Handy & Harman assumes no responsibility for results obtained or damages incurred from the use of such information in whole or in part.

ORNL

U507

32 pages

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

☒ Original Record
☐ Fax Record
☐ E-mail Record

Attn:	Sheila Pearcy	From:	Lisa Price-Watson
Ship to:	CCP Central Records/ CCP Records Custodian	Site:	Oak Ridge National Laboratory
	4021 National Parks Highway - MS GSA 203, Carlsbad, NM 88220	Company:	LANL
		Telephone Number:	505-628-8946
Telephone Number:	505-234-7523	Date Sent:	04/14/2008

U507	Attachment 3 - Acceptable Knowledge Source Document Summary for CCP ORNL AK	4/14/2008	2
	A-107736-G - Research & Technical Notebook - Notebook No.(SM-1) A-107736-G - Building 7920, MS 6384 - Charles Alexander	01/30/1997 - 02/25/1997	1 32 4-21-08

None

Acceptance/Rejection Signature and Date

Records Accepted ☒ [signature] Signature — JANDÉ NAJAR Printed Name — 4.21.08 Date

Records Rejected ☐ _____ Signature — _____ Printed Name — _____ Date

Reason for Rejection:

Re-submittal: _____ Signature — _____ Printed Name — _____ Date

P.01

TRANSACTION REPORT

APR-21-2008 MON 12:53 PM

FOR: CCP RECORDS 15052347014

SEND

DATE	START	RECEIVER	TX TIME	PAGES	TYPE	NOTE	M#	DP
APR-21	12:53 PM	LANL CARLSBAD	17″	1	FAX TX	OK	985	

TOTAL : 17S PAGES: 1

Controlled Copy

CCP-QP-008, Rev. 14
CCP Records Management

Effective Date: 09/19/2007
Page 29 of 29

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

☒ Original Record
☐ Fax Record
☐ E-mail Record

Attn: Sheila Pearcy
Ship to: CCP Central Records/ CCP Records Custodian
4021 National Parks Highway - MS GSA 203, Carlsbad, NM 88220
Telephone Number: 505-234-7523

From: Lisa Price-Watson
Site: Oak Ridge National Laboratory
Company: LANL
Telephone Number: 505-628-8946
Date Sent: 04/14/2008

U507	Attachment 3 - Acceptable Knowledge Source Document Summary for CCP ORNL AK	4/14/2008	2
	A-107736-G - Research & Technical Notebook - Notebook No.(SM-1) A-107736-G - Building 7920, MS 6384 - Charles Alexander	01/30/1997 - 02/25/1997	2 32 9N4.21.08

DIVIDER

PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Waste Stream Number(s): OR-REDC-RH-HET

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: U047
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Supporting Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure or Note ☐ Miscellaneous ☐ Published Document or Controlled Database ☑ Unpublished Documents

Title of Source Document: Transuranic Waste Processing Center at Oak Ridge National Laboratory Remote Handled Transuranic Waste Container Selection and Transfer Plan

Source Document Reference Information (author(s), document and revision number, date, publisher): NA, RH-A-AD-0 02, Rev. 0 DRAFT, NA, EnergX L.L.C.

AK # [a]	Source Doc. Page # [b]	AK Information Summary
PR6, PR7, WS2, WS3, S16	Throughout	This plan was developed to optimize resource allocation and ensure adequate waste supply to support Remote Handled (RH) Transuranic (TRU) waste processing and disposal. This plan describes the strategy for selection of the first 60 RH TRU waste containers required to complete startup, certification, processing, and disposal milestones. This plan identifies the sequence of RH containers for transfer from the current storage configuration to the TRU Waste Processing Center (TWPC). The report states that the RH TRU waste legacy inventory consists of approximately 600 cubic meters made up of 341 casks, 72 drums, and 15 boxes as of 9/30/2007. The report states that the Newly-Generated RH TRU waste legacy inventory is currently projected at approximately 5 cubic meters or 3-6 inch concrete casks per year.

Source Document Data Limitations (if any):

1. This report is a draft and is unsigned.

Acceptable Knowlege Expert:

Amy Johns , Amy Johns Date: 12/13/07

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[a] Obtain from Acceptable Knowledge Documentation Checklist
[b] For microfilm or microfiche, identify box, tape, reel number and location.

ORIGINAL

Transuranic Waste Processing Center at Oak Ridge National Laboratory

Remote Handled Transuranic Waste Container Selection and Transfer Plan

Prepared for the
U.S. Department of Energy
Environmental Management
Transuranic Waste Processing Center
Oak Ridge National Laboratory
Oak Ridge, TN 37831-8169
Managed by
Foster Wheeler Environmental Corporation
and
EnergX, L.L.C.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-98OR22516

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APPROVAL:

Remote Handled Buildout Project Manager _____ Date _____

ORIGINAL

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Revision Summary

Revision	Change Summary
0	Initial Issue

Current Revision Specific Changes

Specific Changes

Location	Description	Reason

1.0 INTRODUCTION

This plan has been developed to optimize resource allocation and ensure adequate waste supply to support Remote Handled (RH) Transuranic (TRU) waste processing and disposal. This plan describes the strategy for selection of the first 60 RH TRU waste containers required to complete startup, certification, processing, and disposal milestones. This plan identifies the sequence of RH containers for transfer from the current storage configuration to the TRU Waste Processing Center (TWPC).

2.0 MAINTENANCE

The RH Buildout Project Manager is designated the plan owner and is responsible for updating this plan. Approval authority rests with the RH Buildout Project Manager. Submit suggestions for revisions or improvement to the RH Buildout Project Manager.

3.0 OAK RIDGE RESERVATION REMOTE HANDLED WASTE INVENTORY

3.1 Remote Handled Transuranic Storage

RH TRU waste is stored in 11 facilities: 7883, 7855, 7823, 7823B, 7823C, 7823D, 7823E, 7572, 7879, 7822K, and 7834. In some cases, the RH TRU waste is stored amongst containers of Contact Handled (CH) TRU waste. The waste storage facilities are used to store the legacy TRU inventory and the NG TRU inventory from generators such as Oak Ridge National Laboratory (ORNL) Radiochemical Engineering Development Center (REDC), ORNL Hot Cell Operations, and other ORNL Research and Operations.

3.1.1 Legacy

The RH TRU waste legacy inventory consists of approximately 600 cubic meters made up of 341 casks, 72 drums, and 15 boxes as of September 30, 2007.

3.1.2 Newly-Generated Projections

The Newly-Generated (NG) RH TRU waste legacy inventory is currently projected at approximately 5 cubic meters or 3 - 6 inch concrete casks per year. These concrete casks will need to be over-packed prior to delivery to TWPC.

3.2 Inventory Management

The RH TRU inventory is a controlled set of containers within the eMWaste waste tracking system. The RH containers were identified based on the original generator information. Based on recent radiological surveys, the RH inventory is increasing due to the identification of RH containers within the CH inventory. As the CH drums and boxes are evaluated for compliance with the TWPC CH Waste Acceptance Criteria (WAC), the drums and boxes may change category. Current trends indicate that additional RH drums are expected to be identified in the CH inventory and the majority of the RH boxes are expected to be moved to the CH inventory. As changes are realized, BJC will reflect the

changes in the eMWaste database and notify Central Characterization Project (CCP) and TWPC.

3.3 Container Transfers

The RH TRU containers will be transferred to TWPC under Transportation Documented Safety Analysis documents that establish controls for onsite transport of Nuclear Category 2 and 3 wastes and Transportation Equivalent Level of Safety documents that establish controls for less than Nuclear Category 3 wastes.

The RH containers must conform to the packaging requirements specified in these transportation documents and must comply with the TWPC WAC. Approximately 60% of the concrete casks are in carbon steel over-packs designed to mate to the TWPC hot cell. The balance of the concrete casks will need to be over-packed prior to transfer to TWPC. The drums and boxes will be delivered in excepted packages similar to the CH TRU containers currently being transferred to TWPC.

4.0 REMOTE HANDLED TRANSURANIC CONTAINER SELECTION

The strategy for RH TRU container selection involves multiple variables. The variables such as AK waste stream, confidence in the RH designation, container type, storage facility, location within the storage facility, waste description/matrix and configuration, and potential for non-conforming waste are all evaluated for container selection but will vary in priority to optimize RH operations. Attachment B lists the selected containers and the transfer sequence during the first year of RH operations. This list is subject to change based on changing conditions; although, the changes will be discussed and agreed upon by TWPC, BJC, WESKEM, and DOE.

4.1 Remote Handled Transuranic Acceptable Knowledge Waste Stream

The REDC 7920 Acceptable Knowledge (AK) waste stream is the first stream selected for RH AK development by CCP. The REDC 7920 waste stream makes up approximately 77% of the RH waste inventory and includes 263 casks, 8 drums, and 1 box. The number of REDC 7920 drums may continue to increase based on current trends. The REDC 7920 waste stream is considered by CCP to be one waste stream and is not planned for division into subpopulations at this time. Initially, the only RH TRU waste that will be accepted will be included in the REDC 7920 waste stream.

4.2 Remote Handled Transuranic Startup and Certification

For RH TRU startup, the strategy is to select drums and casks that will allow for ease of operations and minimize challenges in the hot cell. To assist in accomplishing this strategy, the eMWaste database and 2109 records will be reviewed to evaluate the waste description/matrix and configuration and the potential for non-conforming waste. In parallel with startup operations, the RH TRU WIPP certification will occur; therefore, the initial selection of containers will also need to support processing of a sufficient quantity of RH TRU waste to complete waste certification. The focus will be on the selection of drums and casks with a higher confidence in the RH designation. The confidence in the

RH designation is based on the dose rate information in the BJC "Remote Handled Transuranic Waste Transfer Project Scope and Inventory Assessment."

In support of startup and certification, four RH REDC 7920 drums have been selected first. These drums, in addition to any new RH REDC 7920 drums that do not container non-conforming waste, will be requested for transfer mid January, 2008, approximately 1 month prior to the first week of operations planned for February 18, 2008. The remaining four RH REDC 7920 drums containing non-conforming waste will be transferred the first week of RH operations as part of 1 or 2 shipments of CH drums from 7572 and 7879 to TWPC. Two RH REDC 7920 casks will also be transferred from 7883 to TWPC the first week of RH operations. This will provide sufficient volume to demonstrate proficiency during startup and complete certification of RH operations.

4.3 Remote Handled Transuranic Shipment Preparation

Upon completion of the startup phase the strategy is to continue selection and transfer of four additional REDC 7920 RH casks from 7883 to process and build a reserve of approximately nine 72B canisters in support of continued RH TRU shipments starting mid June, 2007. Based on the assumption that approximately 50% of the waste in the RH storage casks will be RH TRU waste, an adequate free board will remain for RH TRU waste resulting from processing the lower dose rate casks. If a significantly higher percentage of RH TRU waste is identified in the REDC 7920 RH casks from 7883, the transfer of the lower dose rate storage casks from 7823 will be accelerated to allow for continued Hot Cell operations.

4.4 Remote Handled Transuranic Continued Operations

After the reserve is met for preparation of RH TRU shipments, the selection and transfer of RH TRU containers will then be focused on REDC 7920 casks with lower confidence in the RH designation that are accessible within 7823. These casks are expected to generate significant quantities of CH waste. The remaining 72B canister storage capacity will be sufficient to accommodate any RH TRU waste processed during the WIPP certification process, which could take three to four months.

After the first RH WIPP shipment in June, 2007, the selection and transfer will include a combination of REDC 7920 casks from 7883 and 7823B, 7823C, 7823D, and 7823E. When the Spent Nuclear Fuel (SNF) 3525 waste stream AK is approved, the eight casks will be added to the acceptable inventory for selection. The SNF 3525 casks will be transferred to TWPC in one campaign to optimize Hot Cell operations. The selection of containers will also include RH drums and boxes that are included in the approved AK waste streams. The transfer of the RH drums and boxes will be in parallel with RH casks as they can be worked in to the Hot Cell and box breakdown area operations. The TWPC WAC and applicable command media will need to be revised prior to selection and transfer of the boxes and any containers with known non-conforming items.

The casks will be transferred to TWPC at a rate of 5 casks per month and the drums and boxes will be transferred as agreed upon by TWPC, BJC, and WESKEM in weekly RH interface meetings. Any deviations from this plan will be agreed upon by TWPC, BJC, and WESKEM in weekly RH interface meetings.

5.0 ATTACHMENTS

Attachment A: Acronyms/Abbreviations

Attachment B: Remote Handled Container Selection & Transfer Sequence

Attachment C: Bechtel Jacobs Company Remote Handled Transuranic Waste Transfer Project Scope and Inventory Assessment

Attachment A: Acronyms/Abbreviations

Acronyms/Abbreviations:

AK	Acceptable Knowledge
BJC	Bechtel Jacobs Company
CCP	Central Characterization Project
CH	Contact Handled
NG	Newly Generated
ORNL	Oak Ridge National Laboratory
REDC	Radiochemical Engineering Development Center
SNF	Spent Nuclear Fuel
RH	Remote Handled
TRU	Transuranic
TWPC	Transuranic Waste Processing Center
WAC	Waste Acceptance Criteria
WIPP	Waste Isolation Pilot Plant

Attachment B: Remote Handled Container Selection & Transfer Sequence

The following table lists the sequence of containers selected for transfer upon DOE notice to proceed with RH operations at the TWPC. The BJC "Remote Handled Transuranic Waste Transfer Project Scope and Inventory Assessment" was utilized in development of this list and is included in Attachment C. The container location information in the referenced document is subject to change based on processing and/or segregation within the storage facilities.

Delivery Sequence	Map Item #	Container ID	Container Type	Storage Facility	AK Waste Stream
1	NA	X10C9312251	Drum	7572	REDC 7920
1	NA	X10C9312836	Drum	7572	REDC 7920
1	NA	X10C9312802	Drum	7572	REDC 7920
1	NA	X10C9801083	Drum	7879	REDC 7920
2	NA	X10C0601826	Cask6	7883	REDC 7920
3	NA	X10C9311534	Drum	7572	REDC 7920
3	NA	X10C9312511	Drum	7572	REDC 7920
3	NA	X10C9312799	Drum	7572	REDC 7920
3	NA	X10C9312137	Drum	7572	REDC 7920
4	NA	X10C0505647	Cask6	7883	REDC 7920
5	NA	X10C0402055	Cask6	7883	REDC 7920
6	NA	X10C0201072	Cask6	7883	REDC 7920
7	NA	X10C0300529	Cask6	7883	REDC 7920
8	NA	X10C0402933	Cask12	7883	REDC 7920
9	193	X10C0402977	Cask4	7823	REDC 7920
10	199	X10C0402982	Cask4	7823	REDC 7920
11	202	X10C0402986	Cask6	7823	REDC 7920
12	196	X10C0402980	Cask4	7823	REDC 7920

Delivery Sequence	Map Item #	Container ID	Container Type	Storage Facility	AK Waste Stream
13	185	X10C0402964	Cask6	7823	REDC 7920
14	203	X10C0402987	Cask6	7823	REDC 7920
15	204	X10C0402988	Cask6	7823	REDC 7920
16	194	X10C0402978	Cask6	7823	REDC 7920
17	184	X10C0402963	Cask6	7823	REDC 7920
18	121	X10C0402897	Cask6	7823B	REDC 7920
19	124	X10C0402900	Cask4	7823B	REDC 7920
20	123	X10C0402899	Cask4	7823B	REDC 7920
21	125	X10C0402901	Cask4	7823B	REDC 7920
22	122	X10C0402898	Cask4	7823B	REDC 7920
23	NA	X10C0402983	Cask12	7883	REDC 7920
24	120	X10C0402896	Cask6	7823B	REDC 7920
25	NA	X10C0402958	Cask6	7883	REDC 7920
26	95	X10C0402998	Cask6	7823C	REDC 7920
27	NA	X10C0011102	Cask6	7883	REDC 7920
28	200	X10C0402984	Cask6	7823D	REDC 7920
29	NA	X10C0600001	Cask6	7883	SNF 3525
30	NA	X10C0600002	Cask6	7883	SNF 3525
31	NA	X10C0600003	Cask6	7883	SNF 3525
32	NA	X10C0600004	Cask6	7883	SNF 3525
33	NA	X10C0600005	Cask6	7883	SNF 3525
34	NA	X10C0600006	Cask6	7883	SNF 3525

Delivery Sequence	Map Item #	Container ID	Container Type	Storage Facility	AK Waste Stream
35	NA	X10C0600007	Cask6	7883	SNF 3525
36	NA	X10C0600008	Cask6	7883	SNF 3525
37	201	X10C0402985	Cask6	7823D	REDC 7920
38	NA	X10C0011108	Cask6	7883	REDC 7920
39	197	X10C0402981	Cask6	7823D	REDC 7920
40	NA	X10C0201071	Cask6	7883	REDC 7920
41	183	X10C0402962	Cask6	7823D	REDC 7920
42	NA	X10C0011087	Cask6	7883	REDC 7920
43	191	X10C0402970	Cask6	7823D	REDC 7920
44	NA	X10C0011088	Cask6	7883	REDC 7920
45	166	X10C0402945	Cask6	7823D	REDC 7920
46	NA	X10C9802684	Cask6	7883	REDC 7920
47	169	X10C0402948	Cask4	7823D	REDC 7920
48	NA	X10C9802665	Cask6	7883	REDC 7920
49	156	X10C0402935	Cask6	7823D	REDC 7920
50	NA	X10C9802672	Cask6	7883	REDC 7920
51	160	X10C0402939	Cask6	7823D	REDC 7920
52	NA	X10C9802652	Cask6	7883	REDC 7920
53	174	X10C0402953	Cask6	7823D	REDC 7920
54	NA	X10C9802660	Cask6	7883	REDC 7920
55	139	X10C0402918	Cask6	7823D	REDC 7920
56	NA	X10C9802663	Cask6	7883	REDC 7920

Delivery Sequence	Map Item #	Container ID	Container Type	Storage Facility	AK Waste Stream
57	146	X10C0402925	Cask6	7823D	REDC 7920
58	NA	X10C9802644	Cask6	7883	REDC 7920
59	145	X10C0402924	Cask12	7823D	REDC 7920
60	NA	X10C9802650	Cask6	7883	REDC 7920

Attachment C: Bechtel Jacobs Company Remote Handled Transuranic Waste Transfer Project Scope and Inventory Assessment

End of Document

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

☒ Original Record
☐ Fax Record
☐ E-mail Record

Attn:	Sheila Pearcy	From:	Amy Johns
Ship to:	CCP Central Records/ CCP Records Custodian 4021 National Parks Highway - MS GSA 203, Carlsbad, NM 88220	Site:	Oak Ridge National Laboratory
		Company:	Technical Specialists, LLC
		Telephone Number:	505-302-8669
Telephone Number:	505-234-7523	Date Sent:	12/13/07

Document Number	Title/Description	Record Date	Total Pages
U047	Attachment 3 - Acceptable Knowledge Source Document Summary for CCP ORNL AK	12/13/2007	1
	RH-A-AD-0 02 - Transuranic Waste Processing Center at Oak Ridge National Laboratory Remote Handled Transuranic Waste Container Selection and Transfer Plan	NA	14

Comments

None

Acceptance/Rejection Signature and Date

Records Accepted	☒	Gayla White Signature	GAYLA WHITE Printed Name	12-14-07 Date
Records Rejected	☐	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:	Signature	Printed Name	Date

P.01

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CCP-QP-008, Rev. 14
CCP Records Management

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Page 29 of 29

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

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☒ Original Record
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☐ E-mail Record

Attn: Sheila Pearcy

Ship to: CCP Central Records/ CCP Records Custodian
4021 National Parks Highway - MS GSA
203, Carlsbad, NM 88220

Telephone Number: 505-234-7523

From: Amy Johns

Site: Oak Ridge National Laboratory

Company: Technical Specialists, LLC

Telephone Number: 505-302-8669

Date Sent: 12/13/07

Document Number	Title/Description	Record Date	Total Pages
U047	Attachment 3 - Acceptable Knowledge Source Document Summary for CCP ORNL AK	12/13/2007	1
	RH-A-AD-0 02 - Transuranic Waste Processing Center at Oak Ridge National Laboratory Remote Handled Transuranic Waste Container Selection and Transfer Plan	NA	14

Attachment 1 – Acceptable Knowledge Documentation Checklist

Site(s): Oak Ridge National Laboratory

Waste Stream Description: ORNL Isotopes Facilities CH-TRU Debris Waste

Waste Stream Number(s): OR-ISTP-CH-HET

Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Mandatory generator site TRU waste program (PR) information			
Map of the generator site that identifies TRU waste generation, treatment, and storage areas.	PR1	Y	P047, P081, P087, P101, P1085, P119, P1272, P1287, P1292, P1312, P1316, P1324, P1325, P1363, P1364, P1365, P175, P235, P256, P272, P291, P294, P327, P336, P342, P346, P348, P398, P400, P407, P432, P453, P455, P458, P510, P528, P529, P532, P835, P840, P849, U044
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	PR2	Y	C034, C087, C089, C097, M192, P047, P050, P051, P081, P087, P091, P098, P1085, P119, P1272, P1292, P1312, P1325, P1359, P1362, P1364, P1365, P164, P175, P190, P224, P225, P226, P227, P236, P272, P289, P298, P299, P335, P336, P346, P348, P398, P400, P407, P432, P481, P532, P546, P548, P569, P933, U038, U044, U647
Overview of the generator site and generator site TRU waste management operations in the context of the facility's mission.	PR3	Y	C087, C089, C097, I022, I023, I043, M192, M197, P047, P081, P1082, P1083, P1084, P1085, P1269, P1292, P1316, P1325, P235, P256, P291, P327, P334, P335, P336, P342, P346, P407, P432, P528, P529, P532, P568, P569, P956, U007, U038, U044, U647
Descriptions of historical and current TRU waste generating operations, including how waste is tracked and managed and/or how operations relative to isotopic composition were tracked.	PR4	Y	C087, C089, C096, C097, I022, I023, I043, M192, M197, P047, P087, P101, P119, P1325, P1358, P1361, P1363, P1364, P1365, P1366, P164, P190, P235, P241, P244, P272, P327, P346, P432, P526, P528, P529, P582, P863, P867, U038, U044, U124
Waste identification and/or categorization schemes and terminology used at the generator site, including codes correlating to specific isotopic distributions.	PR5	Y	C097, I022, I023, I043, M187, M217, P047, P1269, P1378, P190, P241, P244, P432, P510, P582, P865, P956, U038, U044

NTPC RECORDS ORIGINAL
DATE REC'D 1/6/14

Waste Stream Number(s): OR-ISTP-CH-HET			
Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Types and quantities of TRU waste generated, including historical generation through future projections.	PR6	Y	M192, M197, M217, P047, P092, P1085, P1147, P1325, P1351, P1357, P1360, P1363, P1364, P1367, P1376, P1377, P190, P235, P241, P244, P407, P526, P528, P529, P582, P762, P863, P865, P867, P874, P875, P876, P917, P933, U038, U044, U046
Correlation of waste streams and description of time of generation, waste generating processes, and area and building/facility where each waste stream was generated.	PR7	Y	C087, DR024, I012, M192, M197, M217, P1084, P1085, P1351, P1376, P1377, P190, P235, P272, P407, P453, P455, P458, P510, P526, P528, P529, P532, P582, P762, P865, P867, P874, P875, P876, U038, U044, U046, U124, U468
Certification procedures for waste to be sent to the WIPP facility (i.e., procedures to ensure that prohibited items are documented and managed in accordance with site-specific certification plans).	PR8	Y	M189, M190, M192, M197, P1112, P1116, P251, P252, P253, P254, P255, P432, P762, P829, P863, U044, U647
Mandatory generator site TRU waste stream (WS)-specific information			
Waste stream designation	WS1	Y	C087, C089, C096, C097, M188, M190, M192, M197, M217, U044, U647
Area(s) and building(s) from which the waste stream was or is generated.	WS2	Y	C034, C087, C089, C096, C097, DR024, DR025, I012, M171, M188, M191, M192, M196, M197, M217, M230, P022, P047, P087, P089, P092, P1085, P1104, P1272, P1287, P1291, P1292, P1294, P1312, P1316, P1324, P1325, P1351, P1358, P1361, P1363, P1364, P1365, P1366, P1376, P1377, P164, P175, P189, P190, P235, P256, P272, P294, P327, P334, P335, P336, P341, P346, P398, P400, P407, P432, P453, P455, P458, P481, P510, P526, P528, P529, P532, P548, P582, P714, P750, P753, P762, P831, P834, P838, P840, P847, P849, P862, P863, P865, P867, P874, P875, P876, P917, P933, U044, U046, U468, U472, U473, U474, U475, U569, U580, U587

Waste Stream Number(s): OR-ISTP-CH-HET

Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Waste stream volume and time period of generation	WS3	Y	C087, C089, C096, C097, M171, M192, M196, M197, M217, M230, P087, P1112, P1147, P1325, P1351, P1357, P1358, P1360, P1361, P1363, P1366, P1367, P164, P175, P190, P272, P407, P432, P510, P526, P528, P529, P762, P863, P867, P874, U044, U046
Waste generating process (describe for each building) including processes associated with U134 waste generation, if applicable.	WS4	Y	C034, C087, C089, C097, I012, M192, M197, P081, P087, P092, P1085, P119, P1325, P1351, P1357, P1358, P1360, P1361, P1363, P1364, P1365, P1366, P1367, P1376, P1377, P164, P175, P189, P190, P235, P272, P400, P481, P526, P528, P529, P582, P863, P905, U007, U044, U124
Process flow diagrams. For research/development, analytical laboratory waste, or other similar processes where process flow diagrams cannot be created, a description of the waste generating processes, rather than a formal process flow diagram, may be included, if justified.	WS5	Y	P047, P089, P092, P1085, P1316, P164, P189, P235, P256, P294, P400, P407, P432, P481, P526, P528, P529, P865, P867, P875, P876, P917, U007, U044, U046
Summary of basis and rationale for delineating each waste stream including justification for combining waste historically managed separately as TRU mixed and TRU non-mixed waste streams into a single waste stream, that is traceable to referenced documents.	WS6	Y	DR025, M190, M192, M197, P1112, P1351, P241, P244, P407, P510, U038, U044
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	WS7	Y	C034, C087, C089, C097, M192, P047, P050, P081, P087, P091, P101, P1085, P119, P1269, P1272, P1325, P1359, P1362, P1363, P1364, P1365, P164, P175, P189, P190, P224, P225, P226, P227, P235, P236, P289, P291, P298, P299, P327, P335, P336, P346, P348, P398, P400, P407, P432, P481, P528, P529, P532, P546, P569, P933, U038, U044, U647

Waste Stream Number(s): OR-ISTP-CH-HET

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
Material inputs or other information that identified the chemical contents of the waste and the stream. Includes events or processes that may have modified the chemical properties of the waste stream after generation.	WS8	Y	C308, M126, M171, M190, M191, M192, M194, M197, M217, P081, P098, P1082, P1083, P1085, P1100, P1101, P1102, P1103, P1104, P1105, P1106, P1107, P1108, P1109, P1112, P1312, P1316, P1324, P1325, P1351, P1357, P1358, P1359, P1360, P1361, P1362, P1364, P1365, P1366, P1367, P164, P190, P299, P327, P335, P346, P399, P400, P407, P432, P481, P526, P566, P582, P762, P862, P863, P874, P875, P876, P917, P941, U007, U044, U124, U472, U473, U474, U475, U569, U580, U587, U680
Physical waste form (e.g., glovebox materials and chemicals handled during glovebox operations, if applicable), assigned summary category group, waste matrix code and materials inputs, including waste material parameters present in the waste stream. Includes events or processes that may have modified the physical properties of the waste stream after generation.	WS9	Y	C308, M126, M171, M189, M190, M192, M196, M197, M217, P081, P101, P1104, P1109, P1112, P1272, P1316, P1325, P1351, P1357, P1360, P1367, P190, P289, P291, P346, P407, P510, P566, P568, P582, P834, P847, P865, P867, P875, P876, P905, P917, U007, U038, U044, U124, U580, U680
Waste identifiers assigned by the generator site (e.g., item description code, packaging identification numbers).	WS10	Y	M171, M196, M217, M230, P1104, P1109, P1269, U038, U044
Specification of the isotopic ratios for the ten WIPP-tracked radionuclides and all radionuclides other than the ten WIPP-tracked radionuclides that contribute to 95 percent of the radioactive hazard for a payload container. Chemical and physical information that could affect the waste isotopic distribution, as well as calculations used to derive the isotopic distribution.	WS11	Y	C034, C097, M171, M188, M191, M192, M197, M217, M640, P022, P047, P081, P089, P092, P098, P101, P1085, P1104, P1112, P119, P1272, P1287, P1292, P1312, P1316, P1324, P1325, P1351, P1357, P1358, P1359, P1360, P1361, P1362, P1363, P1364, P1365, P1366, P1367, P1376, P1377, P1378, P164, P189, P190, P235, P289, P291, P294, P298, P299, P327, P335, P336, P342, P346, P348, P398, P399, P400, P407, P432, P458, P481, P526, P528, P529, P532, P546, P548, P566, P714, P750, P753, P762, P849, P862, P863, P865, P867, P874, P875, P876, P917, P933, P941, U007, U044, U468, U472, U473, U474, U475, U569, U580, U587, U647, U680

Waste Stream Number(s): OR-ISTP-CH-HET			
Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
State and EPA hazardous waste constituents in the waste stream and state and EPA Hazardous Waste Numbers assigned, including documentation regarding how the site has historically managed the waste, including the historical regulatory status of the waste (i.e., TRU mixed versus TRU non-mixed waste).	WS12	Y	DR024, M171, M189, M190, M191, M194, M197, M217, M230, P081, P098, P1082, P1083, P1100, P1101, P1102, P1103, P1104, P1105, P1106, P1107, P1108, P1109, P1112, P1116, P119, P1272, P1325, P1351, P1358, P1359, P1361, P1362, P1363, P1364, P1365, P1366, P164, P235, P299, P327, P334, P335, P346, P399, P400, P432, P481, P566, P862, P863, P865, P875, P876, P917, P941, U044, U468, U472, U473, U475, U569, U580, U680
Additional acceptable knowledge documentation (briefly describe):			
Process design documents (e.g., Title II Design)	S1	N	N/A
Standard operating procedures that may include a list of raw materials or reagents, a description of the process or experiment generating the waste, and a description of the waste generated and how the wastes are managed at the point of generation	S2	Y	P583, P584, P585, P586, P587, P1085, P241, P244, P251, P252, P253, P254, P291, P348, P398, P526, P568, P582, P753, P762, P831, P834, P847, P865, P874, P875, P876, P905, P917, U044, U124
Preliminary and Final Safety Analysis Reports and technical safety requirements	S3	Y	P1085, P1272, P1287, P1291, P1292, P1294, P1312, P1316, P1324, P1325, P256, P294, P398, P432, P453, P455, P458, P528, P529, P862
Waste Packaging records	S4	N	N/A
Test plans or research project reports that describe the reagents, radionuclides, and other raw materials used in experiments	S5	Y	M171, P022, P089, P092, P098, P1357, P1358, P1359, P1360, P1361, P1362, P1366, P1367, P1376, P1377, P164, P299, P399, P407, P753, P862, P874, P875, P876, U038
Site databases (e.g., chemical inventory database for SARA Title III requirements, SNM or nuclear material databases)	S6	Y	M217, M230, P867
Information from site personnel (e.g., documented interviews)	S7	Y	C034, C087, C089, C096, C097, C153, C308, U475
Standard industry documents (e.g., industry specification sheets, handbooks, reference materials, or other vendor information)	S8	Y	P341

Waste Stream Number(s): OR-ISTP-CH-HET

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
Analytical data relevant to the waste stream, including results from fingerprint analyses, spot checks, routine verification sampling or other processes that collected information pertinent to the waste stream. This may include new information (or previously collected data) which augments required information (e.g., visual examination not performed in compliance with CCP-PO-001, radiography screening for prohibited items.	S9	Y	DR024, DR025, M189, M190, M196, M217, P087, P098, P1359, P1362, U038, U044
Material Safety Data Sheets, product labels, or other product information	S10	Y	M194, P865
Laboratory notebooks that detail the research processes and raw materials used in an experiment	S11	Y	U468, U472, U473, U474, U475, U569, U580, U587, U680
Comparable or surrogate sampling and analysis data	S12	N	N/A
Other (describe)	S13	N	N/A
Safeguards and security, Materials Control and Accountability, and other nuclear material control system data Reports of nuclear safety or criticality accidents involving special nuclear materials (SNM)	S14	Y	M640, P1085, P1378, P407, P526, P528, P529
NMMA logs or inventory records or waste disposal logs providing SNM or nuclear material information	S15	Y	C096
Packaging	S16	Y	P583, P584, P585, P586, C087, C089, C096, C097, M126, M170, M171, M189, M190, M192, M196, M197, P1112, P190, P251, P252, P253, P254, P276, P299, P336, P398, P432, P566, P568, P829, P831, P863, P865, P875, P876, P905, P917, P956, U044, U046, U472
Acceptable knowledge information regarding waste generated off-site or from similar process:			

(1) AK#s are used as identifiers for program, waste stream-specific and supporting elements. The identifiers are to be used in the Acceptable Knowledge Source Document Summary and Acceptable Knowledge Information List to aid in the page location of program and waste stream-specific elements within a given document. N/A means that item is not applicable.

Additional comments:

All required AK information has been compiled and source document tracking numbers assigned.

Acceptable Knowledge Expert: Jeff Harrison / Jeff Harrison Date: 1/6/2014
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Attachment 1 – Acceptable Knowledge Documentation Checklist

Site(s): Oak Ridge National Laboratory

Waste Stream Description: Immobilized Liquids and Fines from NFS

Waste Stream Number(s): OR-NFS-CH-HOM-A

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
Mandatory generator site TRU waste program (PR) information			
Map of the generator site that identifies TRU waste generation, treatment, and storage areas.	PR1	Y	C099, C122, C145, M050, P014, P1373, P1374, P1402, P248, P256, P272, P273, P283, P432, U044, U054
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	PR2	Y	C099, C100, C145, I053, M007, M021, P1374, P1402, P212, P218, P268, P269, P272, P432, U038, U040, U044, U050, U052, U054
Overview of the generator site and generator site TRU waste management operations in the context of the facility's mission.	PR3	Y	C099, C100, C119, C120, C121, C122, I022, I023, I043, I053, M007, M021, P1373, P1374, P1402, P256, P273, P283, P323, P432, U038, U044, U052, U054
Descriptions of historical and current TRU waste generating operations, including how waste is tracked and managed and/or how operations relative to isotopic composition were tracked.	PR4	Y	C099, C100, C122, C145, C321, I022, I023, I043, I053, I056, I061, M003, M198, M207, P1370, P1373, P1374, P1375, P1402, P218, P268, P269, P272, P273, P321, P323, P432, P582, U038, U043, U044, U052, U054, U055
Waste identification and/or categorization schemes and terminology used at the generator site, including codes correlating to specific isotopic distributions.	PR5	Y	C321, I022, I023, I043, I052, M013, M198, M207, M208, M209, M217, P1402, P317, P321, P432, P582, U038, U044, U055
Types and quantities of TRU waste generated, including historical generation through future projections.	PR6	Y	C099, C122, C126, C145, I053, I056, I061, I068, M003, M007, M013, M017, M018, M021, M198, M207, M217, P1370, P1373, P1374, P1375, P1402, P218, P248, P273, P274, P323, P582, U038, U040, U043, U044, U054, U055

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Waste Stream Number(s): OR-NFS-CH-HOM-A			
Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Correlation of waste streams and description of time of generation, waste generating processes, and area and building/facility where each waste stream was generated.	PR7	Y	C099, C119, C120, C121, C122, C125, C126, C127, C129, C130, C145, C204, C205, C206, C227, C321, I052, I053, I061, M003, M007, M008, M013, M017, M052, M054, M198, M217, P1373, P1375, P1402, P218, P248, P272, P273, P300, P303, P306, P315, P323, P582, U038, U043, U044, U052, U054, U058
Certification procedures for waste to be sent to the WIPP facility (i.e., procedures to ensure that prohibited items are documented and managed in accordance with site-specific certification plans).	PR8	Y	M065, P1116, P1371, P1374, P1401, P1402, P1403, P1404, P218, P251, P252, P253, P254, P255, P268, P269, P273, P300, P303, P306, P315, P319, P323, P432, U044, U050, U052
Mandatory generator site TRU waste stream (WS)-specific information			
Waste stream designation	WS1	Y	C099, C100, C321, DR002, DR030, DR031, M003, M012, M013, M017, M018, M019, M021, M198, M217, P268, U044
Area(s) and building(s) from which the waste stream was or is generated.	WS2	Y	C099, C100, C119, C120, C121, C122, C125, C126, C127, C129, C130, C145, C204, C205, C206, C210, C227, I052, I053, I056, I058, I059, I061, I068, M003, M007, M008, M012, M013, M017, M021, M052, M054, M058, M065, M067, M198, M217, P1370, P1371, P1372, P1373, P1374, P1375, P1402, P1404, P218, P248, P256, P268, P269, P272, P273,P274, P283, P300, P303, P304, P306, P315, P317, P323, P432, P582, U016, U017, U040, U043, U044, U052, U054, U058, U597
Waste stream volume and time period of generation	WS3	Y	C099, C100, C122, C210, C321, I052, I053, I056, I061, I068, M003, M007, M012, M013, M021, M198, M217, P1370, P1373, P1374, P1375, P1402, P212, P218, P248, P268, P269, P272, P273, P274, P323, P432, U016, U017, U040, U043, U044, U054, U055

Waste Stream Number(s): OR-NFS-CH-HOM-A

Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Waste generating process (describe for each building) including processes associated with U134 waste generation, if applicable.	WS4	Y	C099, C100, C119, C120, C121, C122, C125, C126, C129, C130, C142, C145, C321, I053, I056, I061, I068, M008, M012, M021, M054, P1370, P1371, P1373, P1374, P1375, P1404, P212, P218, P248, P268, P269, P272, P273, P274, P323, P582, U040, U043, U044, U052, U054
Process flow diagrams. For research/development, analytical laboratory waste, or other similar processes where process flow diagrams cannot be created, a description of the waste generating processes, rather than a formal process flow diagram, may be included, if	WS5	Y	C099, C125, C126, C127, I053, I056, I058, I059, I061, I068, M008, P1402, P218, P256, P273, P432, U040, U044
Summary of basis and rationale for delineating each waste stream including justification for combining waste historically managed separately as TRU mixed and TRU non-mixed waste streams into a single waste stream, that is traceable to referenced documents.	WS6	Y	DR030, M012, M017, M018, M021, P1370, P1373, P1374, P1375, P300, U038, U044
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	WS7	Y	C099, C100, C145, I053, M007, M021, P1375, P1402, P212, P218, P268, P269, P432, U038, U044, U050, U052, U054
Material inputs or other information that identified the chemical contents of the waste and the stream. Includes events or processes that may have modified the chemical properties of the waste stream after generation.	WS8	Y	C119, C120, C121, C142, C145, C204, C210, C227, C309, C321, DR031, I052, I053, I056, M008, M011, M012, M013, M017, M018, M126, M198, M202, M207, M208, M209, M217, P1370, P1373, P1374, P1375, P1402, P212, P248, P273, P274, P319, P323, P432, P582, U043, U044
Physical waste form (e.g., glovebox materials and chemicals handled during glovebox operations, if applicable), assigned summary category group, waste matrix code and materials inputs, including waste material parameters present in the waste stream. Includes events or processes that may have modified the physical properties of the waste stream after generation.	WS9	Y	C099, C122, C125, C126, C127, C129, C130, C145, C206, C210, C321, DR006, DR030, DR031, I052, I053, I056, I058, I059, I061, I068, M012, M013, M018, M019, M021, M052, M053, M058, M061, M067, M068, M075, M126, M198, M202, M207, M208, M209, M217, P014, P1370, P1371, P1372, P1373, P1374, P1375, P1402, P1404, P218, P248, P268, P269, P273, P274, P304, P319, P320, P323, P582, U017, U038, U040, U043, U044, U052, U054, U055

Waste Stream Number(s): OR-NFS-CH-HOM-A			
Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Waste identifiers assigned by the generator site (e.g., item description code, packaging identification numbers).	WS10	Y	C099, C130, M003, M012, M013, M018, M019, M198, M202, M207, M208, M209, M217, M235, U038, U044
Specification of the isotopic ratios for the ten WIPP-tracked radionuclides and all radionuclides other than the ten WIPP-tracked radionuclides that contribute to 95 percent of the radioactive hazard for a payload container. Chemical and physical information that could affect the waste isotopic distribution, as well as calculations used to derive the isotopic distribution.	WS11	Y	C099, C100, C122, C145, C209, C210, C321, DR002, I052, I053, I058, I061, I067, M003, M007, M008, M012, M013, M016, M017, M021, M054, M061, M065, M198, M211, M217, P014, P1370, P1373, P1374, P1375, P1402, P1405, P212, P218, P268, P269, P273, P274, P317, P321, P432, U016, U017, U043, U044, U050, U055, U058, U597
State and EPA hazardous waste constituents in the waste stream and state and EPA Hazardous Waste Numbers assigned, including documentation regarding how the site has historically managed the waste, including the historical regulatory status of the waste (i.e., TRU mixed versus TRU non-mixed waste).	WS12	Y	C099, C122, C142, C145, C146, C147, C204, C205, C210, C227, C309, DR031, I052, I053, I056, I058, M003, M007, M008, M011, M012, M013, M020, M062, M063, M064, M198, M202, M207, M208, M209, M217, P1116, P1375, P1402, P212, P273, P304, P317, P432, U043, U044
Additional acceptable knowledge documentation (briefly describe):			
Process design documents (e.g., Title II Design)	S1	N	N/A
Standard operating procedures that may include a list of raw materials or reagents, a description of the process or experiment generating the waste, and a description of the waste generated and how the wastes are managed at the point of generation	S2	Y	C119, C120, C121, C122, C125, C126, C127, C129, C130, I056, I058, I059, I061, I067, I068, M210, P1370, P1371, P1372, P1401, P1403, P1407, P248, P251, P252, P253, P254, P267, P273, P300, P303, P304, P306, P315, P320, P582, U044
Preliminary and Final Safety Analysis Reports and technical safety requirements	S3	Y	P248, P256, P432
Waste Packaging records	S4	Y	M003, M052
Test plans or research project reports that describe the reagents, radionuclides, and other raw materials used in experiments	S5	Y	C122, P1372, P1404, P212, U038, U043
Site databases (e.g., chemical inventory database for SARA Title III requirements, SNM or nuclear material databases)	S6	Y	M012, M013, M198, M217
Information from site personnel (e.g., documented interviews)	S7	Y	C100, C206, C210, C227, C309, C321
Standard industry documents (e.g., industry specification sheets, handbooks, reference materials, or other vendor information)	S8	Y	C146, C147, M011, M210

Waste Stream Number(s): OR-NFS-CH-HOM-A

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
Analytical data relevant to the waste stream, including results from fingerprint analyses, spot checks, routine verification sampling or other processes that collected information pertinent to the waste stream. This may include new information (or previously collected data) which augments required information (e.g., visual examination not performed in compliance with CCP-PO-001, radiography screening for prohibited items.	S9	Y	C122, C205, I052, I053, M013, M017, M019, M020, M061, M062, M063, M064, M065, M068, M198, M211, M217, M235, P1374, P1375, P1402, P1404, U038, U043, U044, U597
Material Safety Data Sheets, product labels, or other product information	S10	Y	C200, C201, M011, M210
Laboratory notebooks that detail the research processes and raw materials used in an experiment	S11	Y	M052, U016
Comparable or surrogate sampling and analysis data	S12	Y	I052, P1402
Other (describe)	S13	N	N/A
Safeguards and security, Materials Control and Accountability, and other nuclear material control system data Reports of nuclear safety or criticality accidents involving special nuclear materials (SNM)	S14	N	N/A
NMMA logs or inventory records or waste disposal logs providing SNM or nuclear material information	S15	Y	M003, M012, M013
Packaging	S16	Y	C126, C127, C129, C130, C203, C209, C210, C321, C622, DR015, I052, I053, I056, I059, I061, I068, M003, M007, M012, M013, M016, M019, M051, M052, M053, M058, M067, M075, M126, M128, M130, M131, M132, M133, M202, M206, M207, M208, M209, M210, P1370, P1373, P1374, P1398, P1401, P1402, P1403, P1407, P251, P252, P253, P254, P267, P268, P269, P273, P274, P276, P315, P317, P320, P323, P432, U040, U044, U055

Acceptable knowledge information regarding waste generated off-site or from similar process:

(1) AK#s are used as identifiers for program, waste stream-specific and supporting elements. The identifiers are to be used in the Acceptable Knowledge Source Document Summary and Acceptable Knowledge Information List to aid in the page location of program and waste stream-specific elements within a given document. N/A means that item is not applicable.

Additional comments:

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Acceptable Knowledge Expert: JEFF HARRISON / Jeff Harrison Date: 1/7/2014
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Attachment 1 – Acceptable Knowledge Documentation Checklist

Site(s): Oak Ridge National Laboratory

Waste Stream Description: Soil from NFS Stored at ORNL

Waste Stream Number(s): OR-NFS-CH-SOIL

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
Mandatory generator site TRU waste program (PR) information			
Map of the generator site that identifies TRU waste generation, treatment, and storage areas.	PR1	Y	C099, C122, C145, M050, P014, P1373, P1374, P1402, P248, P256, P272, P273, P283, P432, U044, U054
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	PR2	Y	C099, C100, C145, I053, M007, M021, M128, M132, P1374, P1402, P212, P218, P268, P269, P272, P432, U038, U040, U044, U050, U052, U054
Overview of the generator site and generator site TRU waste management operations in the context of the facility's mission.	PR3	Y	C099, C100, C119, C120, C121, C122, I022, I023, I043, I053, M007, M021, M128, M132, P1373, P1374, P1402, P256, P273, P283, P323, P432, U044, U052, U054
Descriptions of historical and current TRU waste generating operations, including how waste is tracked and managed and/or how operations relative to isotopic composition were tracked.	PR4	Y	C099, C100, C122, C145, C321, I022, I023, I043, I053, I056, I061, M003, M128, M132, M198, M207, P1370, P1373, P1374, P1375, P1402, P218, P268, P269, P272, P273, P321, P323, P432, P582, U043, U044, U052, U054, U055
Waste identification and/or categorization schemes and terminology used at the generator site, including codes correlating to specific isotopic distributions.	PR5	Y	C321, I022, I023, I043, I052, M198, M207, M208, M209, M217, P1402, P317, P321, P432, P582, U044, U055
Types and quantities of TRU waste generated, including historical generation through future projections.	PR6	Y	C099, C122, C126, C145, C230, I053, I056, I061, I068, M003, M007, M017, M018, M021, M128, M132, M198, M207, M217, P1370, P1373, P1374, P1375, P1402, P218, P248, P273, P274, P323, P582, U040, U043, U044, U054, U055

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Waste Stream Number(s): OR-NFS-CH-SOIL			
Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Correlation of waste streams and description of time of generation, waste generating processes, and area and building/facility where each waste stream was generated.	PR7	Y	C099, C119, C120, C121, C122, C125, C126, C127, C129, C130, C145, C204, C205, C206, C227, C230, C321, DR013, DR022, I052, I053, I061, M003, M007, M008, M017, M052, M198, M217, P1373, P1375, P1402, P218, P248, P272, P273, P300, P303, P306, P315, P323, P582, U043, U044, U052, U054, U058
Certification procedures for waste to be sent to the WIPP facility (i.e., procedures to ensure that prohibited items are documented and managed in accordance with site-specific certification plans).	PR8	Y	M065, P1116, P1371, P1374, P1400, P1401, P1402, P1403, P1404, P218, P251, P252, P253, P254, P255, P268, P269, P273, P300, P303, P306, P315, P319, P323, P432, U044, U050, U052
Mandatory generator site TRU waste stream (WS)-specific information			
Waste stream designation	WS1	Y	C099, C100, C321, DR002, DR010, DR013, DR022, DR023, DR026, DR031, M003, M012, M017, M018, M019, M021, M128, M132, M198, M217, P268, U044
Area(s) and building(s) from which the waste stream was or is generated.	WS2	Y	C099, C100, C119, C120, C121, C122, C125, C126, C127, C129, C130, C145, C204, C205, C206, C210, C227, C230, DR010, DR013, I052, I053, I056, I058, I059, I061, I068, M003, M007, M008, M012, M017, M021, M052, M058, M065, M067, M128, M132, M198, M217, P1370, P1371, P1372, P1373, P1374, P1375, P1402, P1404, P218, P248, P256, P268, P269, P272, P273, P274, P283, P300, P303, P304, P306, P315, P317, P323, P432, P582, U016, U017, U040, U043, U044, U052, U054, U058, U597

Waste Stream Number(s): OR-NFS-CH-SOIL

Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Waste stream volume and time period of generation	WS3	Y	C099, C100, C122, C210, C230, C321, DR010, DR013, I052, I053, I056, I061, I068, M003, M007, M012, M021, M128, M132, M198, M217, P1370, P1373, P1374, P1375, P1402, P212, P218, P248, P268, P269, P272, P273, P274, P323, P432, U016, U017, U040, U043, U044, U054, U055
Waste generating process (describe for each building) including processes associated with U134 waste generation, if applicable.	WS4	Y	C099, C100, C119, C120, C121, C122, C125, C126, C129, C130, C142, C145, C321, DR010, DR013, I053, I056, I061, I068, M008, M012, M021, M128, M132, P1370, P1371, P1373, P1374, P1375, P1404, P212, P218, P248, P268, P269, P272, P273, P274, P323, P582, U040, U043, U044, U052, U054
Process flow diagrams. For research/development, analytical laboratory waste, or other similar processes where process flow diagrams cannot be created, a description of the waste generating processes, rather than a formal process flow diagram, may be included, if	WS5	Y	C099, C125, C126, C127, I053, I056, I058, I059, I061, I068, M008, P1400, P1402, P218, P256, P273, P432, U040, U044
Summary of basis and rationale for delineating each waste stream including justification for combining waste historically managed separately as TRU mixed and TRU non-mixed waste streams into a single waste stream, that is traceable to referenced documents.	WS6	Y	DR010, DR022, M012, M017, M018, M021, M128, M132, P1370, P1373, P1374, P1375, P300, U044
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	WS7	Y	C099, C100, C145, I053, M007, M021, M128, M132, P1375, P1402, P212, P218, P268, P269, P432, U044, U050, U052, U054
Material inputs or other information that identified the chemical contents of the waste and the stream. Includes events or processes that may have modified the chemical properties of the waste stream after generation.	WS8	Y	C119, C120, C121, C142, C145, C204, C210, C227, C309, C321, DR010, DR013, DR031, I052, I053, I056, M008, M011, M012, M017, M018, M126, M128, M132, M198, M202, M207, M208, M209, M217, P1370, P1373, P1374, P1375, P1402, P212, P248, P273, P274, P319, P323, P432, P582, U043, U044

Waste Stream Number(s): OR-NFS-CH-SOIL

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
Physical waste form (e.g., glovebox materials and chemicals handled during glovebox operations, if applicable), assigned summary category group, waste matrix code and materials inputs, including waste material parameters present in the waste stream. Includes events or processes that may have modified the physical properties of the waste stream after generation.	WS9	Y	C099, C122, C125, C126, C127, C129, C130, C145, C206, C210, C321, DR010, DR013, DR022, DR023, DR026, DR031, I052, I053, I056, I058, I059, I061, I068, M012, M018, M019, M021, M052, M058, M061, M067, M068, M075, M126, M128, M132, M198, M202, M207, M208, M209, M217, P014, P1370, P1371, P1372, P1373, P1374, P1375, P1402, P1404, P218, P248, P268, P269, P273, P274, P304, P319, P323, P582, U017, U040, U043, U044, U052, U054, U055
Waste identifiers assigned by the generator site (e.g., item description code, packaging identification numbers).	WS10	Y	C099, C130, M003, M012, M018, M019, M198, M202, M207, M208, M209, M217, U044
Specification of the isotopic ratios for the ten WIPP-tracked radionuclides and all radionuclides other than the ten WIPP-tracked radionuclides that contribute to 95 percent of the radioactive hazard for a payload container. Chemical and physical information that could affect the waste isotopic distribution, as well as calculations used to derive the isotopic distribution.	WS11	Y	C099, C100, C122, C145, C210, C321, DR002, I052, I053, I058, I061, I067, M003, M007, M008, M012, M016, M017, M021, M061, M065, M128, M132, M198, M211, M217, P014, P1370, P1373, P1374, P1375, P1402, P1405, P212, P218, P268, P269, P273, P274, P317, P321, P432, U016, U017, U043, U044, U050, U055, U058, U597
State and EPA hazardous waste constituents in the waste stream and state and EPA Hazardous Waste Numbers assigned, including documentation regarding how the site has historically managed the waste, including the historical regulatory status of the waste (i.e., TRU mixed versus TRU non-mixed waste).	WS12	Y	C099, C122, C142, C145, C146, C147, C204, C205, C210, C227, C309, DR010, DR013, DR031, I052, I053, I056, I058, M003, M007, M008, M011, M012, M020, M062, M063, M064, M128, M132, M198, M202, M207, M208, M209, M217, P1116, P1375, P1402, P212, P273, P304, P317, P432, U043, U044

Waste Stream Number(s): OR-NFS-CH-SOIL

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
Additional acceptable knowledge documentation (briefly describe):			
Process design documents (e.g., Title II Design)	S1	N	N/A
Standard operating procedures that may include a list of raw materials or reagents, a description of the process or experiment generating the waste, and a description of the waste generated and how the wastes are managed at the point of generation	S2	Y	C119, C120, C121, C122, C125, C126, C127, C129, C130, I056, I058, I059, I061, I067, I068, M210, P1370, P1371, P1372, P1400, P1401, P1403, P1407, P248, P251, P252, P253, P254, P267, P273, P300, P303, P304, P306, P315, P582, U044
Preliminary and Final Safety Analysis Reports and technical safety requirements	S3	Y	P248, P256, P432
Waste Packaging records	S4	Y	M003, M052
Test plans or research project reports that describe the reagents, radionuclides, and other raw materials used in experiments	S5	Y	C122, P1372, P1404, P212, U043
Site databases (e.g., chemical inventory database for SARA Title III requirements, SNM or nuclear material databases)	S6	Y	M012, M198, M217
Information from site personnel (e.g., documented interviews)	S7	Y	C100, C206, C210, C227, C230, C309, C321
Standard industry documents (e.g., industry specification sheets, handbooks, reference materials, or other vendor information)	S8	Y	C146, C147, M011, M210
Analytical data relevant to the waste stream, including results from fingerprint analyses, spot checks, routine verification sampling or other processes that collected information pertinent to the waste stream. This may include new information (or previously collected data) which augments required information (e.g., visual examination not performed in compliance with CCP-PO-001, radiography screening for prohibited items.	S9	Y	C122, C205, I052, I053, M017, M019, M020, M061, M062, M063, M064, M065, M068, M198, M211, M217, P1374, P1375, P1400, P1402, P1404, U043, U044, U597
Material Safety Data Sheets, product labels, or other product information	S10	Y	C200, C201, M011, M210
Laboratory notebooks that detail the research processes and raw materials used in an experiment	S11	Y	M052, U016
Comparable or surrogate sampling and analysis data	S12	Y	I052, P1402
Other (describe)	S13	N	N/A
Safeguards and security, Materials Control and Accountability, and other nuclear material control system data Reports of nuclear safety or criticality accidents involving special nuclear materials (SNM)	S14	N	N/A
NMMA logs or inventory records or waste disposal logs providing SNM or nuclear material information	S15	Y	M003, M012

Waste Stream Number(s): OR-NFS-CH-SOIL

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
Packaging	S16	Y	C126, C127, C129, C130, C210, C321, C622, DR015, I052, I053, I056, I059, I061, I068, M003, M007, M012, M016, M019, M052, M058, M067, M075, M126, M128, M130, M131, M132, M133, M202, M206, M207, M208, M209, M210, P1370, P1373, P1374, P1398, P1400, P1401, P1402, P1403, P1407, P251, P252, P253, P254, P267, P268, P269, P273, P274, P276, P315, P317, P323, P432, U040, U044, U055

Acceptable knowledge information regarding waste generated off-site or from similar process:

(1) AK#s are used as identifiers for program, waste stream-specific and supporting elements. The identifiers are to be used in the Acceptable Knowledge Source Document Summary and Acceptable Knowledge Information List to aid in the page location of program and waste stream-specific elements within a given document. N/A means that item is not applicable.

Additional comments:

N/A CP 1/7/14

All required AK information has been compiled and source document tracking numbers assigned.

Acceptable Knowledge Expert: JEFF HARRISON / [signature] Date: 1/7/2014
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Attachment 1 – Acceptable Knowledge Documentation Checklist

Site(s): Oak Ridge National Laboratory

Waste Stream Description: ORNL REDC RH Debris from Hot Cells

Waste Stream Number(s): OR-REDC-RH-HET

Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Mandatory generator site TRU waste program (PR) information			
Map of the generator site that identifies TRU waste generation, treatment, and storage areas.	PR1	Y	P014, P125, P161, P256, P272, P279, P953, U011, U482
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	PR2	Y	C078, C098, DR009, I044, M023, P016, P020, P021, P114, P136, P145, P151, P160, P161, P173, P223, P229, P258, P272, P281, P569, U011, U038, U478, U501, U543, U647, CCP-AK-ORNL-500
Overview of the generator site and generator site TRU waste management operations in the context of the facility's mission.	PR3	Y	C078, C098, I022, I023, I044, M023, P125, P161, P256, P281, P569, U038, U647
Descriptions of historical and current TRU waste generating operations, including how waste is tracked and managed and/or how operations relative to isotopic composition were tracked.	PR4	Y	C078, C098, C103, I022, I023, I044, M005, M023, M121, P125, P151, P161, P173, P229, P241, P242, P263, P272, P281, P953,U038, U124, U125, U478
Waste identification and/or categorization schemes and terminology used at the generator site, including codes correlating to specific isotopic distributions.	PR5	Y	I022, I023, I044, M024, P161, P241, P242, U038
Types and quantities of TRU waste generated, including historical generation through future projections.	PR6	Y	C078, C098, I044, M005, M023, M024, M121, P125, P161, P241, P242, P263, P482, P500, P953, U011, U038, U046, U047
Correlation of waste streams and description of time of generation, waste generating processes, and area and building/facility where each waste stream was generated.	PR7	Y	C078, C098, C307, C600, DR005, DR602, I044, M001, M005, M024, M100, M121, P125, P161, P173, P229, P258, P272, P281, P787, P953, U038, U046, U047, U048, U094, U124, U125, U412, U478, U483, U505, U508, U529
Certification procedures for waste to be sent to the WIPP facility (i.e., procedures to ensure that prohibited items are documented and managed in accordance with site-specific certification plans).	PR8	Y	C098, C103, P125, P240, P242, P263, P787, P801, P804, P819, P820, P826, P827, P851, U647
Mandatory generator site TRU waste stream (WS)-specific information			
Waste stream designation	WS1	Y	C078, C098, C103, M005, M024, M100, M121, P016, U045, U049, U647

NTPC RECORDS ORIGINAL
DATE REC'D 1/7/14
SP

Waste Stream Number(s): OR-REDC-RH-HET

Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Area(s) and building(s) from which the waste stream was or is generated.	WS2	Y	C078, C098, C103, C302, C307, C600, DR005, DR008, DR600, DR602, I044, M001, M005, M023, M024, M121, P016, P093, P1104, P125, P160, P161, P173, P229, P256,P258, P263, P272, P279, P281, P282, P787, U011, U045, U046, U047, U048, U049, U125, U412, U429, U437, U453, U477, U478, U482, U483, U505, U506, U507, U508, U529, U531, U533, U537, U545
Waste stream volume and time period of generation	WS3	Y	C078, C098, C302, DR005, DR602, I044, M001, M005, M023, M024, M110, M121, P173, P229, P258, P272, U011, U046, U047, U048, U094, U125, U482, U506, U507, U508, U529, U543
Waste generating process (describe for each building) including processes associated with U134 waste generation, if applicable.	WS4	Y	C078, C098, C148, C600, DR008, I044, M023, M121, P021, P030, P125, P151, P160, P161, P173, P229, P240, P258, P263, P272, P279,P281, P282, U124, U125, U477, U478, U482, U505, U529
Process flow diagrams. For research/development, analytical laboratory waste, or other similar processes where process flow diagrams cannot be created, a description of the waste generating processes, rather than a formal process flow diagram, may be included, if justified.	WS5	Y	P030, P151, P160, P161, P173, P229, P256, P263, P279, P281, P482, P500, U011, U046, U094
Summary of basis and rationale for delineating each waste stream including justification for combining waste historically managed separately as TRU mixed and TRU non-mixed waste streams into a single waste stream, that is traceable to referenced documents.	WS6	Y	C078, DR008, M024, M100, M120, M121, P016, P241, P242, U038, U094
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	WS7	Y	C078, C098, DR009, I044, M023, P020, P021, P114, P125, P145, P151, P160, P161, P173, P223, P229, P258, P263, P281, P569, U011, U038, U478, U647
Material inputs or other information that identified the chemical contents of the waste and the stream. Includes events or processes that may have modified the chemical properties of the waste stream after generation.	WS8	Y	C078, C148, C307, C308, C600, DR005, DR008, DR602, I044, M022, M024, M121, P020, P021, P030, P110, P1100, P1101, P1102, P1103, P1104, P1105, P1106, P1107, P1108, P1109, P145, P151, P160, P161, P173, P229, P263, P279, P282, P482, P500, P787, P801, P804, P819, P820, P826, P827, P851, U011, U124, U125, U425, U429, U432, U435, U436, U437, U453, U477, U478, U482, U489, U505, U506, U507, U508, U529, U531, U533, U537, U545, CCP-AK-ORNL-500

Waste Stream Number(s): OR-REDC-RH-HET

Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Physical waste form (e.g., glovebox materials and chemicals handled during glovebox operations, if applicable), assigned summary category group, waste matrix code and materials inputs, including waste material parameters present in the waste stream. Includes events or processes that may have modified the physical properties of the waste stream after generation.	WS9	Y	C078, C148, C307, C308, DR601, M001, M024, M110, M120, M121, P014, P093, P1104, P1109, P125, P161, P851, P953, U011, U038, U045, U049, U124, U125, U477, U478, U482, U483, U531, U533, U537, U545, CCP-AK-ORNL-500
Waste identifiers assigned by the generator site (e.g., item description code, packaging identification numbers).	WS10	Y	M005, M024, M100, P1104, P1109, U038, U125, U531
Specification of the isotopic ratios for the ten WIPP-tracked radionuclides and all radionuclides other than the ten WIPP-tracked radionuclides that contribute to 95 percent of the radioactive hazard for a payload container. Chemical and physical information that could affect the waste isotopic distribution, as well as calculations used to derive the isotopic distribution.	WS11	Y	C078, C148, C302, C307, C600, I044, M005, M024, M100, M110, M121, P014, P016, P021, P030, P058, P093, P110, P1104, P114, P145, P151, P160, P161, P173, P229, P258, P263, P279, P281, P482, P500, P787, P801, P819, P820, P851, P953, U011, U045, U049, U094, U412, U425, U429, U432, U435, U436, U437, U453, U477, U478, U482, U483, U489, U501, U505, U506, U507, U508, U529, U531, U533, U537, U543, U545, U647, CCP-AK-ORNL-500
State and EPA hazardous waste constituents in the waste stream and state and EPA Hazardous Waste Numbers assigned, including documentation regarding how the site has historically managed the waste, including the historical regulatory status of the waste (i.e., TRU mixed versus TRU non-mixed waste).	WS12	Y	C078, C148, C307, DR005, DR008, DR602, M005, M022, M024, M100, M121, P016, P1100, P1101, P1102, P1103, P1104, P1105, P1106, P1107, P1108, P1109, P145, P151, P160, P161, P263, P282, P482, P500, P801, P827, P851, U011, U125, U412, U425, U429, U437, U453, U477, U478, U483, U489, U501, U505, U506, U507, U508, U529, U531, U533, U543, U545, CCP-AK-ORNL-500
Additional acceptable knowledge documentation (briefly describe):			
Process design documents (e.g., Title II Design)	S1	N	N/A
Standard operating procedures that may include a list of raw materials or reagents, a description of the process or experiment generating the waste, and a description of the waste generated and how the wastes are managed at the point of generation	S2	Y	P240, P241, P242, P263, P282, P819, U011, U124
Preliminary and Final Safety Analysis Reports and technical safety requirements	S3	Y	I044, P161, P256, P279, U501
Waste Packaging records	S4	Y	M005
Test plans or research project reports that describe the reagents, radionuclides, and other raw materials used in experiments	S5	Y	C078, P021, P030, P093, P110, P114, P151, P160, P173, P229, U038
Site databases (e.g., chemical inventory database for SARA Title III requirements, SNM or nuclear material databases)	S6	Y	M024
Information from site personnel (e.g., documented interviews)	S7	Y	C098, C148, C302, C307, C308

Waste Stream Number(s): OR-REDC-RH-HET

Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Standard industry documents (e.g., industry specification sheets, handbooks, reference materials, or other vendor information)	S8	Y	M022, P113
Analytical data relevant to the waste stream, including results from fingerprint analyses, spot checks, routine verification sampling or other processes that collected information pertinent to the waste stream. This may include new information (or previously collected data) which augments required information (e.g., visual examination not performed in compliance with CCP-PO-001, radiography screening for prohibited items.	S9	Y	I044, M024, P173, P229, U011, U038, U045, U049, U501, U505
Material Safety Data Sheets, product labels, or other product information	S10	Y	M022
Laboratory notebooks that detail the research processes and raw materials used in an experiment	S11	Y	M001, P242, U412, U425, U429, U432, U435, U436, U437, U453, U477, U478, U482, U483, U489, U501, U505, U506, U507, U508, U529, U531, U533, U537, U543, U545
Comparable or surrogate sampling and analysis data	S12	Y	C600, U045, CCP-AK-ORNL-500
Other (describe)	S13	N	N/A
Safeguards and security, Materials Control and Accountability, and other nuclear material control system data Reports of nuclear safety or criticality accidents involving special nuclear materials (SNM)	S14	Y	C103
NMMA logs or inventory records or waste disposal logs providing SNM or nuclear material information	S15	Y	I044, M024, U477

Waste Stream Number(s): OR-REDC-RH-HET

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
Packaging	S16	Y	C078, C148, DR600, DR601, I044, M001, M005, M024, M100, M110, M121, M170, P125, P161, P240, P263, P279, U046, U047, U048, U125, U477

Acceptable knowledge information regarding waste generated off-site or from similar process: CCP-AK-ORNL-500 - See relevant AK Element #s above for relevant AK from this corresponding CH AK Summary Report.

(1) AK#s are used as identifiers for program, waste stream-specific and supporting elements. The identifiers are to be used in the Acceptable Knowledge Source Document Summary and Acceptable Knowledge Information List to aid in the page location of program and waste stream-specific elements within a given document. N/A means that item is not applicable.

Additional comments:
Q1 through Q16 relevant to sealed sources associated with ORSP waste streams, therefore these elements are not applicable to this RH TRU debris waste stream

All required AK information has been compiled and source document tracking numbers assigned.

Acceptable Knowledge Expert: Kevin J. Peters / _____ Date: 12/23/2013
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Attachment 4 - Acceptable Knowledge Source Document Information List

Site(s): Oak Ridge National Laboratory

Waste Stream Number: OR-ISTP-CH-HET

Waste Stream Description: ORNL Isotopes Facilities CH-TRU Debris Waste (1)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P584	Hot Cell Operations	NA	RH-UET-OP-002	Rev. 0, 01/24/2012
C031	Letter to J. E. Ratledge, Isotope Sales, ORNL re: Addendum to Letter Dated February 1, 1980	Laura Aber, ARCO Medical Products Company	NA	NA, 06/16/1980
C034	Memo to file re: Documentation of Defense-Related Activities Conducted in the Isotopes Research Materials Laboratory (IRML) at Oak Ridge National Laboratory (ORNL)	JR Trabalka, DOE OR	NA	NA, 07/16/1999
C082	Interview with Bob Eversole: Historical operations and waste management at Building 3028	Tom Krause	NA	NA, 05/10/2005
C085	Interview with David Drake: Historical operations and waste management at Building 3028	Tom Krause	NA	NA, 05/10/2005
C087	Interview with Jack Collins: Historical operations and waste management at Building 9204-3 at Y-12	Tom Krause	NA	NA, 05/18/2005
C089	Interview with Joe Devore: Historical operations and waste management at Building 3028	Tom Krause	NA	NA, 05/10/2005
C096	Interview with Tom Miner: Historical operations and waste management at Building 3028	Tom Krause	NA	NA, 05/18/2005
C097	Interview with Tom Miner: Historical operations and waste management at Building 3038	Tom Krause	NA	NA, 05/18/2005
C149	Memo to File re: CCP AK/Weston Source Document Correlation	Lisa Price-Watson	NA	NA, 10/30/2007
C153	Email Releasing ORNL Container Paperwork. Subject: The Release of Generator Disposal Forms (2822 and 2109) Forms.	Don Coffey; Dave Hamrin	NA	NA, 4/2008 - 5/2008
C303	Draft Report - ORNL Isotope Facilities Operational Safety Self-Evaluation: Buildings 3026C; 3028; 3029; 3031; 3032; 3033; 3033A; 3038; 3047; 3517; 3550; 7025	J. R. Hightower	NA	NA, 1/13/1989
C308	Interview of Jason Taylor, ORNL-PCB Coordinator from 1997 - 2004 re: PCB Management at ORNL	Jeff Harrison	NA	NA, 04/08/2008
DR024	Discrepancy Resolution – Waste Stream OR-ISTP-CH-HET EPA Hazardous Waste Number Assignment	Jeff Harrison	DR024	NA, 02/22/2011

NTPC RECORDS ORIGINAL
DATE REC'D 1/7/14 SP

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
DR025	Discrepancy Resolution – Waste Stream OR-ISTP-CH-HET Generation Location Discrepancies	Jeff Harrison	DR025	NA, 02/22/2011
I012	Operational Safety Requirements for Building 3028	D.W. Ramey	NA	NA, 05/01/1984
I015	Memo to File regarding Utilization of Glove Boxes on the Second Floor of Building 3047 by staff of the Isotopes Research Materials Laboratory (IRML) at ORNL	J.R. Trabalka	NA	NA, 07/26/1999
I022	DOE Order 435.1, Radioactive Waste Management	US DOE	DOE O 435.1	NA, 07/09/1999
I023	Radioactive Waste Management Manual	US DOE	DOE M 435.1-1	Rev. 1, 06/19/2001
I042	AKE Memo and Potential Hazardous Constituents of ORNL Waste	Betty Humphrey; Jean S. Burt	NA	NA, 06/27/2005 - 05/23/2006
I043	Implementation Guide for Use with DOE M 435.1-1	US Department of Energy	DOE G 435.1-1	NA, 07/09/1999
M126	RTR Video Tapes and DVDs from the WEAF Facility for Oak Ridge Waste	ORNL	NA	NA, 1986 - 1992
M147	Memo to file re: Review of RTR Videos (M126) on 2 drums in OR-RF-CH-HET Waste Stream	L. Price-Watson	M147	NA, 02/19/2009
M154	Evaluation of Additional Drums For Waste Stream OR-RF-CH-HET (add container memos)	Jeff Harrison, Lisa Watson, Jason Montoya, Christopher Chancellor	NA	NA, 05/25/2009 - 5/27/2010
M170	Drawings and Specifications for Geotextile drum liners with standing lift loops.	NA	NA	NA, NA
M171	ORNL EM Waste Database Query	NA	DR-10-000450	NA, 11/9/2009
M184	9204-3 Special Separations Pu-242 Sample Summaries	H.R. Gwinn	UCN-1090	NA, 11/1963 - 02/1980
M187	EnergX Repack Forms for Waste Stream OR-ISTP-CH-HET	EnergX	NA	NA, Various
M188	EnergX NDA Data for Waste Stream OR-ISTP-CH-HET	EnergX	NA	NA, Various
M189	EnergX RTR Data for Waste Stream OR-ISTP-CH-HET	EnergX	NA	NA, Various
M190	EnergX VE Data for Waste Stream OR-ISTP-CH-HET	EnergX	NA	NA, 04/27/2006 - 04/25/2007
M191	UCN-2109 and UCN-2822 Forms and Associated Container Paperwork for Waste Stream OR-ISTP-CH-HET	ORNL	NA	NA, Various

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
M192	Defense Determination for TRU Waste Generated in the Isotopes Facilities at Oak Ridge National Laboratory	Betty Humphrey	NA	NA, 04/18/2005
M194	MSDS Collection for Waste Stream OR-ISTP-CH-HET	Jeff Harrison	NA	NA, Various
M196	WEAF RTR Tapes (M126) Review	Christopher Chancellor	NA	NA, 06/07/2010
M197	Evaluation of Additional Drums for Waste Stream OR-ISTP-CH-HET	Jeff Harrison, Lisa Watson, Jason Montoya, Christopher Chancellor	NA	NA, Various
M217	eMWaste Database Query from ORNL Dated 01/03/2013	ORNL	NA	NA, 01/03/2013
M230	Transuranic Waste Processing Center Database Query	NA	NA	NA, 02/11/2013
M640	Nuclear Material Management and Safeguards System COEI/Composition Code Reference	DOE	D-025-HDQ-QFA-REQ	N/A, 02/26/2009
P007	Oak Ridge National Laboratory Institutional Plan FY 1986-FY 1991	Senior Planning Group and Planning Staff	ORNL/PPA-85/2	NA, 10/1985
P022	Site Descriptions of Environmental Restoration Units at Oak Ridge National Laboratory, Oak Ridge, Tennessee	A.J. Kuhaida, Jr., A.F. Parker	ORNL/ER-391	NA, 02/1997
P047	The Management of Radioactive Waste at the Oak Ridge National Laboratory: A Technical Review	Philip E. Lamoreaux et al.	DOE/DP/48010-T1	NA, 1985
P050	Oak Ridge National Laboratory Institutional Plan, FY1980 – FY1985	H. Postma, et al.	ORNL/PPA-79/8	NA, 11/1979
P051	Oak Ridge National Laboratory Institutional Plan FY 1981 – FY 1986	H. Postma, et al.	ORNL/PPA-80/12	NA, 12/1980
P081	Architectural/Historical Assessment of the Oak Ridge National Laboratory, Oak Ridge Reservation, Anderson and Roane Counties, Tennessee	Martha Carver, Margaret Slater, Duvall & Associates, Inc. Cultural Resources and Environmental Services	ORNL/M-3244	NA, 01/1994
P087	History of Disposal of Radioactive Wastes into the Ground at Oak Ridge National Laboratory	J.H. Coobs and J.R. Gissel	ORNL/TM-10269	NA, 10/1986

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P089	The Preparation of Multigram Quantities of Curium-242 for SNAP-11	V.C.A Vaughen, W.T. McDuffee, E. Lamb, and R.A. Robinson	NA	NA, 06/1969
P091	Solid State Division Progress Report for Period Ending September 30, 1978	Solid State Division	ORNL-5486	NA, 04/1979
P092	Preparation of Actinide Specimens for the US/UK Joint Experiment in the Dounreay Prototype Fast Reactor	T.C. Quinby, et al.	ORNL-5858	NA, 05/1982
P098	Chemical Technology Division Annual Progress Report, for the Period April 1, 1979 to March 31, 1971	D.E. Ferguson, Division Director; C.D. Scott, Associate Division Director; R.G. Wymer, Associate Division Director	ORNL-5757	NA, 11/1981
P101	Isotopes White Paper, Volume II: Appendices	W.A. Goldsmith, W.B. Ellis, C.C. Ragan, W.R. Rhyne	NA	NA, 01/1988
P1082	Lockheed Martin Energy Research Corporation, ORNL, Environmental Protection Procedure: Disposal of PCB (Polychlorinated Biphenyl) Oils	Lockheed Martin, ORNL	EPM-3.1	Rev. 0A, 05/01/1993
P1083	Environmental Protection Procedure: Polychlorinated Biphenyls (PCBs)	Martin Marietta, ORNL	EPM-4.0	NA, 11/20/1989; 01/15/1987
P1084	Environmental Protection Procedure: Solid Radioactive Waste Management	Martin Marietta, ORNL	EPM-17.0	NA, 07/24/1989
P1085	Safety Analysis of the Source Development Laboratory and Isotopes Division Solid Waste Handling Procedure	J.A. Setaro, J.H. Gillette	ORNL-TM-2568	NA, 05/28/1969, 04/01/1968
P1100	PCB Annual Report for Oak Ridge National Laboratory - 1986	B. D. Barkenbus; T. T. Puett; C. F. Sigmon	ORNL/TM-10495	NA, 07/1987
P1101	PCB Annual Report for Oak Ridge National Laboratory - 1987	N. S. Dailey; T. T. Puett	ORNL/TM-10858	NA, 10/1988
P1102	PCB Annual Report for Oak Ridge National Laboratory - 1988	N. S. Dailey; T. T. Puett; A. R. Witt	ORNL/TM-11247	NA, 06/1989

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P1103	PCB Annual Report for Oak Ridge National Laboratory - January 1, 1989 - February 5, 1990	J. K. Greer, Jr.; A. R. Witt	ORNL/TM-11665	NA, 07/01/1990
P1104	PCB Annual Report for Oak Ridge National Laboratory - January 1, 1991 - December 31, 1991	J. K. Greer, Jr.; J. M. Finger; L. A. Walker	ORNL/TM-12132	NA, 07/01/1992
P1105	PCB Annual Report for Oak Ridge National Laboratory - February 6, 1990 - December 31, 1990	J. K. Greer, Jr.; R. C. Foley	ORNL/TM-11883	Rev. 1, 10/15/1991
P1106	PCB Annual Report for Oak Ridge National Laboratory - 1982	T. T. Clark; B. M. Eisenhower	ORNL/TM-9035	NA, 07/1984
P1107	PCB Annual Report for Oak Ridge National Laboratory - 1983	B. M. Eisenhower; C. Y, Horton; B. D. Barkenbus	ORNL/TM-9371	NA, 07/1985
P1108	PCB Annual Report for Oak Ridge National Laboratory - 1984	B. D. Barkenbus	ORNL/TM-9701	NA, 08/1985
P1109	PCB Annual Report for Oak Ridge National Laboratory - 1985	B. D. Barkenbus	ORNL/TM-10121	NA, 08/10/1986
P1112	Radioactive Solid Waste Operations Manual	ORNL	ORNL/CF-85/205	Rev. 1 & 2, 07/1985 - 01/29/1986
P1116	EnergX TRU Waste Processing Center Procedure: Absorbing Liquids	EnergX	CH-I-OP-013	Rev. 4 & 6, 06/27/2008, 11/17/2008
P1147	Chemical Technology Division Progress Report for the Period July 1, 1988 to September 30, 1989	RK Genung	ORNL-6596	NA, 03/1990
P119	Oak Ridge Health Studies Phase I Report; Volume II - Part A Dose Reconstruction Feasibility Study	ChemRisk/Tennessee Department of Health	NA	NA, 09/1993
P1269	Manual for Nuclear Materials Management and Safeguards System Reporting and Data Submission	US. DOE Office of Security	DOE M 474.1-2A	NA, 08/19/2003
P1271	The neptunium-iron phase diagram	J. K. Gibson, et. al	0022-3115(94)00305-8	NA, 04/18/1994
P1272	Phase I Safety Analysis Report Update Program (SARUP) Hazard Screening; The Isotope Development Laboratory; Building 3038	K. W. Haff; W. J. Armento	HS/3038/F/RT-15	Rev. 0, 02/14/1992
P1286	Basis for Interim Operation for the Isotopes Development Laboratory Bldg 3038	NA	BIO/3038/F/RT-15	Rev. 0B, 02/10/1997

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P1287	Basis for Interim Operation for the Radioisotope Development Laboratory Bldg 3047	NA	BIO/3047/F/RT-16	Rev. 1, 04/07/1997
P1289	Final Safety Analysis for the Source Development Laboratory, Building 3029	R. E. Moore	ORNL/CF-85/294	NA, 08/30/1985
P1290	Operational Safety Requirements for Bldg 3029	J.R. DeVore	NA	NA, 07/28/1986
P1291	Operational Safety Requirements for Bldg 3033 Annex	T.C. Quinby, D.W. Ramey, and H.L. Adair	NA	Draft, 03/12/1984
P1292	Safety Analysis Report for Bldg 3033 Annex	T.C. Quinby, D.W. Ramey, and H.I. Adair	NA	Draft, 03/12/1984
P1294	Operational Safety Requirements for Bldg 3038	NA	NA	NA, 06/29/1988
P1295	Operational Safety Requirements for Bldg 3047	D.W. Ramey	NA	NA, Undated
P1304	Basis for Interim Operation for the Isotopes Development Laboratory - Bldg 3038	NA	BIO/3038/F/RT-15	Rev. 0B, 01/27/1997
P1310	Phase I Safety Analysis Report Update Program (SARUP) Hazard Screening - Building 3028	K. W. Haff; W. J. Armento	HS/3028/F/RT-05	Rev. 0, 02/05/1992
P1311	Phase I Safety Documentation - Radioisotope Production Laboratories C, D, and H - Buildings 3030, 3118, 3031	NA	HS/3030/3118/3031/F/RT-7, -8, -22	Rev. 0, 06/17/1996
P1312	Phase I Safety Documentation The Radioisotope Development Laboratory - Building 3047	D. W. Ramey; H. X. Phillips; D. W. Malkemus; W. J. Armento	HS/3047/F/RT-16	Rev. 1, 08/07/1995
P1314	Isotope Distribution Program Business Plan	R. S. Wiltshire	NA	NA, 12/31/1987
P1316	Safety Analysis Report for The Radioisotope Development Laboratory Building 3047	W. J. Armento; R. D. Nipper, Jr.; S. N. Storch; D. W. Malkemus; H. X. Phillips	ORNL/CTD/SAR/3047/F/RT-16	Rev. 0, ~1999
P1318	Operational Safety Requirements for the Radioisotope Development Laboratory - Building 3047	NA	OSR/3047/F/RT-16	Rev. 2, 04/07/1997
P1319	Operational Safety requirements for the Isotopes Development Laboratory Building 3038	NA	OSR/3038/F/RT-15	Rev. 2B, 02/10/1997

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P1320	Final Safety Analysis Report Building 3038	H. L. Adair	NA	NA, 04/04/1984
P1321	Final Safety Analysis for the Source Development Laboratory, Building 3029	R. E. Moore; Moore Technical Associates, Inc.	ORNL/CF-85/295	NA, 08/27/1985
P1324	Draft Safety Assessment of Building 3031	R. E. Moore	CF-86/281	NA, 09/1986
P1325	Draft Safety Assessment of Building 3032	NA	CF-86/282	NA, 09/1986
P1332	Isotopes Division: Zoning Procedures	J. H. Gillette	CF-73-9-13	NA, 09/15/1973
P1334	Radioactive Operations Committee Review of the Electromagnetic Separation Facility, Building 9204-3	Alvin M. Weinberg; F. L. Culler	CF-71/10/12; 72/12/28	NA, 10/1971 - 12/1972
P1337	Radiochemical Plants Committee Review of Building 3047	A. M. Weinberg; H. G. MacPherson; F. L. Culler; H. Postma; C. C. Hopkins; O. B. Morgan	Various	NA, 05/1969 - 09/1988
P1351	Radioactive Operations Committee Reviews of Isotopes Facilities, Buildings 3028, 3029, 3030, 3031, 3032, 3033A, 3038, 3047, and 9204-3	ORNL	Multiple	NA, 1962 - 1988
P1352	Subcommittee Review of Proposed Repackaging of 238PuO2	J. A. Setaro	NA	NA, 03/04/1985
P1357	Isotopes Separations Progess Report for 1976	E. Newman	Multiple	NA, 07/1976 - 12/1976
P1358	Isotopes Separations Progress Reports for 1977	E. Newman	Multiple	NA, 01/1977 - 12/1977
P1359	Isotopes Separtions Progress Reports for 1978	E. Newman	Multiple	NA, 01/1978 - 06/1978
P1360	Isotope Separations Progress Reports for 1979	E. Newman	Multiple	NA, 04/1979 - 12/1979
P1361	Isotope Separations Progress Reports for 1980	E. Newman	Multiple	NA, 01/1980 - 12/1980
P1362	Isotope Separations Progess Reports for 1981	E. Newman	Multiple	NA, 02/1981 - 12/1981

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P1363	Isotopes Section Progress Reports for 1982	E. Newman	Multiple	NA, 01/1982 - 12/1982
P1364	Isotopes Section Progress Reports for 1983	E. Newman	Multiple	NA, 01/1983 - 12/1983
P1365	Isotopes Section progress Reports for 1984	E. Newman	Multiple	NA, 01/1984 - 12/1984
P1366	Isotopes Section Progress Reports for 1985	E. Newman	Multiple	NA, 01/1985 - 09/1985
P1367	Isotopes Section Progress Reports for 1986	J. A. Setaro	Multiple	NA, 01/1986 - 12/1986
P1376	Review of Isotopes Target Program, January 1965 – December 1967	E.H. Kobisk	ORNL-4308	NA, 10/1968
P1377	Review of Isotopes Target Program, October 1963-December 1964	E.H. Kobisk	ORNL-3829	NA, 09/1965
P1378	Nuclear Material Control and Accountability	NA	DOE M 470.4-6	Chg 1, 08/14/2006
P164	Chemical Technology Division Annual Progress Report; Period Ending March 31, 1976	DE Ferguson et al.	ORNL-5172	NA, 09/1976
P175	Isotopes White Paper: Volume 1: Assessments of Selected Isotopes Circle Facilities, Evaluation of Isotope Processing Alternatives, and Funding Justification for LLW-CAT System for Isotopes Area	WA Goldsmith, et al	NA	NA, 12/1987
P189	Curium Source Fabrication Facility	RA Robinson and RW Schaich	NA	NA, 1969
P190	Final Report on the Decontamination of the Curium Source Fabrication Facility	RW Schaich	ORNL/TM-8376	NA, 12/1983
P224	Solid State Division Progress Report Period Ending September 30, 1981	MK Wilkinson, et al.	ORNL-5850	NA, 04/1982
P225	Solid State Division Annual Progress Report Period Ending December 31, 1975	MK Wilkinson, et al.	ORNL-5135	NA, 05/1976
P226	Solid State Division Progress Report Period Ending February 29, 1980	MK Wilkinson, et al.	ORNL-5640	NA, 09/1980
P227	Solid State Division Annual Progress Report Period Ending April 30, 1977	MK Wilkinson, et al.	ORNL-5328	NA, 10/1977
P235	Work Plan for the Isotopes Facility Deactivation Project at Oak Ridge National Laboratory	Energy Systems Environmental Restoration Program	ORNL/ER-249	Rev. 1, 05/1995

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P236	The Solid State Division, A Brief history (1952-1995)	Mike Wilkinson (compiler)	NA	NA, 06/1996
P241	Oak Ridge National Laboratory Contact-Handled Transuranic Waste Certification Program Plan	R.J. Hydzik	ORNL/TM-10322	Rev. 3, 2, 1, 06/1992
P244	Certification Document for Newly Generated Contact-Handled Transuranic Waste	W.D. Box, J. Setaro	ORNL-5985	Rev. 1, 05/1984
P251	Box Breakdown Area Operations	NA	CH-UET-OP-003 & CH-P-OP-003	Rev. 4, 7, 9, 12, 15, 18, & 20, 03/13/2007-07/16/2013
P252	Glove Box Operations	NA	CH-UET-OP-004 & CH-P-OP-004	Rev. 5, 8, 10, 14, 17, 18, & 20, 03/13/2007-06/20/2013
P253	Drum Bag In/Bag Out and Glove Ports	NA	CH-REF-OP-001 & CH-P-OP-011	Rev. 1-1, 10, 12, 13, 14, 16, & 18, 05/02/2007-02/11/2013
P254	Contact Hanadled Waste Repackaging	NA	CH-REF-OP-013 & CH-P-OP-013	Rev. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, & 14, 04/30/2007-08/27/2013
P255	Contact Handled Waste Acceptance Criteria	NA	CH-X-AD-001	Rev. 5, 11, 13, 14, 15, & 25, 10/19/2006-08/29/2013
P256	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis	Robert McKay	T-CM-FW-R-AD-001	Rev. 13, 03/01/2007
P272	Oak Ridge National Laboratory Waste Management Plan	ORNL	ORNL/TM-11433	Rev. 0, 1, 2, & 3, 12/1989 - 12/1993
P276	Determination of H2 Diffusion Rates through Various Closures on TRU Waste Bag-Out Bags	P. D. Noll, E. L. Callis, K. M. Norman, LANL	LA-13616-MS	NA, 06/1999

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P287	Radioisotope Program (8000) Progress Report For December 1969	A. F. Rupp	ORNL-TM-2828	NA, 01/1970
P288	Radioisotope Program (8000) Progress Report For December 1970	A. F. Rupp	ORNL-TM-3282	NA, 01/1971
P289	Radioisotope Development Laboratory Building 3047 Hazards Report	E. E. Pierce	ORNL-TM-946	Rev. 0, 03/1971
P290	Radioisotope Program (8000) Progress Report For March 1971	A. F. Rupp	ORNL-TM-3380	NA, 04/1971
P291	Radioisotope Development Laboratory Building 3047 Hazards Report	R. A. Robinson; E. E. Pierce	ORNL-TM-946	Rev. 2, 05/24/1974
P292	Isotope Program (NT) Progress Report for Quarter Ending December 31, 1974	J. H. Gillette	ORNL-TM-4812	NA, 02/1975
P293	Radioisotope Distribution Program Progress Report for February 1975	J. H. Gillette	ORNL-TM-4893	NA, 04/1975
P294	Radioisotope Development Laboratory Building 3047 Safety Analysis	R. A. Robinson; E. E. Pierce	ORNL-TM-946	Rev. 3, 03/1978
P295	Radioisotope Department Progress Report for December 1979	E. Lamb	ORNL/TM-7252	NA, 02/1980
P296	Radioisotope Department Progress Report for December 1980	E. Lamb	ORNL/TM-7731	NA, 03/1981
P297	Final Report on Cermet High-level Waste Forms	E. H. Kobisk; T. C. Quinby; W. S. Aaron	ORNL-5760	NA, 08/1981
P298	Stable Isotope Separation in Calutrons: Forty Years of Production and Distribution	W. A. Bell; J. G. Tracy	ORNL/TM-10356	NA, 11/1987
P299	Isotope Program (5000) Progress Report for Quarter Ending March 31, 1971	J. H. Gillette	ORNL-TM-3406	NA, 05/1971
P326	Life Cycle Baseline Summary for ADS 6504IS Isotopes Facilities Deactivation Project at Oak Ridge National Laboratory	NA	ORNL/ER-325	Rev. 1, 11/01/1995
P327	ORNL Isotopes Facilities Shutdown Program Plan	S.M. Gilbert; B.D. Patton; M.B. Sears	ORNL/TM-11689	NA, 10/01/1990
P331	Isotopes Development Center Progress Report Radioisotope Applications October - December 1962	H. A. O'Brien, Jr.	ORNL-TM-518	NA, 05/16/1963
P332	Isotopes Development Center Report Examination of Nine-Year Old Cs-137 Source Capsule	K. W. Haff	ORNL-TM-584	NA, 08/05/1963
P333	Isotopes Development Center Report Cyclotron-produced Radioisotopes	T. A. Butler; J.J. Pinajian	ORNL-TM-663	NA, 10/28/1963
P334	Final Deactivation Report on the Radioisotope Production Lab-E, Building 3032, at Oak Ridge National Laboratory	NA	ORNL/ER-414	NA, 09/12/1997

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P335	Final Deactivation Report on the Radioactive Gas Processing Facility, Building 3033, and the Actinide Fabrication Facility, Building 3033A, at ORNL	NA	ORNL/ER-419	NA, 09/24/1997
P336	Report re: Isotopes Development Center, Hazards Report for Building 3028-E (Curium Source Fabrication Facility)	R. W. Schaich - Isotopes Division	ORNL-TM-768	NA, 03/01/1964
P337	Radioisotope Program (8000) Progress Report for December 1972	A. F. Rupp	ORNL-TM-4090	NA, 01/01/1973
P338	Isotopes Development Center Progress Report Reactor-and Cyclotron-Produced Isotopes, November - December 1962	T. A. Butler (Contributions from J. F. Allen; W. D. Box; J.J. Pinajian)	ORNL-TM-530	NA, 08/28/1963
P339	Health and Safety Plan for the Isotopes Facilities Deactivation Project at ORNL	R. E. Eversole	ORNL/ER-370	NA, 08/05/1996
P340	Isotopes Development Center Progress Report Radioisotope Applications / July - Septmeber 1962	H. A. O'Brien, Jr., with contributions by R. G. Niemeyer and W. L. Powers (Summer Research Participant)	ORNL-TM-437	NA, 02/06/1963
P341	Project Management Plan for the Isotopes Facilities Deactivation Project at ORNL	NA	ORNL/ER-376	NA, 08/01/1996
P342	Final Deactivation Project Report on the Alpha Powder Facility, Building 3028, at ORNL	NA	ORNL/ER-399	NA, 04/01/1997
P343	Radioisotope Program (8000) Progress Report For December 1971	A. F. Rupp	ORNL-TM-3677	NA, 01/01/1972
P346	Work Plan for the Isotopes Facilities Deactivation Project at ORNL	NA	ORNL/ER-249	Rev. 1, 05/01/1995
P347	ORNL Isotopes Facilities Shutdown Program Management Plan	L. G. Hill; R. E. Eversole; R. K. Kibbe	ORNL/TM-11829	NA, 05/01/1992
P348	Radiation Safety and Control for The Electromagnetic Isotope Separation of the Heavy Metals in Building 9204-3, Y-12 Plant, Including Operational Procedures and Facility Layouts	G.M. Bonic, J.T. Barker, H.R. Gwinn, J. E. Keeton, L.O. Love, H. T. Milton, w.K. Procter, F.M. Schaitlin	ORNL-TM-4013	NA, 03/01/1973

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P398	Safety Analysis of Isotopes Alpha Handling Facility including Appendix C: Isotopes Division Solid Waste Handling Procedure	H. G. Hunter; R. W. Schaich; J. A. Setaro	ORNL-TM-2845	Rev. 0, 03/19/1970
P399	Isotope Program (5000) Progress Report For Quarter Ending December 31, 1969	J. H. Gillette	ORNL-TM-2889	Rev. 0, 03/10/1970
P400	Safety Analysis of Building 3028	R. W. Schaich	ORNL-TM-3192	Rev. 0, 12/14/1970
P407	ORNL Isotopes Facilities Shutdown Program Plan	S. M. Gibson; B. D. Patton; M. B. Sears	ORNL/TM-11689	NA, 01/22/1991
P409	Isotopes Division Annual Report For 1957	H. E. Seagren	ORNL-2492	NA, 02/15/1958
P422	Analysis of Chemical Technology Division Waste Streams	T. J. Abraham; T. L. Donaldson; A.B. Walker; R. L. Cummins; M. E. Reeves; T. D. Hylton	ORNL/TM-11434	Rev. 0, 07/30/1990
P432	TRU Waste Processing Center Document Safety Analysis	NA	CM-R-AD-001	Rev. 15, 16, 17, 18, & 25, 10/31/2007-02/02/2012
P453	Basis for Interim Operation for the Isotopes Development Laboratory, Building 3038	ORNL	BIO/3038/F/RT-15	Rev. 0B, 02/10/1997
P455	Phase 1 Safety Analysis Report Update Program (SARUP) Hazard Screening for the Radioisotope Laboratory A, Building 3028	ORNL	HS/3028/F/RT-05	Rev. 0 & 1, 02/05/1992, 12/20/1994
P457	Operational Safety Requirements for the Isotopes Development Laboratory, Building 3038	ORNL	OSR/3038/F/RT-15	Rev. 2B, 02/10/1997
P458	Final Safety Analysis Report for Building 3038	ORNL Operations Division	NA	NA, 04/03/1984
P481	A Multipurpose Building for Processing Alpha, Beta, Gamma and Neutron Emitters	R. W. Schaich	ORNL-TM-3225	Rev. 0, 12/08/1970
P506	Isotope program (5000) progress Report For Quarter Ending March 31, 1973	J. H. Gillette	ORNL/TM-4251	Rev. 0, 05/1973
P507	Radioisotope Program (5000) Progress Report for April 1972	A. F. Rupp	ORNL-TM-3834	Rev. 0, 05/24/1972

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P510	Action Description Memorandum for the Isotopes Facilities Shutdown at Oak Ridge National Laboratory	NA	NA	NA, 08/1991
P526	The Chemical Processing Procedures of Radioactive Isotopes in the Special Separations Program	J. W. York, III	NA	Rev. 0, 05/1983
P528	Safety Analysis Review - Building 3028	D. W. Ramey	NA	NA, 04/27/1984
P529	Safety Analysis of the Source Development Laboratory - Building 3029	R. W. Schaich	ORNL/CF-78/97	Rev. 0, 04/05/1978
P532	Resource Requirements for A Viable Isotopes Program at Oak Ridge National Laboratory	C. L. Ottinger; E. K. Johnson; J. R. Hightower; B. D. Patton	NA	NA, 08/19/1988
P536	Appendix C Facility Description Radioisotopes Development and Technology	NA	NA	Rev. 0, 09/20/1985
P537	Isotopes Facilities Deactivation Project Quality Assurance and Health & Safety Programs Compliance Review	Jupiter Corporation	NA	Rev. 0, 10/25/1995
P539	Radioisotope Development Laboratory Building 3047 Hazards Report (Isotopes Development Center)	R. A. Robinson	ORNL-TM-946	Rev. 0, 10/05/1964
P545	Isotopes Program Review Office of Nuclear Energy	David Bailey; W. H. McVey	NA	NA, 12/15/1988
P546	Isotope Distribution Program Business Plan	R. S. Wiltshire; J. A. Setaro	NA	NA, 12/31/1987
P547	Isotope Program Business Plan	NA	NA	NA, Undated
P548	The Isotopes Production and Distribution Program Report of the Isotopes Business Strategy Working Group	M. Sherman; D. Dare; J. W,. Nehls; E. Newman Jr., M.A.G. Robinson; C. H. Seehorn; A. D. Shifflett; G. Testerman; W. I. Winn; W. W. Wistrom; S. J. Wolfe	NA	NA, 06/04/1985
P549	Hot Cells in the Chemical Technology Division; Bldgs 7920, 7930, 4507, 4501, 3019	E. D. Collins	NA	NA, 10/06/1987

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P550	Final Safety Analysis for the Source Development Laboratory, Building 3029	R. E. Moore	ORNL/CF-85/294	NA, 08/30/1985
P566	ORNL Health Physics Manual	ORNL	ORNL/M-804; RP-4.1; RP-4.2; RP-5.1	NA, 11/02/1994
P568	Isotopes Division Solid Waste handling Procedure	J. H. Gillette	CF-73-8-40	NA, 08/29/1973
P569	Implementation Plan for U. S. Department of Energy Order 435.1, U. S. Department of Energy - Oak Ridge Operations, Oak Ridge, Tennessee	U. S. Department of Energy - Oak ridge Operations	DOE/OR/01-1879	NA, 06/2000
P582	PCB Decontamination	NA	CH-REF-OP-027	Rev. 1, 08/27/2013
P714	Problem Safety Summary: Bldg 3038: Separation of U-234 from Pu-238	R. R. Shoun	CDS No. 116	NA, 12/20/1989
P750	Problem Safety Summary: Bldg 3033 Annex: Building 3033 Annex Operations	J. M. Dailey	CD-137	NA, 05/03/1989
P753	Problem Safety Summary: Bldg 3038 (Alpha Handling Facility Cells 4 & 5): Texas Nuclear PU-239-Be Neutron Source Fabrication. Two Sources	J. R. Gibson	CD-130	NA, 04/18/1989
P762	Internal Procedures / Radioisotope Development and Technology: Building 3038	Karl W. Haff	IP-201 - IP-215	Rev. 0, 12/12/1985 - 03/30/1988
P763	Internal Procedure Building 3032 / Isotope Production Department Helium Leak Test	J. Thompkins	IP-202; 223; 227; 227A; 242	Rev. 0, 03/28/1988
P765	Internal Procedures: Isotope Production Department: Building 3028	Karl Haff	IP-905; 906; 911-920; 922; 923A-B; 925-929;933;936	Rev. 0, 09/01/1987
P829	Operations Division, Isotope Production Department, Operating Procedure: CH-TRU Waste	Operations Division, ORNL	IP-001	Rev. 0, 1, & 3, 09/01/1987; 03/17/1989; 01/03/1986
P830	Chemical Technology Division, Isotope Preparation Department: Contaminated Solid Waste Handling Procedure	Isotopes, REDC	IP-003	Rev. 0 & 1, 09/01/1987; 02/15/1989
P831	Chemical Technology, Radiochemical Technology, Special Projects, 3033 Annex: Packaging Nuclear Materials	Patton, REDC	IP-411	Rev. 0, 07/15/1991
P834	Glove Box Operation (Building 3038, Alpha Handling Facility Annex)	J. T. Minn; K. W. Haff; B. D. Patton; J. T. Minn	IP-1006	Rev. 1, 04/29/1994

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P835	Process Off-Gas System HEPA Filter Replacement (Building 3038, Radiochemical Technology)	J. T. Mine; K. W. Haff; B. D. Patton	IP-1235	Rev. 1, 04/03/1995
P837	Operational Safety Requirements for Building 3038	K. W. Haff; B. O. Patton; J. R. Hightower	NA	Rev. 1, 04/15/1991
P838	Glove Box Operations (North and South Laboratories Building 3038 East)	J. T. Mine; K. W. Haff; B. D. Patton; B. L. Bryan	IP-1805	Rev. 1, 04/29/1994
P840	SARUP Hazard Screening Document Radioisotope Production Laboratory E, Building 3032	K. W. Haff; R. S. Owens; W. J. Armento	HS/3032/F/RT-9	Rev. 0, 06/12/1995
P841	Phase I Safety Documentation the Actinide Fabrication Facility Building 3033A Hazard Screening	D. W. Ramey; D. W. Malkemus; H. X. Phillips; W. J. Armento	HS/3033-A/F/RT-11	Rev. 1, 12/13/1995
P844	General Operating Procedures for Building 3038	B. D. Patton; K. W. Haff; S. D. Brandel	IP-1200	Rev. 3, 07/01/1991
P845	Operational Safety Requirements for Building 3028	NA	NA	NA, 03/06/1990
P846	Building 3033 Annex Check Sheets	B. D. Patton; D. W. Ramez	IP-409	Rev. 1, 12/20/1994
P847	Manipulator Removal, Repair, and Replacement - Building 3038	B.D. Patton; K. W. Haff	IP-1610	Rev. 1, 06/24/1994
P848	Glove Box Operations, Building 3038, Alpha Handling Facility	K. W. Haff; B. D. Patton	IP-1608	Rev. 1, 04/29/1994
P849	Hazard Identification and Facility Classification - Isotopes Division	W. J. Clements	HS/3030/3118/3031/ F/RT-7, -8, -22	Rev. 0, 06/24/1996
P860	Problem Safety Summary for Building 3038 Manipulator Cell Laboratory - Separation of Y-90 from Sr-90	J. Wike; G. Groover; B. Phillips	CDS No. 123	NA, 04/25/1990
P862	Problem Safety Summary for Building 3047, Isotope Circle - Decontamination of Cell D	D. W. Ramey; R. G. Grubb	CD-120	Rev. 1, 02/10/1989
P863	Transuranic Waste Handling (Contact-Handled)	B. D. Patton	RPD-002	Rev. 1, 04/19/1993
P865	Solid Low Level Waste Handling (Bldg 3028, 3029, 3038, 3517)	B. D. Patton	RPD-001	Rev. 0, 12/21/1992

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P867	Isotopes Facilities Shutdown Program, ORNL, Buildings 3026-C, 3028, 3029, 3031, 3033 Annex, 3038, 3047, 3118, 3517, 7025, 9204-3	R. E. Eversole	NA	NA, 1990
P872	Procedure for Yttrium-90/Strontium-90 Waste Removal from Building 3038 Hot Cell	Chem Tech Division, Radioisotope Development & Technology Group	RDT-600	Rev. 5, 01/16/1990
P873	Procedure for Yttrium-90 Product Transfer, Building 3038 Hot Lab	Chem Tech Division, Chemical Development Section, Radioisotope Development and Technology Group	RDT-601	Rev. 2, 01/25/1989
P874	Procedure for Separation & Purification of U-234 from Pu-238 in Building 3038, Alpha Handling Facility	Chem Tech Division, Radioisotope Development & Technology Group	RDT-608	Rev. 1, 08/30/1989
P875	Procedure for Solid Low Level Waste Handling for Buildings 3019 Complex, 3026-C, 3028, 3029, 3030, 3031, 3032, 3033, 3033 Annex, 3036, 3038, 3047, 3118, 3503, 3517, and 7025	Chem Tech Division, Radiochemical Technology	RTS-024	Rev. 0, 11/02/1993
P876	Procedure for Transuranic Waste Handling in Buildings 3019 Complex, 3028, 3033 Annex, and 3047	Chem Tech Division, Radiochemical Technology	RTS-025	Rev. 0, 11/02/1993
P899	Isotopes Program Review - Compliance Issues / Vulnerability and Risk Report Oak Ridge National Laboratory: Safety Analysis Report Update	B. D. Patton	NA	NA, 10/17/1988
P905	Health Physics Procedure - Handling and Transfer of Radioactive Materials within the Laboratory and Guide for the Transfer of Materials Between Contaminated Enclosure Systems and Non-Contaminated Areas	ORNL	Procedure 4.1	NA, 01/01/1976
P906	Chemical Technology Division Isotope Preparation Department Operating Procedure: Management of Contaminated Lead	ORNL	IP-004	Rev. 2, 06/20/1989

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P907	Operational Safety Requirements for Building 3038 (ORNL Operations Division)	Operations Division, ORNL	NA	NA, 04/03/1984
P917	Procedure 5.1 - Segregation and Management of solid Radioactive Waste Materials and supporting Solid Waste Management Documentation	ORNL	Procedure 5.1	NA, 12/15/1983, 12/15/1985
P931	Isotope Distribution Office Goals - Power Point Presentation	NA	NA	NA, 1988
P933	Excerpts of Building Descriptions for Building Numbers 3026C, 3026D, 3028, 3029, 3030, 3031, 3032, 3033, 3033(Annex), 3038E, 3038M, 3038NW, 3038SW, 3047, 3517	Unknown	NA	NA, After 1980
P934	A New Field Work Proposal for the Isotopes Sales and Distribution Program	Hightower; Johnson	NA	NA, 1988 - 1990
P941	Electromagnetic Isotope Separations - Special Separations Program	J. O. Younghanse	NA	NA, 09/1969 - 1980
P956	Segregation and Management of Solid Radioactive Materials	NA	NA	NA, 11/27/1985, 05/15/1986
U007	Safety Analysis of Building 3028	R.W. Schaich	ORNL/CF-78/84	NA, 06/26/1978
U038	ORNL TRU Waste Historical Survey; Volumes 1, 2, and 3—Origins and Characteristics of Remote-Handled Transuranic Wastes (Trabalka report) Plus Appendices	J.R. Trabalka, A. J. Mattus, S.N. Storch	BJC/OR-395-V/1,2,3	Draft, 09/2001
U044	Weston Report: Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations	ORNL/Betty Humphrey	AK-ORNL-001	Rev. 3A & 4, 05/24/2006; 06/19/2006
U046	RH Debris Waste Process Flow Descriptions	NA	RH-R-PR-001	Rev. 0, Draft D, NA
U104	Operational Status Buildings 3028 and 3029	NA	NA	NA, 03/1987
U124	Contamination Control Plan for Hot Cell (TWPC Hot Cell)	ORNL	NA	Draft, NA
U427	Unclassified Notebook, R. E. Kerry, Health Physics Division, Building 3047	R. E. Kerry	A-6042	NA, 06/07/1971 - 06/30/1971
U451	ORNL Technical Notebook, D. D. Drake, Operations Division, Isotope Production (Bldg 3028)	D. D. Drake	Logbook No. A-103091	NA, 10/05/1988 - 08/03/1995
U458	RTS Facility Logbook JMD: Buildings 3038; 3038E; 3033A; 7025; 3047;	JMD	Misc/1984/0001	Rev. 0, 01/03/1984 - 07/25/1986

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U459	RTS Facility Logbook; Buildings 3038 AHF; 3038E; 7025; 3047; 3033A – JM Daily Logbook – Isotopes	J. M. Daily	Misc/1982/0001	Rev. 0, 01/11/1982 - 02/22/1985
U466	RTS Facility Logbook; Buildings 7025; 3038E; 3038; 3033A; 3047	UNK	Misc/1979/0001	Rev. 0, 11/05/1979 - 02/25/1980
U467	RTS Facility Logbook; Buildings 3938, 3038E, 3033A, 7025, 3047	NA	Misc/1978/0001	NA, 1978-1979
U468	RTC Facility Logbook; Buildings 7025; 3038E; 3038; 3033A; 3047 – J. M. Dailey (Isotopes)	J. M. Dailey	Misc/1988/0001	NA, 01/04/1988 - 12/18/1989
U469	RTS Facility Logbook; Buildings 3038, 3038E, 3033A, 7025, 3047	NA	Misc/1986/0002	Rev. 0, 07/28/1986 - 12/31/1987
U471	RTS Facility Logbook: Buildings 3038, 3038E, 3033A, 7025, 3047	NA	Misc/1980/0001	NA, 01/02/1980 - 12/28/1981
U472	RTS Facility Logbook; Buildings 3038, 3038E, 3033A, 7025, 3047	NA	Misc/1974/0001	NA, 05/08/1974- 07/02/1980
U473	RTS Facility Logbook; Buildings 3038, 3038E, 3033A, 7025, 3047	NA	Misc/1986/0001	Rev. 0, 10/07/1987 - 04/29/1987
U474	RTS Facility Logbook; Building 3033A; 7025; 3038E; 3038; 3047	NA	Misc/1977/0001	Rev. 0, 01/03/1977 - 12/21/1977
U475	RTS Facility Logbook; Buildings 3038; 3038E; 3033A; 7025; 3047	NA	Misc/1970/0001	NA, 03/26/1970 - 08/27/1979
U483	ORNL Technical Logbook; C. E. McFarland; Building 3038	C. E. McFarland	Logbook A-9372	NA, 02/20/1980 - 12/30/1980
U549	Operational Status of Buildings 3028 and 3029	ORNL	NA	NA, 03/1987
U554	Unclassified Notebook; A. H. Snyder; Stable Isotopes; Bldg 9204-3	A. H. Snyder	A-3371	NA, 03/1964 - 06/1967
U555	Logbook - Building 9204-3 -Earl McDaniel - Stable Isotopes Division	Earl McDaniel	A-4061	NA, 10/01/1965 - 01/30/1968
U569	Logbook, Building 3047, P. R. Kuehn, Isotopes Facilities	P. R. Kuehn	NA	NA, 02/13/1976 - 01/26/1977

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U575	Logbook, Building 3047, P. R. Kuehn, Isotopes Facilities	P. R. Kuehn	NA	NA, 09/27/1965 - 11/12/1969
U577	RTS Facility Logbook	ORNL	3047/1971/0004	NA, 11/1971 - 07/1972
U579	Logbook, Building 3047, P. R. Kuehn, CmO2 Targets	P. R. Kuehn	NA	NA, 01/15/1971 - 12/19/1973
U580	Logbook, Building 3047, P. R. Kuehn, Isotopes Facilities	P. R. Kuehn	NA	NA, 05/28/1975 - 09/03/1976
U582	RTS Facility Logbook; Building 3033A, 3038E, 3038, 3047, 7025	NA	Misc/1981/0001	NA, 08/1981 - 08/1982
U586	Logbook – FTR-O Rejects – RTS Facility – Buildings 3038E, 3038AHF, 3033A, 7025, 3047	Lovegrove	Misc/1983/0002	NA, 1983
U587	Logbook – RTS Facility Buildings 3038, 3038E, 3033A, 7025, 3047	C. Culpepper	Misc/1975/0001	NA, 09/23/1975 - 11/11/1977
U588	Logbook - RTS Facility Buildings 3038, 3038E, 3033A, 7025, 3041	Ed Black & Company	Misc/1980/0001	NA, 01/1980 - 06/1981
U589	Logbook – RTS Facility – Buildings 3033A, 3038E, 3038, 3047, 7025	J. Dailey	Misc/1967/0001	NA, 06/12/1967 - 12/15/1975
U590	Logbook – Lovegrove – Buildings 3038, 3038E, 3033A, 7025, 3047	Joni M. Lovegrove	Misc/1977/0002	NA, 11/03/1977 - 12/10/1979
U591	Logbook – Buildings 3033A, 3047, 7025 – S. D. Brandel	S. D. Brandel	Misc/1986/0003	NA, 03/03/1986 - 02/09/1988
U592	Logbook – Buildings 3038, 3047, 3038E, 7025, 3033A – J. R. Gibson	J. R. Gibson	Misc/1987/0001	NA, 10/09/1987 - 12/21/1989
U593	Logbook - Buildings 3033A, 3038E, 3038, 3047, 7025	NA	Misc/1967/0001	NA, 06/12/1967 - 12/15/1975
U594	Logbook – RTS Facility Buildings 7025, 3038E, 3038, 3033A, 3047 – Joni Lovegrove	Joni Michelle Lavegrove	Misc/1980/0001	NA, 01/01/1980 - 06/08/1981
U647	Issue Paper: Does Oak Ridge Have High-level Waste (HLW)?	John E. Patterson	NA	NA, 11/19/1999
U680	RTS Facility Logbook; W. S. Aaron; Buildings 3038, 3038E, 3033A, 7025, 3047	W. S. Aaron	A-8783	N/A, 11/17/1976 - 03/09/1984

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

[a] From Acceptable Knowledge Souce Document Summaries (Attachments 3)

[b] Or publisher's document number if available

[c] In the case where a AK Summary Report has been revised based on information in Attachment 11- Acceptable Knowledge Source Document Discrepancy Resolution form, identify the tracking number.

Acceptable Knowledge Expert: TRAVIS SMITH / [signature] Date: 01/07/2014

Print/Sign

DIVIDER

PAGE

Attachment 4 - Acceptable Knowledge Source Document Information List

Site(s): Oak Ridge National Laboratory

Waste Stream Number: OR-NFS-CH-HOM-A

Waste Stream Description: Immobilized Liquids and Fines from NFS

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
C099	Letter to Harold Johnson, CBFO DOE re: KAPL-NFS Transuranic Waste Background Information	Delwiche, D. A.	NA	NA, 05/03/2005
C100	Interview with Richard Booth and faxed defense and waste information for NFS, Erwin, TN TRU waste	Betty Humphrey	NA	NA, 02/24/2005
C119	Removal of Contaminated Pipe, Building 234 Area B, Memo to Ron Mitchell, Letter of Authorization (LOA)	Bill Reynolds	LOA-7000-018	NA, 03/20/2000
C120	Removal of Contaminated Piping, Building 234, Memo to Larry Burleson, Letter of Authorization (LAO)	Bill Reynolds	LOA-7000-011	NA, 03/02/2000
C121	DVRF Bale Packaging Glovebox Removal, Memo to Ron Mitchell	JJ Rogers	LOA-7000-034	NA, 02/15/2001
C122	Building 234 Characterization Results, Memo to Heather Little	Gina Craig	DCM-03-18, 44T-99-0436, GPC-99-013	NA, 09/30/1999
C125	Cleaning and Surveying the DVRF Shear Baler for PCBs, Memo to Building 234 Supervision	Gina Craig	SWI-02-035	NA, 10/03/2002
C126	Waste Packaging of the DVRF Decon Cell Perma-Con Structure, Memo to Richard A. Moore	Daniel J. O'Brien	SWI-02-001	NA, 02/18/2002
C127	Size Reduction of the NDA Station 2 Glovebox In the DVRF Decontamination Cell, Memo to Ron Mitchell and Rick Leitner	Ray Panciera	SWI-01-018	NA, 04/18/2001
C129	Size Reduction Process Ductwork within the Decontamination Cell, DVRF, Memo to Ron Mitchell and Rick Leitner	Bill Reynolds	SWI-01-015	NA, 03/15/2001
C130	Cleanout of DVRF Bale Packaging Glovebox, Memo to Ron Mitchell and Rick Leitner	JJ Rogers	SWI-01-013	NA, 03/07/2001
C142	Legal Analysis regarding Solvent Binder Used to Make Fuel	Al Floro	NA	NA, 11/28/1990
C145	Memo to Distribution re: Nuclear Fuel Services, In. (NFS) Background Information	D. W. Turner	NA	NA, 02/07/1992
C146	Paper from EPA website: Waste Minimization Assessment for a Manufacturer Producing Printed Circuit Boards	H. W. Edwards, M. Kostrzewa, P. S. Miller	NA	NA, UNK

NTPC RECORDS ORIGINAL
DATE REC'D 1/6/14
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Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
C147	Retrieved from EPA website: Consumer Product links for Mercury	EPA	NA	NA, 08/07/2007
C200	Internal Correspondence to M.W. Tull subject: On the Use of Rad-Sorb in NFS TRU-Waste Drums	J.A. Chapman	NA	Rev. NA, 05/26/1993
C201	Letter to Mr. Bill Reynolds, EcoTek from Terry Wickland, Product Engineer regarding Seal for 16 gauge DOT 17H stainless steel drum lid	Terry Wickland, Product Engineer	NA	Rev. NA, 04/08/1993
C203	Letter to Martin Tull from Robert A. Hunt regarding a picture of the proposed method to "lab pack" bottles of immobilized respirable fines and residual materials	Robert A. Hunt, Ecotek, Inc.	NA	Rev. NA, 03/23/1993
C204	Letter to Martin W. Tull, Martin Marietta Energy Systems, from Michael L. West, Nuclear Fuel Services, Inc. regarding response to his request for information relating to the discovery of mercury during the decommissioning of Station #15 in Building 234.	Michael L. West	NA	Rev. NA, 09/03/1992
C205	Internal Correspondence to Distribtuion regarding Minutes of November 5, 1991 Meeting with NFS Regarding Process-Line Samples	Martin W. Tull	NA	Rev. NA, 11/11/1991
C206	Numerous Faxes containing handwritten notes (oversight reports) from Paul O. Emerson re: such items as sampling the top of the underground tank, Pu Crew activities, equipment issues, processing of gloveboxes, and information on drums that were packaged.	Paul O. Emerson	NA	Rev. NA, 01/09/1991 through 08/28/1992
C209	Internal Correspondence to F.J. Shultz from J.A. Chapman regarding NFS Project Accomplishments for Month of April 1992	J.A. Chapman	NA	Rev. NA, 05/04/1992
C210	Interview re: NFS TRU Waste Shipped to Oak Ridge National Laboratory. Interviewees: Richard Booth, Richard Moore, Bob Hunt, Scott Toller, Marie Moore	J. Harrison; L. Watson	NA	NA, 09/12/2007
C227	Interview with Scott Morie from NFS	J. Harrison	NA	09/23/2010
C309	Record of Communication Subject: NFS Soil Sampling/Analysis Data Tetrachloroethylene Use	Jeff Harrison	NA	Rev. NA, 06/04/2008
C321	Record of Communication. Subject: Soil and Groundwater Treatment Sludge to be Generated in 2011.	Jeff Harrison	NA	NA, 01/11/2011
C622	Email from Don Coffey to Jeff Harrison RE: NFS BBA REPACKS NFS0385 A-H	D. Coffey, J. Montoya, J. Harrison	C622	N/A, 08/06/2010 - 08/11/2010
D001	Acceptable Knowledge Source Document Discrepancy Resolution, Attachment 10	Humphrey, Betty J	D001	NA, 06/28/2005
DR001	Discrepancy Resolution re: OR-NFS-CH-HET-EPA Hazardous Waste Numbers	Jeff Harrison	NA	Revisions 1 and 2, 11/29/2007, 01/10/2011

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
DR002	Discrepancy Resolution for OR-NFS-CH-HET re: Radionuclides	Jeff Harrison	NA	1, 11/29/2007
DR006	Discrepancy Resolution re: Physical Form of NFS-0116 & NFS-0929	Jeff Harrison	N/A	0, 11/30/07
DR010	Discrepancy Resolution re: Incorrect Waste Stream Assignment of Soil Waste Containers	Jeff Harrison	DR010	NA, 01/12/2009
DR013	Discrepancy Resolution re: NFS Soil and Debris EPA Hazardous Waste Numbers	J. Harrison	DR013	1, 01/24/2011
DR015	Discrepancy Resolution re: OR-NFS-CH-HET-A: Heterogeneous Debris from NFS	J. Harrison	DR015	NA, 09/17/2009
DR022	Discrepancy Resolution re: OR-NFS-CH-SOIL and OR-NFS-CH-HET-A Waste Stream Designation	Jeff Harrison	NA	NA, 03/05/10
DR023	Discrepancy Resolution re: NFS0815 & X10C0506069	Jeff Harrison	NA	NA, 03/22/2010
DR026	Discrepancy Resolution re: Reassignment of NFS815 to OR-NFS-CH-SOIL	Jeff Harrison	NA	NA, 07/07/2010
DR030	Discrepancy Resolution re: Drum NFS0929	J. Harrison	DR030	NA, 01/10/2011
DR031	Discrepancy Resolution re: OR-NFS-CH-HOM-A EPA Hazardous Waste Number Assignment)	Jeff Harrison	DR031	NA, 01/10/2011
I022	DOE Order 435.1, Radioactive Waste Management	US DOE	DOE O 435.1	NA, 07/09/1999
I023	Radioactive Waste Management Manual	US DOE	DOE M 435.1-1	Rev. 1, 06/19/2001
I043	Implementation Guide for Use with DOE M 435.1-1	US Department of Energy	DOE G 435.1-1	NA, 07/09/1999
I052	Memorandum; Building 234 Shear Baler Characterization Samples	Gina P. Craig	GPC-02-013, DC-03-18, 44T-02-0633	NA, 09/11/2002
I053	KAPL-TN Waste Profile for NFS Building 234 Soil	Joseph W. Pugh	44G-03-1050	NA, 09/11/2003
I056	Removal of Building 234 Wet Cell Permacon Containment Enclosure	Daniel Boss	DC-SWI-03-041;	NA, 06/20/2003
I058	Dismantlement of the West Wet Cell Wall in Building 234	Daniel Boss	DC-SWI-02-030	NA, 09/30/2002
I059	Waste Packaging of Wet Cell Wall in Building 234	Daniel J. O'Brien	WST-SWI-02-002	Revision 1, 09/19/2002
I061	Size Reduction of the DVRS Glovebox	Ray Panciera	DC-SWI-01-020	NA, 05/24/2001
I067	Procedure for the Operation of the Versatile Automated Gamma Assay System (VAGAS)	Materials Department	NFS-ACC-104	Revisions 0 & 8, 05/08/2000 - 09/17/2007

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
I068	Size Reduction of 4-inch Diameter Duct Section in Area C	Daniel Boss	DC-SWI-02-004	Revision 0, 01/25/2002
M003	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork for Waste Stored at ORNL (container paperwork)	NA	NA	NA, Various
M007	Internal Correspondence and the Environmental Assessment for the Receipt and Storage at ORNL, of Transuranic Waste, Mixed Transuranic Waste, and Mixed Oxide Waste from Nuclear Fuels and the Environmental Assessment for Disposition of Transuranic Waste	L.T. Cusick	LTR# ER-NEP A/92-015	Rev. NA, 11/09/1992
M008	Fax from John E. Kirkpatrick to Robert C. Mason on 01/16/1991 and the PuO2 + UO2 (mixed oxide) fuel production flow chart for Pellet Production, Rod/Assembly Fabrication, Scrap Dissolution/Recovery	Robert C. Mason	NA	NA, 01/16/1991
M011	MSDS (Material Safety Data Sheets) for Products used at NFS	Various	NA	NA, Various
M012	EM Waste Database Query - Container Information; Waste Description; Isotopes	ORNL	NA	NA, 08/09/2007
M013	EM Waste Database Query - NFS Box Daughter and Repack Drums: Container; Waste Description; Isotopes	ORNL	NA	NA, 08/23/2007
M016	Incoming Container Travelers for NFS Waste - VE Data	EnergX - ORNL	Various	NA, Various
M017	NFS NDA Data from Foster Wheeler (by container)	Foster Wheeler, ORNL	Various	NA, Various
M018	NFS Radiography (NDE) Data from Foster Wheeler (by container)	Foster Wheeler, ORNL	Various	NA, Various
M019	NFS VE Data from Foster Wheeler (by container)	Foster Wheeler, ORNL	Various	NA, Various
M020	NFS HSG Data from Foster Wheeler (by container)	Foster Wheeler, ORNL	Various	NA, Various
M021	Defense Determination Approval for ORNL/NFS-HD-001, Heterogeneous Debris - NFS	Betty Humphrey	ORNL-HD-001-IF	NA, 05/13/2005
M050	Photos of the Site	NA	NA	Rev. NA, NA
M051	Fax from Bob Hunt from Martin Tull transmitting drawing for EcoTek - The Hunt 55 Gallon Poly. Insert	Martin Tull	NA	Rev. NA, 09/01/1993
M052	Account Book No. S149 - DVRF Decommissioning and Volume Reduction Facility	NA	S149	Rev. NA, Various

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
M053	Letter from L.C.M. Roddye to R.L. Booth regarding Nuclear Fuel Services, Inc. - Contract DE-SCOT-86ID12630 - Closure of Nonconformance Reports NCR-X-94-WMRAD-0011, NCR-X-94-WMRAD-0012, NCR-X-94-WMRAD-0013, NCR-X-94-WMRAD-0014 AND NCR-X-94-WMRAD-0015	L.C.M. Raddye	15N-94-0054 GOV-01-01-04 NCR 86ID12630	Rev. NA, 02/10/1994
M054	Internal Correspondence to Distribution from D.W. Turner regarding Information Concerning NFS D&D Operations	D.W. Turner	NA	Rev. NA, 03/21/1991
M058	(Handwritten Document) Methods for: Measuring Activity in Baled Waste; Flowsheet for Immobilizing Fines; Assigning Values to Soil; Flowsheet for Packaging and Measuring Raschig Rings	N/A	NA	NA, N/A
M061	Internal Correspondence to Distribution from J.A. Chapman regarding An Evaluation of NFS Isotopic Estimates by Gamma-ray and Alpha-particle Spectroscopy	J.A. Chapman	NA	Rev. NA, 08/24/1992
M062	NFS Data Set No. 2 PCB Reanalysis of Gasket and K1 Samples	Wayne H. Griest, Analytical Chemistry Division	NA	Rev. NA, 12/30/1991
M063	NFS Data Sheet No. 3 PCB Analysis of Fresh Gasket and Pall Filter Samples and Cadmium in Pall Filter TCLP Leachate	Wayne H. Griest	NA	Rev. NA, 01/22/1992
M064	Analysis Results for Process Line Samples from Nuclear Fuel Services, Inc. and NFS Sample Set No. 3	C. E. Frye	N/A	N/A, 10/18/1991
M065	WEAF Data for NFS Drums (by container); WEAF Waste Acceptance Report; NFS Storage Project (by container)	ORNL, J. Chapman	NA	NA, 1993-1994
M067	Surveillance: Source surveillance for Contact-Handled Transuranic and Mixed Oxide Wastes	Paul Emerson	PQ-TR-3904, SS WMRA-106	Rev. NA, 12/18/1992
M068	Review of WEAF RTR Video Tapes	James Luginbyhl	N/A	11/27/07
M075	TWPC Contact Handled Waste Repackaging Data Forms for NFS Waste. (container paperwork)	ORNL	NA	NA, Various
M076	Evaluations of Additional Containers for Waste Stream OR-NFS-CH-HET-A (drum additions)	Jeff Harrison; Christopher Chancellor	NA	NA, Various
M126	RTR Video Tapes and DVDs from the WEAF Facility for Oak Ridge Waste	ORNL	NA	NA, 1986 - 1992
M128	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL dated September 5, 2008	J. Harrison	M128	NA, 09/05/2008
M130	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 09/15/2008	J. Harrision	M130	NA, 09/15/2008

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
M131	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 11/30/2007	J. Harrision	M131	NA, 11/30/2007
M132	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL dated 9/24/2008	J. Harrison	M132	NA, 09/24/2008
M133	Evaluation of Additional Containeers for Waste Stream OR-NFS-CH-HET dated 09/24/2008	J. Harrison	M133	NA, 09/24/2008
M198	eMWaste Query from ORNL Dated 08/30/2010	ORNL	DR-10-004417	NA, 08/30/2010
M202	Review of WEAF RTR Videos for NFS Immobilized Liquids and Fines	Rick Schultz	NA	NA, 10/11/2010 - 10/13/2010
M206	Wet Cell Excavation TRU Waste Shipping Schedule	NFS	NA	NA, 01/11/2011
M207	NFS Waste Container Packaging Forms	NFS	NA	NA, NA
M208	Evaluation of Drums for Waste Stream OR-NFS-CH-SOIL from NFS Final Decommissioning Phase	CCP	NA	NA, NA
M209	Evaluation of Drums for Waste Stream OR-NFS-CH-HOM-B from NFS Final Decommissioning Phase	CCP	NA	NA, NA
M210	TRU Project Waste Processing Facility Job Recipe. Subject: Soil-like Waste Remediation	Tim Hallman	OPS-001-08	NA, 01/29/2011
M211	Evaluation of NFS Groundwater Data	Jeff Harrison	NA	NA, 01/24/2011
M217	eMWaste Database Query from ORNL Dated 01/03/2013	ORNL	NA	NA, 01/03/2013
M235	Evaluation of Data from Source Document M064	Jeff Harrison	N/A	N/A, Undated
P014	Inventory of ORNL Remedial Action Sites: 11. Research Laboratories	T.J. Blasing, B.S. Houser	RAP 86-52	NA, 06/30/1986
P1116	EnergX TRU Waste Processing Center Procedure: Absorbing Liquids	EnergX	CH-I-OP-013	Rev. 4 & 6, 06/27/2008, 11/17/2008
P1370	Evaluation of Techniques for Conditioning and Packaging Plutonium Contaminated Soil	NFS, Mark Wetherill	DCM-03-015-008; 44T-08-0069; MSW-08-002	NA, 11/2008
P1371	Procedure for Removal and Decontamination of Utility and Process Lines and Systems	NFS	DCM-11	Revision 2, 10/15/1992
P1372	Building 234 Soil, Groundwater, and Groundwater Sludge Sampling and Analysis Plan (NFS)	NFS	DCM-03-017-001; 44T-09-0049	Revision 0, 02/01/2010

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P1373	Project Management Plan for Wet Cell Soil Excavation (NFS)	NFS	Pu-PMP-01; DAB-08-001	Revision 0, 04/28/2008
P1374	Characterization of Building 234 Waste (NFS)	NFS, Thomas Holly	DCM-03-012; TCH-08-014; 44T-08-0058	Revision 0, 11/4/2008
P1375	North Site Characterization Report for Nuclear Fuel Services, Erwin, Tennessee	Nuclear Fuel Services, Inc.	21G-99-0058	Rev.1, 07/1999
P1398	TRU Waste Processing Center, High Density Waste Item Repackaging	NA	CH-I-OP-025	R0, R1, 11/16/2010, 11/19/2010
P1401	Waste Packaging for WIPP Disposal	Michael Chase	SOP 335, Section L	Revs. 0, and 1, 09/01/2010 - 10/15/2010
P1402	234 Wet Cell Characterization Summary	Mark Wetherill	DCM-03-017-002	NA, 05/28/2010
P1403	Operation of the ORTEC Mobile Counting System	Richard Ratner	NFS-ACC-124	Rev. 0, 06/23/2010
P1404	Final Report: Solidification Testing for 234 Excavation Facility Decommissioning Project	Tanya Griffith	53T-10-0046	NA, 05/25/2010
P1405	Geochemical Survey of the Unaka Mountain Roadless Area, Unicoi County, Tennessee	K.A. Duttweiler, W.R. Griffitts, J.W. Whitlow, and E.F.Cooley	84-268	NA, 1984
P1407	TWPC Procedure - Pipe Overpack Container Operations	NA	CH-I-OP-029	R0, 05/05/2011
P1415	Radioactive Material Shipment to CNSI Barnwell, US Ecology Richland, and to Customer	Scientific Ecology Group, Inc.	OP-4.4	Revs. 6, 7, 8, 3/11/93, 4/13/93, 4/24/97
P212	Lattice Experiments with Simulated Burned-Up Fuel for D2O Power Reactors	NP Baumann, et al	DP-1122, Reactor Technology (TID-4500)	NA, 02/1968
P218	Oak Ridge National Laboratory/Nuclear Fuel Services, Inc. NFS Waste Parameter Verification Program	Martin Marietta Energy Systems, Inc.	NA	NA, 10/29/1992

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P248	Structural Assessment of Building 234 Prepared for NFS, 1205 Banner Hill Road, Erwin, TN 37650	Siddharth Shah	DCM-03-18, 44T-99-0450, SS-99-002	NA, 11/1999
P251	Box Breakdown Area Operations	NA	CH-UET-OP-003 & CH-P-OP-003	Rev. 4, 7, 9, 12, 15, 18, & 20, 03/13/2007-07/16/2013
P252	Glove Box Operations	NA	CH-UET-OP-004 & CH-P-OP-004	Rev. 5, 8, 10, 14, 17, 18, & 20, 03/13/2007-06/20/2013
P253	Drum Bag In/Bag Out and Glove Ports	NA	CH-REF-OP-001 & CH-P-OP-011	Rev. 1-1, 10, 12, 13, 14, 16, & 18, 05/02/2007-02/11/2013
P254	Contact Hanadled Waste Repackaging	NA	CH-REF-OP-013 & CH-P-OP-013	Rev. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, & 14, 04/30/2007-08/27/2013
P255	Contact Handled Waste Acceptance Criteria	NA	CH-X-AD-001	Rev. 5, 11, 13, 14, 15, & 25, 10/19/2006-08/29/2013
P256	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis	Robert McKay	T-CM-FW-R-AD-001	Rev. 13, 03/01/2007
P267	Nuclear Fuel Services Waste Acceptance and Storage Procedure	NA	WM-SWO-501.18	Revisions 0, 1, 03/05/1991; 07/12/1991
P268	ORNL WAC for Contact Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services INC.	NA	WMRA-WMPC-106	NA, 10/16/1992
P269	ORNL Waste Acceptance Criteria for Transuranic Waste from the Nuclear Fuel Services, Inc.; ORNL WAC for Contact-Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services, Inc.	NA	WM-WMCO-202	Revisions 0 and 1, 3/20/1991; 04/07/1992

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P272	Oak Ridge National Laboratory Waste Management Plan	ORNL	ORNL/TM-11433	Rev. 0, 1, 2, & 3, 12/1989 - 12/1993
P273	Nuclear Fuel Services, Inc., Waste Certification Plan for Transuranic Waste	NFS	DCM-03-05; 28G-91-001	Revs. 0, 1, 07/1991; 11/1992; 02/1992
P274	Segregation and Immobilization of Particulate Fines	NFS, Decommissioning Department	DCM-58	Revisions 0, 1, 2 and 3, NA, 1993
P276	Determination of H2 Diffusion Rates through Various Closures on TRU Waste Bag-Out Bags	P. D. Noll, E. L. Callis, K. M. Norman, LANL	LA-13616-MS	NA, 06/1999
P283	Plutonium Facilities Decommissioning Project Plan Condition Addendum	NFS	Appendix B, SNM-124, Chapter 7	Revision 2, 04/28/1989
P300	Operation of the Decontamination and Volume Reduction Facility	NA	DCM-08	Rev. Various, 06/21/1990 through 11/21/1992
P303	Removal of Exhaust Systems	NA	NFS-DCM-PR-12	Rev. 1, 06/20/1990
P304	Removal of Asbestos-Bearing Materials	NA	NFS-DCM-PR-13	1, 6/20/1990
P305	Determination of Potential Contamination Levels in Concrete Around Pipe Penetrations and Sump Areas	NA	NFS-DCM-PR-15	1, 6/20/1990
P306	Excavation of 110 Lab Tank	NA	DCM-17	Rev. 1, 02/11/1991
P315	Wet Cell Soil Excavation and Mixing	NA	DCM-61	Rev. 0, 07/05/1993
P317	Packaging for Shipment to Processing, Storage, or Burial	NA	DCM-03	Revision 6, 7/15/93
P319	Preparation of Gloveboxes for Decontaminationin the DVRF	NA	DCM-05	2, 8/16/1991
P320	Bag-Out and Glove Change	NA	NFS-DCM-PR-06	Revision 1, 6/20/1990
P321	Determination of Plutonium Isotopics for Building 110 and 234	John T. Caldwell	NA	4/28/1992
P323	Staus of Former Mixed Oxide Fuel Fabrication Facility	EcoTec, Inc.	28T-94-003	1/10/1994

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P342	Final Deactivation Project Report on the Alpha Powder Facility, Building 3028, at ORNL	NA	ORNL/ER-399	NA, 04/01/1997
P432	TRU Waste Processing Center Document Safety Analysis	NA	CM-R-AD-001	Rev. 15, 16, 17, 18, & 25, 10/31/2007-02/02/2012
P582	PCB Decontamination	NA	CH-REF-OP-027	Rev. 1, 08/27/2013
U016	A Graphical Workbook for Estimating Important Quantities of NFS Radioactive Waste Constituents	JA Chapman	NA	NA, 03/1992
U017	The Intercomparison of NDA Measurements on CH-TRU Waste Between Nuclear Fuel Services, Inc. and Oak Ridge National Laboratory	JA Chapman, et al	NA	NA, 10/24/1995
U038	ORNL TRU Waste Historical Survey; Volumes 1, 2, and 3—Origins and Characteristics of Remote-Handled Transuranic Wastes (Trabalka report) Plus Appendices	J.R. Trabalka, A. J. Mattus, S.N. Storch	BJC/OR-395-V/1,2,3	Draft, 09/2001
U040	NFS response to "Transuranic Waste Baseline Inventory Report Questionnaire"	David Delwiche and John Cummings	NA	NA, 01/1996
U043	Final Report - Waste Characterization of Wastes Generated from D&D Activity; Buildings 110 and 234 on the NFS Site in Erwin, Tennessee	M. W. Tull, Martin Marietta	NA	NA, 01/31/1992
U044	Weston Report: Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations	ORNL/Betty Humphrey	AK-ORNL-001	Rev. 3A & 4, 05/24/2006; 06/19/2006
U050	Action Description Memorandum for Disposition of Transuranic Waste and Plutonium Scrap from Nuclear Fuel Services, Inc.	NA	ANL/NE:532	12/19/1990
U052	Decommissiong Strategy in Today's Environments	NA	NA	NA
U054	Decontamination and Decommissioning of a Plutonium Fabrication Facility	Michael West, Robert Hunt, and Donald Paine	NA	NA
U055	Abstract, Calibration Schemes and Measurement Techniques	NA	NA	NA
U058	Oak Ridge National Laboratory/Nuclear Fuel Services Inc. NFS Waste Parameter Verification Program	Na	na	Rev. NA, Undated
U597	Building 234 Groundwater Design of Experiement (Groundwater Monitoring Data) (NFS)	NFS	NA	NA, 01/2010

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

[a] From Acceptable Knowledge Souce Document Summaries (Attachments 3)

[b] Or publisher's document number if available

[c] In the case where a AK Summary Report has been revised based on information in Attachment 11- Acceptable Knowledge Source Document Discrepancy Resolution form, identify the tracking number.

Acceptable Knowledge Expert: TRAVIS SMITH [signature] Date: 01/06/2014

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Attachment 4 - Acceptable Knowledge Source Document Information List

Site(s): Oak Ridge National Laboratory

Waste Stream Number: OR-NFS-CH-SOIL

Waste Stream Description: Soil from NFS Stored at ORNL

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
C099	Letter to Harold Johnson, CBFO DOE re: KAPL-NFS Transuranic Waste Background Information	Delwiche, D. A.	NA	NA, 05/03/2005
C100	Interview with Richard Booth and faxed defense and waste information for NFS, Erwin, TN TRU waste	Betty Humphrey	NA	NA, 02/24/2005
C119	Removal of Contaminated Pipe, Building 234 Area B, Memo to Ron Mitchell, Letter of Authorization (LOA)	Bill Reynolds	LOA-7000-018	NA, 03/20/2000
C120	Removal of Contaminated Piping, Building 234, Memo to Larry Burleson, Letter of Authorization (LAO)	Bill Reynolds	LOA-7000-011	NA, 03/02/2000
C121	DVRF Bale Packaging Glovebox Removal, Memo to Ron Mitchell	JJ Rogers	LOA-7000-034	NA, 02/15/2001
C122	Building 234 Characterization Results, Memo to Heather Little	Gina Craig	DCM-03-18, 44T-99-0436, GPC-99-013	NA, 09/30/1999
C125	Cleaning and Surveying the DVRF Shear Baler for PCBs, Memo to Building 234 Supervision	Gina Craig	SWI-02-035	NA, 10/03/2002
C126	Waste Packaging of the DVRF Decon Cell Perma-Con Structure, Memo to Richard A. Moore	Daniel J. O'Brien	SWI-02-001	NA, 02/18/2002
C127	Size Reduction of the NDA Station 2 Glovebox In the DVRF Decontamination Cell, Memo to Ron Mitchell and Rick Leitner	Ray Panciera	SWI-01-018	NA, 04/18/2001
C129	Size Reduction Process Ductwork within the Decontamination Cell, DVRF, Memo to Ron Mitchell and Rick Leitner	Bill Reynolds	SWI-01-015	NA, 03/15/2001
C130	Cleanout of DVRF Bale Packaging Glovebox, Memo to Ron Mitchell and Rick Leitner	JJ Rogers	SWI-01-013	NA, 03/07/2001
C142	Legal Analysis regarding Solvent Binder Used to Make Fuel	Al Floro	NA	NA, 11/28/1990
C145	Memo to Distribution re: Nuclear Fuel Services, In. (NFS) Background Information	D. W. Turner	NA	NA, 02/07/1992
C146	Paper from EPA website: Waste Minimization Assessment for a Manufacturer Producing Printed Circuit Boards	H. W. Edwards, M. Kostrzewa, P. S. Miller	NA	NA, UNK

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DATE REC'D 1/6/14
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Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
C147	Retrieved from EPA website: Consumer Product links for Mercury	EPA	NA	NA, 08/07/2007
C149	Memo to File re: CCP AK/Weston Source Document Correlation	Lisa Price-Watson	NA	NA, 10/30/2007
C153	Email Releasing ORNL Container Paperwork. Subject: The Release of Generator Disposal Forms (2822 and 2109) Forms.	Don Coffey; Dave Hamrin	NA	NA, 4/2008 - 5/2008
C200	Internal Correspondence to M.W. Tull subject: On the Use of Rad-Sorb in NFS TRU-Waste Drums	J.A. Chapman	NA	Rev. NA, 05/26/1993
C201	Letter to Mr. Bill Reynolds, EcoTek from Terry Wickland, Product Engineer regarding Seal for 16 gauge DOT 17H stainless steel drum lid	Terry Wickland, Product Engineer	NA	Rev. NA, 04/08/1993
C204	Letter to Martin W. Tull, Martin Marietta Energy Systems, from Michael L. West, Nuclear Fuel Services, Inc. regarding response to his request for information relating to the discovery of mercury during the decommissioning of Station #15 in Building 234.	Michael L. West	NA	Rev. NA, 09/03/1992
C205	Internal Correspondence to Distribtuion regarding Minutes of November 5, 1991 Meeting with NFS Regarding Process-Line Samples	Martin W. Tull	NA	Rev. NA, 11/11/1991
C206	Numerous Faxes containing handwritten notes (oversight reports) from Paul O. Emerson re: such items as sampling the top of the underground tank, Pu Crew activities, equipment issues, processing of gloveboxes, and information on drums that were packaged.	Paul O. Emerson	NA	Rev. NA, 01/09/1991 through 08/28/1992
C210	Interview re: NFS TRU Waste Shipped to Oak Ridge National Laboratory. Interviewees: Richard Booth, Richard Moore, Bob Hunt, Scott Toller, Marie Moore	J. Harrison; L. Watson	NA	NA, 09/12/2007
C227	Interview with Scott Morie from NFS	J. Harrison	NA	09/23/2010
C228	Changes Needed in CCP-AK-ORNL-001 Based on EPA Tier 1 Review	Jeff Harrison	NA	NA, 03/08/2011
C230	E-mail from Brian Oakley to Jeff Harrison, RE: NFS Schedule	Brian Oakley	N/A	N/A, 09/12/2013
C309	Record of Communication Subject: NFS Soil Sampling/Analysis Data Tetrachloroethylene Use	Jeff Harrison	NA	Rev. NA, 06/04/2008
C310	Memo to Don Coffey re: Approval for Limited Use of NFS Proprietary Information	Richard L. Booth, NFS	20G-07-0030; GEN; RLB-07-085	NA, 11/12/2007
C321	Record of Communication. Subject: Soil and Groundwater Treatment Sludge to be Generated in 2011.	Jeff Harrison	NA	NA, 01/11/2011
C622	Email from Don Coffey to Jeff Harrison RE: NFS BBA REPACKS NFS0385 A-H	D. Coffey, J. Montoya, J. Harrison	C622	N/A, 08/06/2010 - 08/11/2010

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
D001	Acceptable Knowledge Source Document Discrepancy Resolution, Attachment 10	Humphrey, Betty J	D001	NA, 06/28/2005
DR001	Discrepancy Resolution re: OR-NFS-CH-HET-EPA Hazardous Waste Numbers	Jeff Harrison	NA	Revisions 1 and 2, 11/29/2007, 01/10/2011
DR002	Discrepancy Resolution for OR-NFS-CH-HET re: Radionuclides	Jeff Harrison	NA	1, 11/29/2007
DR006	Discrepancy Resolution re: Physical Form of NFS-0116 & NFS-0929	Jeff Harrison	N/A	0, 11/30/07
DR010	Discrepancy Resolution re: Incorrect Waste Stream Assignment of Soil Waste Containers	Jeff Harrison	DR010	NA, 01/12/2009
DR013	Discrepancy Resolution re: NFS Soil and Debris EPA Hazardous Waste Numbers	J. Harrison	DR013	1, 01/24/2011
DR015	Discrepancy Resolution re: OR-NFS-CH-HET-A: Heterogeneous Debris from NFS	J. Harrison	DR015	NA, 09/17/2009
DR022	Discrepancy Resolution re: OR-NFS-CH-SOIL and OR-NFS-CH-HET-A Waste Stream Designation	Jeff Harrison	NA	NA, 03/05/10
DR023	Discrepancy Resolution re: NFS0815 & X10C0506069	Jeff Harrison	NA	NA, 03/22/2010
DR026	Discrepancy Resolution re: Reassignment of NFS815 to OR-NFS-CH-SOIL	Jeff Harrison	NA	NA, 07/07/2010
DR030	Discrepancy Resolution re: Drum NFS0929	J. Harrison	DR030	NA, 01/10/2011
DR031	Discrepancy Resolution re: OR-NFS-CH-HOM-A EPA Hazardous Waste Number Assignment)	Jeff Harrison	DR031	NA, 01/10/2011
I022	DOE Order 435.1, Radioactive Waste Management	US DOE	DOE O 435.1	NA, 07/09/1999
I023	Radioactive Waste Management Manual	US DOE	DOE M 435.1-1	Rev. 1, 06/19/2001
I043	Implementation Guide for Use with DOE M 435.1-1	US Department of Energy	DOE G 435.1-1	NA, 07/09/1999
I049	Waste Classification Quality Assurance Plan	Gilbert G. Rosenberger, Jr.	NFS-WST-003	Revision 1, 05/17/2002
I052	Memorandum; Building 234 Shear Baler Characterization Samples	Gina P. Craig	GPC-02-013, DC-03-18, 44T-02-0633	NA, 09/11/2002
I053	KAPL-TN Waste Profile for NFS Building 234 Soil	Joseph W. Pugh	44G-03-1050	NA, 09/11/2003
I056	Removal of Building 234 Wet Cell Permacon Containment Enclosure	Daniel Boss	DC-SWI-03-041;	NA, 06/20/2003
I058	Dismantlement of the West Wet Cell Wall in Building 234	Daniel Boss	DC-SWI-02-030	NA, 09/30/2002

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
I059	Waste Packaging of Wet Cell Wall in Building 234	Daniel J. O'Brien	WST-SWI-02-002	Revision 1, 09/19/2002
I061	Size Reduction of the DVRS Glovebox	Ray Panciera	DC-SWI-01-020	NA, 05/24/2001
I067	Procedure for the Operation of the Versatile Automated Gamma Assay System (VAGAS)	Materials Department	NFS-ACC-104	Revisions 0 & 8, 05/08/2000 - 09/17/2007
I068	Size Reduction of 4-inch Diameter Duct Section in Area C	Daniel Boss	DC-SWI-02-004	Revision 0, 01/25/2002
M003	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork for Waste Stored at ORNL (container paperwork)	NA	NA	NA, Various
M007	Internal Correspondence and the Environmental Assessment for the Receipt and Storage at ORNL, of Transuranic Waste, Mixed Transuranic Waste, and Mixed Oxide Waste from Nuclear Fuels and the Environmental Assessment for Disposition of Transuranic Waste	L.T. Cusick	LTR# ER-NEP A/92-015	Rev. NA, 11/09/1992
M008	Fax from John E. Kirkpatrick to Robert C. Mason on 01/16/1991 and the PuO2 + UO2 (mixed oxide) fuel production flow chart for Pellet Production, Rod/Assembly Fabrication, Scrap Dissolution/Recovery	Robert C. Mason	NA	NA, 01/16/1991
M011	MSDS (Material Safety Data Sheets) for Products used at NFS	Various	NA	NA, Various
M012	EM Waste Database Query - Container Information; Waste Description; Isotopes	ORNL	NA	NA, 08/09/2007
M016	Incoming Container Travelers for NFS Waste - VE Data	EnergX - ORNL	Various	NA, Various
M017	NFS NDA Data from Foster Wheeler (by container)	Foster Wheeler, ORNL	Various	NA, Various
M018	NFS Radiography (NDE) Data from Foster Wheeler (by container)	Foster Wheeler, ORNL	Various	NA, Various
M019	NFS VE Data from Foster Wheeler (by container)	Foster Wheeler, ORNL	Various	NA, Various
M020	NFS HSG Data from Foster Wheeler (by container)	Foster Wheeler, ORNL	Various	NA, Various
M021	Defense Determination Approval for ORNL/NFS-HD-001, Heterogeneous Debris - NFS	Betty Humphrey	ORNL-HD-001-IF	NA, 05/13/2005
M050	Photos of the Site	NA	NA	Rev. NA, NA
M052	Account Book No. S149 - DVRF Decommissioning and Volume Reduction Facility	NA	S149	Rev. NA, Various

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
M058	(Handwritten Document) Methods for: Measuring Activity in Baled Waste; Flowsheet for Immobilizing Fines; Assigning Values to Soil; Flowsheet for Packaging and Measuring Raschig Rings	N/A	NA	NA, N/A
M061	Internal Correspondence to Distribution from J.A. Chapman regarding An Evaluation of NFS Isotopic Estimates by Gamma-ray and Alpha-particle Spectroscopy	J.A. Chapman	NA	Rev. NA, 08/24/1992
M062	NFS Data Set No. 2 PCB Reanalysis of Gasket and K1 Samples	Wayne H. Griest, Analytical Chemistry Division	NA	Rev. NA, 12/30/1991
M063	NFS Data Sheet No. 3 PCB Analysis of Fresh Gasket and Pall Filter Samples and Cadmium in Pall Filter TCLP Leachate	Wayne H. Griest	NA	Rev. NA, 01/22/1992
M064	Analysis Results for Process Line Samples from Nuclear Fuel Services, Inc. and NFS Sample Set No. 3	C. E. Frye	N/A	N/A, 10/18/1991
M065	WEAF Data for NFS Drums (by container); WEAF Waste Acceptance Report; NFS Storage Project (by container)	ORNL, J. Chapman	NA	NA, 1993-1994
M067	Surveillance: Source surveillance for Contact-Handled Transuranic and Mixed Oxide Wastes	Paul Emerson	PQ-TR-3904, SS WMRA-106	Rev. NA, 12/18/1992
M068	Review of WEAF RTR Video Tapes	James Luginbyhl	N/A	11/27/07
M075	TWPC Contact Handled Waste Repackaging Data Forms for NFS Waste. (container paperwork)	ORNL	NA	NA, Various
M076	Evaluations of Additional Containers for Waste Stream OR-NFS-CH-HET-A (drum additions)	Jeff Harrison; Christopher Chancellor	NA	NA, Various
M110	EM Waste Waste Database Query	ORNL	NA	NA, NA
M126	RTR Video Tapes and DVDs from the WEAF Facility for Oak Ridge Waste	ORNL	NA	NA, 1986 - 1992
M128	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL dated September 5, 2008	J. Harrison	M128	NA, 09/05/2008
M129	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET, dated 9/8/2008	J. Harrision	M129	NA, 09/08/2008
M130	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 09/15/2008	J. Harrision	M130	NA, 09/15/2008
M131	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-HET dated 11/30/2007	J. Harrision	M131	NA, 11/30/2007
M132	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL dated 9/24/2008	J. Harrison	M132	NA, 09/24/2008

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
M133	Evaluation of Additional Containeers for Waste Stream OR-NFS-CH-HET dated 09/24/2008	J. Harrison	M133	NA, 09/24/2008
M151	ORNL EM Waste Database	NA	DR-09-001168	NA, 04/22/2009
M171	ORNL EM Waste Database Query	NA	DR-10-000450	NA, 11/9/2009
M198	eMWaste Query from ORNL Dated 08/30/2010	ORNL	DR-10-004417	NA, 08/30/2010
M202	Review of WEAF RTR Videos for NFS Immobilized Liquids and Fines	Rick Schultz	NA	NA, 10/11/2010 - 10/13/2010
M206	Wet Cell Excavation TRU Waste Shipping Schedule	NFS	NA	NA, 01/11/2011
M207	NFS Waste Container Packaging Forms	NFS	NA	NA, NA
M208	Evaluation of Drums for Waste Stream OR-NFS-CH-SOIL from NFS Final Decommissioning Phase	CCP	NA	NA, NA
M209	Evaluation of Drums for Waste Stream OR-NFS-CH-HOM-B from NFS Final Decommissioning Phase	CCP	NA	NA, NA
M210	TRU Project Waste Processing Facility Job Recipe. Subject: Soil-like Waste Remediation	Tim Hallman	OPS-001-08	NA, 01/29/2011
M211	Evaluation of NFS Groundwater Data	Jeff Harrison	NA	NA, 01/24/2011
M217	eMWaste Database Query from ORNL Dated 01/03/2013	ORNL	NA	NA, 01/03/2013
M235	Evaluation of Data from Source Document M064	Jeff Harrison	N/A	N/A, Undated
P014	Inventory of ORNL Remedial Action Sites: 11. Research Laboratories	T.J. Blasing, B.S. Houser	RAP 86-52	NA, 06/30/1986
P043	Oak Ridge National Laboratory, Institutional Plan, FY 1996 – FY 2001	Oak Ridge National Laboratory	ORNL/PPA-95/1	NA, 12/1995
P1082	Lockheed Martin Energy Research Corporation, ORNL, Environmental Protection Procedure: Disposal of PCB (Polychlorinated Biphenyl) Oils	Lockheed Martin, ORNL	EPM-3.1	Rev. 0A, 05/01/1993
P1083	Environmental Protection Procedure: Polychlorinated Biphenyls (PCBs)	Martin Marietta, ORNL	EPM-4.0	NA, 11/20/1989; 01/15/1987
P1084	Environmental Protection Procedure: Solid Radioactive Waste Management	Martin Marietta, ORNL	EPM-17.0	NA, 07/24/1989
P1115	Solid Waste Storage Area 5 North Transuranic Waste Engineering Study for the 22-Trench Area at Oak Ridge National Laboratory	Bechtel Jacobs	BJC/OR-898	NA, August 2001

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P1116	EnergX TRU Waste Processing Center Procedure: Absorbing Liquids	EnergX	CH-I-OP-013	Rev. 4 & 6, 06/27/2008, 11/17/2008
P122	The 1996 Baseline Environmental Management Report	US Department of Energy	DOE/EM-0290	NA, 06/1996
P1370	Evaluation of Techniques for Conditioning and Packaging Plutonium Contaminated Soil	NFS, Mark Wetherill	DCM-03-015-008; 44T-08-0069; MSW-08-002	NA, 11/2008
P1371	Procedure for Removal and Decontamination of Utility and Process Lines and Systems	NFS	DCM-11	Revision 2, 10/15/1992
P1372	Building 234 Soil, Groundwater, and Groundwater Sludge Sampling and Analysis Plan (NFS)	NFS	DCM-03-017-001; 44T-09-0049	Revision 0, 02/01/2010
P1373	Project Management Plan for Wet Cell Soil Excavation (NFS)	NFS	Pu-PMP-01; DAB-08-001	Revision 0, 04/28/2008
P1374	Characterization of Building 234 Waste (NFS)	NFS, Thomas Holly	DCM-03-012; TCH-08-014; 44T-08-0058	Revision 0, 11/4/2008
P1375	North Site Characterization Report for Nuclear Fuel Services, Erwin, Tennessee	Nuclear Fuel Services, Inc.	21G-99-0058	Rev.1, 07/1999
P1398	TRU Waste Processing Center, High Density Waste Item Repackaging	NA	CH-I-OP-025	R0, R1, 11/16/2010, 11/19/2010
P1400	Operating Procedure for Soil Excavation, Processing and Packaging for the 234 Excavation Facility	Mark Wetherill	NFS-DC-133	Revs. 0 and 1, 05/17/2010 - 09/03/2010
P1401	Waste Packaging for WIPP Disposal	Michael Chase	SOP 335, Section L	Revs. 0, and 1, 09/01/2010 - 10/15/2010
P1402	234 Wet Cell Characterization Summary	Mark Wetherill	DCM-03-017-002	NA, 05/28/2010
P1403	Operation of the ORTEC Mobile Counting System	Richard Ratner	NFS-ACC-124	Rev. 0, 06/23/2010
P1404	Final Report: Solidification Testing for 234 Excavation Facility Decommissioning Project	Tanya Griffith	53T-10-0046	NA, 05/25/2010

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P1405	Geochemical Survey of the Unaka Mountain Roadless Area, Unicoi County, Tennessee	K.A. Duttweiler, W.R. Griffitts, J.W. Whitlow, and E.F.Cooley	84-268	NA, 1984
P1407	TWPC Procedure - Pipe Overpack Container Operations	NA	CH-I-OP-029	R0, 05/05/2011
P141	Western New York Nuclear Service Center Study, Volume 2 (of 2 volumes) Companion Report	US DOE	TID-28905-3	NA, NA
P1415	Radioactive Material Shipment to CNSI Barnwell, US Ecology Richland, and to Customer	Scientific Ecology Group, Inc.	OP-4.4	Revs. 6, 7, 8, 3/11/93, 4/13/93, 4/24/97
P203	Oak Ridge National Laboratory, The First 50 Years in Oak Ridge National Laboratory Review	L. Johnson and D Schaffer	Vol. 25, Numbers Three and Four	NA, 1992
P212	Lattice Experiments with Simulated Burned-Up Fuel for D2O Power Reactors	NP Baumann, et al	DP-1122, Reactor Technology (TID-4500)	NA, 02/1968
P218	Oak Ridge National Laboratory/Nuclear Fuel Services, Inc. NFS Waste Parameter Verification Program	Martin Marietta Energy Systems, Inc.	NA	NA, 10/29/1992
P248	Structural Assessment of Building 234 Prepared for NFS, 1205 Banner Hill Road, Erwin, TN 37650	Siddharth Shah	DCM-03-18, 44T-99-0450, SS-99-002	NA, 11/1999
P251	Box Breakdown Area Operations	NA	CH-UET-OP-003 & CH-P-OP-003	Rev. 4, 7, 9, 12, 15, 18, & 20, 03/13/2007-07/16/2013
P252	Glove Box Operations	NA	CH-UET-OP-004 & CH-P-OP-004	Rev. 5, 8, 10, 14, 17, 18, & 20, 03/13/2007-06/20/2013
P253	Drum Bag In/Bag Out and Glove Ports	NA	CH-REF-OP-001 & CH-P-OP-011	Rev. 1-1, 10, 12, 13, 14, 16, & 18, 05/02/2007-02/11/2013

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P254	Contact Hanadled Waste Repackaging	NA	CH-REF-OP-013 & CH-P-OP-013	Rev. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, & 14, 04/30/2007-08/27/2013
P255	Contact Handled Waste Acceptance Criteria	NA	CH-X-AD-001	Rev. 5, 11, 13, 14, 15, & 25, 10/19/2006-08/29/2013
P256	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis	Robert McKay	T-CM-FW-R-AD-001	Rev. 13, 03/01/2007
P267	Nuclear Fuel Services Waste Acceptance and Storage Procedure	NA	WM-SWO-501.18	Revisions 0, 1, 03/05/1991; 07/12/1991
P268	ORNL WAC for Contact Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services INC.	NA	WMRA-WMPC-106	NA, 10/16/1992
P269	ORNL Waste Acceptance Criteria for Transuranic Waste from the Nuclear Fuel Services, Inc.; ORNL WAC for Contact-Handled Transuranic and Mixed Oxide Wastes from Nuclear Fuel Services, Inc.	NA	WM-WMCO-202	Revisions 0 and 1, 3/20/1991; 04/07/1992
P272	Oak Ridge National Laboratory Waste Management Plan	ORNL	ORNL/TM-11433	Rev. 0, 1, 2, & 3, 12/1989 - 12/1993
P273	Nuclear Fuel Services, Inc., Waste Certification Plan for Transuranic Waste	NFS	DCM-03-05; 28G-91-001	Revs. 0, 1, 07/1991; 11/1992; 02/1992
P274	Segregation and Immobilization of Particulate Fines	NFS, Decommissioning Department	DCM-58	Revisions 0, 1, 2 and 3, NA, 1993
P276	Determination of H2 Diffusion Rates through Various Closures on TRU Waste Bag-Out Bags	P. D. Noll, E. L. Callis, K. M. Norman, LANL	LA-13616-MS	NA, 06/1999
P283	Plutonium Facilities Decommissioning Project Plan Condition Addendum	NFS	Appendix B, SNM-124, Chapter 7	Revision 2, 04/28/1989
P284	MGA: A Gamma Ray Spectrum Analysis Code for Determining Plutonium Isotopic Abundances	R. Gunnink	UCRL-LR-103220	4/3//90

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P285	Los Alamos Radiation Monitoring Notebook	James T. Voss	LA-UR-00-2584	2/2001
P300	Operation of the Decontamination and Volume Reduction Facility	NA	DCM-08	Rev. Various, 06/21/1990 through 11/21/1992
P303	Removal of Exhaust Systems	NA	NFS-DCM-PR-12	Rev. 1, 06/20/1990
P304	Removal of Asbestos-Bearing Materials	NA	NFS-DCM-PR-13	1, 6/20/1990
P305	Determination of Potential Contamination Levels in Concrete Around Pipe Penetrations and Sump Areas	NA	NFS-DCM-PR-15	1, 6/20/1990
P306	Excavation of 110 Lab Tank	NA	DCM-17	Rev. 1, 02/11/1991
P315	Wet Cell Soil Excavation and Mixing	NA	DCM-61	Rev. 0, 07/05/1993
P317	Packaging for Shipment to Processing, Storage, or Burial	NA	DCM-03	Revision 6, 7/15/93
P319	Preparation of Gloveboxes for Decontaminationin the DVRF	NA	DCM-05	2, 8/16/1991
P321	Determination of Plutonium Isotopics for Building 110 and 234	John T. Caldwell	NA	4/28/1992
P323	Staus of Former Mixed Oxide Fuel Fabrication Facility	EcoTec, Inc.	28T-94-003	1/10/1994
P432	TRU Waste Processing Center Document Safety Analysis	NA	CM-R-AD-001	Rev. 15, 16, 17, 18, & 25, 10/31/2007-02/02/2012
P519	State of the Laboratory - 1970	Alvin M. Weinberg	ORNL-CF-70-12-40	0, 12/21/1970
P569	Implementation Plan for U. S. Department of Energy Order 435.1, U. S. Department of Energy - Oak Ridge Operations, Oak Ridge, Tennessee	U. S. Department of Energy - Oak ridge Operations	DOE/OR/01-1879	NA, 06/2000
P582	PCB Decontamination	NA	CH-REF-OP-027	Rev. 1, 08/27/2013
P956	Segregation and Management of Solid Radioactive Materials	NA	NA	NA, 11/27/1985, 05/15/1986
U016	A Graphical Workbook for Estimating Important Quantities of NFS Radioactive Waste Constituents	JA Chapman	NA	NA, 03/1992

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U017	The Intercomparison of NDA Measurements on CH-TRU Waste Between Nuclear Fuel Services, Inc. and Oak Ridge National Laboratory	JA Chapman, et al	NA	NA, 10/24/1995
U038	ORNL TRU Waste Historical Survey; Volumes 1, 2, and 3—Origins and Characteristics of Remote-Handled Transuranic Wastes (Trabalka report) Plus Appendices	J.R. Trabalka, A. J. Mattus, S.N. Storch	BJC/OR-395-V/1,2,3	Draft, 09/2001
U040	NFS response to "Transuranic Waste Baseline Inventory Report Questionnaire"	David Delwiche and John Cummings	NA	NA, 01/1996
U043	Final Report - Waste Characterization of Wastes Generated from D&D Activity; Buildings 110 and 234 on the NFS Site in Erwin, Tennessee	M. W. Tull, Martin Marietta	NA	NA, 01/31/1992
U044	Weston Report: Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations	ORNL/Betty Humphrey	AK-ORNL-001	Rev. 3A & 4, 05/24/2006; 06/19/2006
U050	Action Description Memorandum for Disposition of Transuranic Waste and Plutonium Scrap from Nuclear Fuel Services, Inc.	NA	ANL/NE:532	12/19/1990
U052	Decommissiong Strategy in Today's Environments	NA	NA	NA
U054	Decontamination and Decommissioning of a Plutonium Fabrication Facility	Michael West, Robert Hunt, and Donald Paine	NA	NA
U055	Abstract, Calibration Schemes and Measurement Techniques	NA	NA	NA
U058	Oak Ridge National Laboratory/Nuclear Fuel Services Inc. NFS Waste Parameter Verification Program	Na	na	Rev. NA, Undated
U059	Brief History of ORNL	NA	NA	NA, 3/2/1993
U597	Building 234 Groundwater Design of Experiement (Groundwater Monitoring Data) (NFS)	NFS	NA	NA, 01/2010
U647	Issue Paper: Does Oak Ridge Have High-level Waste (HLW)?	John E. Patterson	NA	NA, 11/19/1999

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

[a] From Acceptable Knowledge Souce Document Summaries (Attachments 3)

[b] Or publisher's document number if available

[c] In the case where a AK Summary Report has been revised based on information in Attachment 11- Acceptable Knowledge Source Document Discrepancy Resolution form, identify the tracking number.

Acceptable Knowledge Expert: TRAVIS SMITH [signature] **Date:** 01/06/2014

Print/Sign

Attachment 4 - Acceptable Knowledge Source Document Information List

Site(s): Oak Ridge National Laboratory

Waste Stream Number: OR-REDC-RH-HET

Waste Stream Description: ORNL REDC RH Debris Waste from Hot Cells

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
C026	Memo to J. T. Hargrove re: Description of the Item 10PUPROD2	D.E. Benker, Martin Marietta	NA	NA, 10/09/1986
C027	Memo to J. T. Hargrove re: Description of the Item 10PUPROD3	D.E. Benker, ORNL, Bldg 7920	NA	NA, 10/09/1986
C028	Memo to J. T. Hargrove re: Description of the Item 10PUPROD4	D.E. Benker, ORNL, Bldg 7920	NA	NA, 10/09/1986
C029	Memo to Davis A. Reed, 4500-N, MS-6244 re: Composition of Curium-II Curium	J.E. Bigelow, 7930	NA	NA, 06/27/1996
C033	Email to Trabalka re: Source of Pu-238(?) from Lab 208 Cleanout in 7920 (mid – 1983)	John E. Bigelow	NA	NA, 04/14/1999
C038	Memo to W. S. Aaron re: REDC Shipment No. 1418: ~ 1.55 g of 244Cm (MC-12304)	j. b. Knauer, 7920	NA	NA, 03/23/1989
C044	Memo to J. T. Hargrove re: Description of Item 10PUPROD1	D. E. Benker, Bldg 7920	NA	NA, 04/25/1986
C046	Memo to J. A. Lenhard, DOE OR re: Materials Management Plan-ORNL	R. S. Wiltshire, ORNL	NA	NA, 06/13/1984
C053	Email to JW Moore re: Process Knowledge – [1960s] Target Leak	MB Farrar, ORNL	NA	NA, 01/06/2005
C078	Memo to Bryan Roy transmitting Historical Survey – RCRA Information	James W. Moore (ZQS)	NA	NA, 04/04/2005
C098	Interview with Wayne Evans: Waste management practices at REDC (Buildings 7920 and 7930)	Tom Krause	NA	NA , 05/09/2005
C101	Memo re: Use of ORNL/TM-7688 as Reference for Process Knowledge	R.E. Schreiber	NA	NA, 08/29/1996
C102	Memo to distribution re: Results of Testing of HEPA Filters in Waste Packets	C.W. Evans	NA	NA, 10/29/1993
C103	Memo to distribution re: Seal out buckets used at REDC	Bob Wham	NA	NA, 07/17/1995
C108	ORFWENC-003 Radiological Data Analysis	NA	NA	NA, Various

NTPC RECORDS ORIGINAL
DATE REC'D 1/7/14
SP

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
C109	ORFWENC-004 Radiological Data Analysis	NA	NA	NA, Various
C110	ORFWENC-005 Radiological Data Analysis	NA	NA	NA, Various
C111	ORFWENC-006 Radiological Data Analysis	NA	NA	NA, Various
C112	ORFWENC-007 Radiological Data Analysis	NA	NA	NA, Various
C113	ORFWENC-008 Radiological Data Analysis	NA	NA	NA, Various
C148	Interviews with REDC Personnel	J. Harrison; L. Watson	NA	NA, Various
C149	Memo to File re: CCP AK/Weston Source Document Correlation	Lisa Price-Watson	NA	NA, 10/30/2007
C151	Internal Correspondence: Mixed Waste Drums ATN 3190 and ATN 2965	R. E. Schreiber	NA	NA, 2/6/1995
C152	Mark 42 Processing Program Materials Storage	F. L. Peishel, et.al	NA	NA, Various
C153	Email Releasing ORNL Container Paperwork. Subject: The Release of Generator Disposal Forms (2822 and 2109) Forms.	Don Coffey; Dave Hamrin	NA	NA, 4/2008 - 5/2008
C160	E-mail from Kevin East to Don Coffey re: Hot Cell Clean Up Drums	Kevin East	NA	NA, 12/1/2010
C224	Use of Lab 5 in Building 3508 as Control Area for SNM	E. M. Robinson; B. G. Eads	NA	NA, 2/1987
C225	Memo to Herman Postma re: Implementation of the ERDA Solid Waste Information Management System (SWIMS)	E. M. King	NA	NA, 10/13/1976
C226	Memo to Distribution re: Waste Disposal Information	Roy L. Clark	NA	NA, 12/06/1976
C302	ORNL Comments on CCP-AK-ORNL-500, Rev. 0, Draft D	ORNL	NA	0, 3/05/2008
C304	Deactivation of REDC Documents and Procedures	REDC Doc Control	NA	NA, 01/31/1996
C305	Memo to Transplutonium Program and Research Committee Members re: Summary of TRU Activities for FY-1983	J. E. Bigelow; ORNL	NA	NA, 10/17/1983
C306	Email: re: Addition Info for Current Research Activities at REDC	Don Coffey	NA	NA, 3/14/2008
C307	Interview of Walt Bond - Subject: Processes and Waste in Building 3508 at ORNL	Lisa Watson	NA	NA, 2/21/2008
C308	Interview of Jason Taylor, ORNL-PCB Coordinator from 1997 - 2004 re: PCB Management at ORNL	Jeff Harrison	NA	NA, 04/08/2008

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
C311	Interview of Don Coffey and Wayne Evans Subject: Heat-Sealed Bags Used at REDC	Jeff Harrison	C311	NA, 08/11/2008
C312	Interview of Rob Peacher Subject: Training Requirements for REDC Personnel	Sheri Nance	C312	NA, 09/08/2008
C600	Interviews with Don Coffey and Wayne Evans re: REDC RH Waste Cask Packaging Clarification and Swipe Sample Collection	K. Peters; M. Doherty	NA	NA, 06/04/2008
C601	RH TRU Waste Correlation and Surrogate Summary Form for OR-REDC-RH-HET Waste Stream	K. Peters	NA	NA, 07/01/2008
DR003	Discrepancy Resolution, Re: Generation Location Discrepancies	Jeff Harrison	DR003	NA, 06/27/2008
DR004	Discrepancy Resolution, Re: Radiological Discrepancies	Jeff Harrison	DR004	NA, 01/12/2009
DR005	Discrepancy Resolution, Re: EPA Hazardous Waste Number Discrepancies	Kevin Peters	DR005	NA, 06/24/2008
DR008	Discrepancy Resolution, Re: Follow-Up on DR602 for EPA Hazardous Waste Number Discrepancies (REDC Waste)	Jeff Harrison	DR008	NA, 09/10/2008
DR009	Discrepancy Resolution, Re: Waste Incidental to Reprocessing Determination	Jeff Harrison	DR009	NA, 10/02/2008
DR027	Discrepancy Resolution, Re: AK Re-Evaluation for Two Most Prevalent Radionuclides	Jeff Harrison	DR027	NA, 07/22/2010
DR600	Discrepancy Resolution, Re: Packaging Documentation Discrepancies for Cask X10C0601826	Kevin J. Peters	DR600	NA, 06/24/2008
DR601	Discrepancy Resolution, Re: Presence of Debris Items in Poly Blocks	Kevin J. Peters	DR601	NA, 07/01/2008
DR602	Discrepancy Resolution, Re: Follow-Up on DR005 for EPA Hazardous Waste Number Discrepancies	Kevin J. Peters	DR602	NA, 07/02/2008
I002	REDC Programs Through the Years	JE Bigelow	NA	NA, 02/25/1998
I021	Certification Program for Newly Generated, Remotely Handled Transuranic Solid Waste at the Building 7920 Facility of the Radiochemical Engineering Development Center	W. L. Carter, F. R. Chattin, L. J. King, F. G. Kitts, D. B. Owsley	REDC FO/WH 5200	0, 2/9/1995
I022	DOE Order 435.1, Radioactive Waste Management	US DOE	DOE O 435.1	NA, 07/09/1999
I023	Radioactive Waste Management Manual	US DOE	DOE M 435.1-1	Rev. 1, 06/19/2001
I042	AKE Memo and Potential Hazardous Constituents of ORNL Waste	Betty Humphrey; Jean S. Burt	NA	NA, 06/27/2005 - 05/23/2006

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
I043	Implementation Guide for Use with DOE M 435.1-1	US Department of Energy	DOE G 435.1-1	NA, 07/09/1999
I044	Re-Evaluation of the Radiological Data for Legacy CH TRU Waste from REDC BUilding 7920	Don Coffey	CAN-02MVSWSF-0014	Revision 0, 04/14/2005
M001	Review by Charles Roberts of REDC Maintenance and Operational Log Books	Charles Roberts	NA	NA, Various
M002	Radioactivie Operations Committee Review of the Transuranium Processing Plant (TRU), Building 7920	Radioactive Operations Committee	ORNL/CF-85/49	NA, 02/22/1985
M005	Container Paperwork and UNC-2109 Forms for ORNL Waste Drums for REDC CH Waste	ORNL	Various	NA, Various
M012	EM Waste Database Query - Container Information; Waste Description; Isotopes	ORNL	NA	NA, 08/09/2007
M015	Process Knowledge (PK) Documentation for Building 7920/X-10	R. E. Schreiber	RES-7920-000-002	NA, 03/01/1995
M022	Collection of MSDS for REDC CH and RH waste	various	NA	NA, Various
M023	Defense Determination for REDC Heterogeneous Debris	B. Humphrey	NA	NA, 04/25/2005
M024	RH EM Waste Database Query	NA	NA	NA, NA
M070	Solid Transuranic Waste from Building 7920	L. J. King	NA	NA, 4/29/1980
M072	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET	J. Harrison	NA	NA, 05/20/2008
M073	TWPC Contact Handled Waste Repackaging Data Forms for Building 7920 Waste	ORNL	NA	NA, Various
M074	UCN-2109 Forms and Related Container Paperwork for Building 7920 Waste Packaged in Boxes	ORNL	NA	NA, Various
M075	TWPC Contact Handled Waste Repackaging Data Forms for NFS Waste. (container paperwork)	ORNL	NA	NA, Various
M100	Container Paperwork for containers in Waste Stream OR-REDC-RH-HET (UCN-2109)	Various	NA	NA, Various
M110	EM Waste Waste Database Query	ORNL	NA	NA, NA
M111	H. Thompson Logbook, Bldg 7920 ATN Record	NA	NA	NA, Various

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
M112	Nondestructive Examination (NDE) and Visual Examination Data for Building 7920 TRU Waste. Foster Wheeler TRU/Alpha Low-Level Waste Treatment Project (by container)	Foster Wheeler TRU/Alpha Low-Level Waste Treatment Project	NA	NA, Various
M113	Nondestructive Assay (NDA) Data for Building 7920 TRU Waste. Foster Wheeler TRU/Alpha Low-Level Waste Treatment Project	Foster Wheeler TRU/Alpha Low-Level Waste Treatment Project	NA	NA, Various
M114	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET	J. Harrison	NA	NA, 03/18/2008
M117	Diagram of Lid Closure System on a 30 Gallon Drum from TURF (7930) Facility	M. J. Rennich	NA	NA, 03/10/1978
M120	ORNL RH Cask Evaluation and Supplemental Packaging Documentation	ORNL	NA	NA, Various
M121	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET	K. Peters	M121	NA, 08/20/2008
M122	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET	J. Harrison	M122	NA, 08/25/2008
M123	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET	J. Harrison	M123	NA, 08/26/2008
M125	Transuranium Analytical Laboratory Report	NA	NA	NA, Various
M126	RTR Video Tapes and DVDs from the WEAF Facility for Oak Ridge Waste	ORNL	NA	NA, 1986 - 1992
M127	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET - Cask Repackaging	K. Peters	M127	NA, 09/25/2008
M134	Drum Evaluation for Additional Drums for Waste Stream OR-REDC-CH-HET dated 11/13/2008	J. Harrison	M134	Rev. NA, 11/13/2008
M135	Drum Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET dated 11/04/2008	K. Peters	M135	NA, 11/04/2008
M136	Drum Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET dated 12/17/2008	K. Peters	NA	12/17/2008
M137	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET dated 01/14/2009	J. Harrison	M137	NA, 01/14/2009
M138	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET dated 01/20/2009	K Peters	M138	NA, 01/20/2009
M139	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET dated 01/26/2009	K. Peters	M139	NA, 01/26/2009
M140	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET dated 01/29/2009	K. Peters	M140	NA, 01/29/2009
M149	Evaluation of Additional Drums for Waste Stream OR-REDC-CH-HET dated 03/18/2009	J. Harrison	M149	NA, 03/18/2009

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
M151	ORNL EM Waste Database	NA	DR-09-001168	NA, 04/22/2009
M164	Memo from Jene N. Vance regarding: The Effect on the Drum Dose Rate by the Use of a Canvas Lifting Bag at ORNL	Jene N. Vance	NA	NA, 09/29/2009
M170	Drawings and Specifications for Geotextile drum liners with standing lift loops.	NA	NA	NA, NA
M171	ORNL EM Waste Database Query	NA	DR-10-000450	NA, 11/9/2009
M217	eMWaste Database Query from ORNL Dated 01/03/2013	ORNL	NA	NA, 01/03/2013
M610	ORNL/NSTD/REDC CY-2003 Surveillance Plan and Schedule	W. George Askew	NA	Rev. 0, 09/27/2002
M612	Radiochemical Engineering Development Center TRU Waste Quarterly Surveillance	CW Evans	NA	Rev. NA, 09/07/1995
M613	Trend Analysis Status of On-Going Efforts	NA	NA	Rev. NA, Various
M614	Chemical Technology Division Self-Assessment Program	L.E. McNeese	ORNL/CF-97/161	NA, November 1997
M615	Specifications for Laminar Flow Hood	NA	NA	NA, 07/26/1996
M616	Nonconformance Report (NCR) for Hydraulic Rabbit Capsules	L.C. Smith	NRC-X-96-RR-087	Rev. NA, 09/20/1996
M617	Iron-Spectrophotometric Ortho Phenanthroline Method	NA	NA	NA, NA
M618	MOU Between the Neutron Activation Analysis Facillity and the ES&H Division	NA	AC-MOU-102-0901	Rev. 1, 12/18/1992
M619	Determiantion of Total Reducing Normality	NA	9 00720002	NA, NA
M620	Organizational Charts	NA	NA	Rev. NA, Various
M621	Oak Ridge National Laboratory Fabrication Department Test Report	NA	X-379276	Rev. NA, 11/06/1997
M622	Information Scheduling and Storage System (ISSS) Forms (RIDS)	NA	NA	Rev. NA
P004	History of the Oak Ridge National Laboratory 1943 – 1963	W.E. Thompson	Central Files No. 63-8-75	NA, 08/23/1963

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P005	Oak Ridge National Laboratory Institutional Plan FY 1982 – FY 1987	H. Postma, C.C. Hopkins, C.R. Richmond, M.W. Rosenthal, D.B. Trauger, A. Zucker	ORNL/PPA-81/8	NA, 12/1981
P007	Oak Ridge National Laboratory Institutional Plan FY 1986-FY 1991	Senior Planning Group and Planning Staff	ORNL/PPA-85/2	NA, 10/1985
P011	Analytical Chemistry Division Annual Progress Report, Period Ending November 30, 1976	W.D. Shults	ORNL-5244	NA, 02/1977
P013	Solvent Extraction Studies with Intermediate-Burnup fast Flux Test Facility Fuel in the Solvent Extraction Test Facility	D.E. Benker, et.al	ORNL/TM-9514	NA, 04/1986
P014	Inventory of ORNL Remedial Action Sites: 11. Research Laboratories	T.J. Blasing, B.S. Houser	RAP 86-52	NA, 06/30/1986
P016	Solvent Extraction Studies with High-Burnup Fast Flux Test Facility Fuel in the Solvent Extraction Test Facility	D.E. Benker, et.al	ORNL/TM-9993	NA, 10/1986
P020	Chemical Technology Division Annual Progress Report Period Ending March 31, 1979	D.E. Ferguson, et.al	ORNL-5542	NA, 11/1979
P021	Chemical Technology Division Progress Report for the Period April 1, 1981 to March 31, 1983	R.G. Wymer, C.D. Scott	ORNL-5933	NA, 09/1983
P025	Raman Spectra of Uranyl Ion and Its Hydrolysis Products in Aqueous HNO3	L.M. Toth and G.M. Begun	Volume 85, Pages 547-549	NA, 1981
P030	Chemical Technology Division Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending June 30, 1968	W.D. Burch, J.E. Bigelow, L.J. King	ORNL-4376	NA, 04/1969
P031	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for period ending June 30, 1969	W.D. Burch, J.E. Bigelow, and L.J. King	ORNL-4447	NA, 03/1970
P032	Chemical Technology Division Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending December 31, 1971	W.D. Burch, J.E. Bigelow, L.J. King	ORNL-4767	NA, 05/1972
P033	Separation of Am, Cm, and Pu from Irradiated Targets	Felker et.al	NA	NA, NA
P037	Chemical Technology Division Annual Progress Report for Period Ending May 31, 1968	D.E. Ferguson, et.al	ORNL-4272	NA, 09/1968
P043	Oak Ridge National Laboratory, Institutional Plan, FY 1996 – FY 2001	Oak Ridge National Laboratory	ORNL/PPA-95/1	NA, 12/1995

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P047	The Management of Radioactive Waste at the Oak Ridge National Laboratory: A Technical Review	Philip E. Lamoreaux et al.	DOE/DP/48010-T1	NA, 1985
P058	Statistical Analysis of Radiochemical Measurements of TRU Radionuclides in REDC Waste	J. Beauchamp, et.al	ORNL/TM-13298	NA, 10/1996
P059	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending June 30, 1973	L.J. King, J.E. Bigelow, and E.D. Collins, Chemical Technology Division	ORNL-4921, UC-4-Chemistry	NA, 03/1974
P071	A Brief History of the Research Reactors Division of Oak Ridge National Laboratory	DR Stapleton	ORNUM-2342	NA, 10/15/1993
P077	Transuranium Processing Plant Report of Production, Status, and Plans for Period October 1, 1978 to September 30, 1980	L. J. King, J. E. Bigelow, and E. D. Collins	ORNL-5596	NA, 08/1981
P078	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending June 30, 1977	L. J. King, J. E. Bigelow, and E. D. Collins	ORNL-5358	NA, 12/1977
P079	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending December 31, 1972	L. J. King, J. E. Bigelow, and E. D. Collins	ORNL-4884	NA, 08/1973
P081	Architectural/Historical Assessment of the Oak Ridge National Laboratory, Oak Ridge Reservation, Anderson and Roane Counties, Tennessee	Martha Carver, Margaret Slater, Duvall & Associates, Inc. Cultural Resources and Environmental Services	ORNL/M-3244	NA, 01/1994
P088	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending June 30, 1971	W. D. Burch, J. E. Bigelow, and L. J. King	ORNL-4718	NA, 12/1971
P093	Characterization of ORNL Transuranic Waste from the Measurement of Fission and Activation Products	L.K. Nguyen	NA	NA, 05/1997
P096	Chemical Technology Division Annual Progress Report, Period Ending March 31, 1974	D.E. Ferguson, et.al	ORNL-4966	NA, 08/1974
P097	Chemical Technology Division Annual Progress Report, Period Ending March 31, 1978	N/A	ORNL-5383	NA, 03/31/1978

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P098	Chemical Technology Division Annual Progress Report, for the Period April 1, 1979 to March 31, 1971	D.E. Ferguson, Division Director; C.D. Scott, Associate Division Director; R.G. Wymer, Associate Division Director	ORNL-5757	NA, 11/1981
P099	Chemistry Division Annual Progress Report, Period Ending November 1, 1975	O.L. Keller, Division Chief; L.M. Ferris, Section Chief; R.L. Hahn, Section Chief, I.L. Thomas, Section Chief	ORNL-5111 UC-4 – Chemistry	NA, 02/1976
P1000	Standard Practice Procedure for Records Management	NA	X-AD-7	Rev. NA, 6/30/1993
P1001	ORNL Office of Quality Services Procedure for Certification of Technical Lead Auditors	NA	OQS-QA-P02	Rev. 0, 10/22/1998
P1002	Appendix A - Glassware Cleaning Procedures	S.K. Holladay	AC-OP-500-1201	Rev. 0, 10/25/1990
P1003	Quality Assurance Plan for Operations in Hot Cells, Shielded Caves, Glove Boxes, and Related Support Areas at the Radiochemical Engineering Development Center	R.M. Wham	QAP-X-88-CT-003	Rev. 0, 03/28/1990
P105	Metals and Ceramics Division Annual Progress Report for Period Ending June 30, 1973	Metals and Ceramics Division	ORNL-4870	NA, 10/1973
P1082	Lockheed Martin Energy Research Corporation, ORNL, Environmental Protection Procedure: Disposal of PCB (Polychlorinated Biphenyl) Oils	Lockheed Martin, ORNL	EPM-3.1	Rev. 0A, 05/01/1993
P1083	Environmental Protection Procedure: Polychlorinated Biphenyls (PCBs)	Martin Marietta, ORNL	EPM-4.0	NA, 11/20/1989; 01/15/1987
P1084	Environmental Protection Procedure: Solid Radioactive Waste Management	Martin Marietta, ORNL	EPM-17.0	NA, 07/24/1989
P109	Safety Analysis Report, Radiochemical Engineering Development Center, Building 7930	Chemical Technology Division	SAR/7930-CTD/01	Revision 1, 11/02/2000

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P110	Chemical Technology Division Annual Progress Report for Period Ending March 31, 1972	Chemical Technology Division	ORNL-4794	NA, 08/1972
P1100	PCB Annual Report for Oak Ridge National Laboratory - 1986	B. D. Barkenbus; T. T. Puett; C. F. Sigmon	ORNL/TM-10495	NA, 07/1987
P1101	PCB Annual Report for Oak Ridge National Laboratory - 1987	N. S. Dailey; T. T. Puett	ORNL/TM-10858	NA, 10/1988
P1102	PCB Annual Report for Oak Ridge National Laboratory - 1988	N. S. Dailey; T. T. Puett; A. R. Witt	ORNL/TM-11247	NA, 06/1989
P1103	PCB Annual Report for Oak Ridge National Laboratory - January 1, 1989 - February 5, 1990	J. K. Greer, Jr.; A. R. Witt	ORNL/TM-11665	NA, 07/01/1990
P1104	PCB Annual Report for Oak Ridge National Laboratory - January 1, 1991 - December 31, 1991	J. K. Greer, Jr.; J. M. Finger; L. A. Walker	ORNL/TM-12132	NA, 07/01/1992
P1105	PCB Annual Report for Oak Ridge National Laboratory - February 6, 1990 - December 31, 1990	J. K. Greer, Jr.; R. C. Foley	ORNL/TM-11883	Rev. 1, 10/15/1991
P1106	PCB Annual Report for Oak Ridge National Laboratory - 1982	T. T. Clark; B. M. Eisenhower	ORNL/TM-9035	NA, 07/1984
P1107	PCB Annual Report for Oak Ridge National Laboratory - 1983	B. M. Eisenhower; C. Y, Horton; B. D. Barkenbus	ORNL/TM-9371	NA, 07/1985
P1108	PCB Annual Report for Oak Ridge National Laboratory - 1984	B. D. Barkenbus	ORNL/TM-9701	NA, 08/1985
P1109	PCB Annual Report for Oak Ridge National Laboratory - 1985	B. D. Barkenbus	ORNL/TM-10121	NA, 08/10/1986
P1113	Oak Ridge Tennessee Flora: Preliminary Alphabetic Inventory of Vascular Plants	J. S. Olson; G. Cristofolini; S. Cristofolini	ORNL-TM-1232	NA, 2/1966
P1114	Summary of the Campaign to Process Six SRP Reactor Slugs in the Transuranium Processing Plant	L. J. King and E. D. Collins	ORNL-TM-1939	NA, April 1969
P1115	Solid Waste Storage Area 5 North Transuranic Waste Engineering Study for the 22-Trench Area at Oak Ridge National Laboratory	Bechtel Jacobs	BJC/OR-898	NA, August 2001

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P1116	EnergX TRU Waste Processing Center Procedure: Absorbing Liquids	EnergX	CH-I-OP-013	Rev. 4 & 6, 06/27/2008, 11/17/2008
P1117	PCB Annual Report for Oak Ridge National Laboratory - 1984	C. Y. Horton and B. D. Barkenbus	ORNL/TM-9701	NA, 08/28/1985
P113	Progress in Nuclear Energy, Series III, Process Chemistry, Volume 4; Section: 7.2 Processing Methods For The Recovery Of Transplutonium Elements	R.E. Leuze and M.H. Lloyd	NA	NA, 1970
P114	Chemical Technology Division Annual Progress Report for Period Ending March 31, 1971	Chemical Technology Division	ORNL-4682	NA, 07/1971
P115	Chemical Technology Division Annual Progress Report for Period Ending May 31, 1966	Chemical Technology Division	ORNL-3945	NA, 09/1966
P118	Metals and Ceramics Division Annual Progress Report For Period Ending June 30, 1971	J.H. Frye, et.al	ORNL-4770	NA, 09/1971
P121	Solvent Extraction Studies of 10% TBP Flowsheets in the Solvent Extraction Test Facility Using Irradiated Fuel from the Fast Flux Test Facility	DE Benker, et al.	ORNL/TM-10266	NA, 03/1988
P122	The 1996 Baseline Environmental Management Report	US Department of Energy	DOE/EM-0290	NA, 06/1996
P123	Solvent Extraction Studies of Coprocessing Flowsheets – Results from Campaign 6 of the Solvent Extraction Test Facility (SETF)	D.E. Benker, et.al	ORNL/TM-9961	Revision 0, 11/1986
P125	Remote-Handled Transuranic Solid Waste Characterization Study: Oak Ridge National Laboratory	RC Stewart, et al.	ORNL/TM-11050	NA, 06/1989
P126	Carlsbad Area Office Interim Guidance on Ensuring that Waste Qualifies for Disposal at the Waste Isolation Pilot Plant	US DOE/Carlsbad Area Office	NA	NA, 02/13/1997
P130	Solvent Extraction Studies of Coprocessing Flowsheets – Results from Campaign 5 of the Solvent Extraction Test Facility (SETF)	W.D. Bond, et. al.	ORNL/TM-8598	11/1983
P131	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending June 30, 1970	WD Burch, et al.	ORNL 4588	NA, 01/1971
P1322	Use of Existing ORNL Facilities for Processing Transuranic Waste	A. L Lotts; F. E. Harrington	N/A	N/A, 10/28/1994
P133	Analytical Chemistry Division Annual Progress Report for Period Ending December 31, 1980	W. D. Schults	ORNL-5738	NA, 05/1981
P134	Tank Waste Consolidation Analysis for Transfer of ORNL RH-TRU Tank Sludges to the Melton Valley Storage Tanks	TE Kent and SM DePaoli	ORNL/TM-13367	NA, 01/1997

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P136	Chemical Technology Division Annual Progress Report for Period Ending May 31, 1967	DE Ferguson, et al.	ORNL-4145	NA, 10/1967
P1368	Pilot Plant Section Progress Report for June 1986	R. E. Leuze	CF-86/239	NA, 7/9/1986
P145	Chemical Technology Division Annual Progress Report for Period Ending May 31, 1970	DE Ferguson, et al.	ORNL-4572	NA, 10/1970
P146	C-Tank Transfers; Transuranic Sludge Removal From the C-1, C-2, and W-23 Waste Storage Tanks at Oak Ridge National Laboratory. Oak Ridge, Tennessee	TL Dahl, et al.	BJC/OR-279	NA, 05/1999
P149	The 1996 Baseline Environmental Management Report. Volume 1	DOE	DOE/EM-0290	NA, 06/1996
P151	Chemical Technology Division Annual Progress Report for Period Ending May 31, 1973	DE Ferguson et al.	ORNL-4883, UC-10	NA, 08/1973
P153	Chemical Technology Division Annual Progress Report; Period Ending March 31, 1975	DE Ferguson et al.	ORNL-5050, UC-10	NA, 10/1975
P155	Application of the TRUEX Process to highly Irradiated Targets	L.K. Felker and D.E Benker	ORNL/TM-12784	NA, 03/1995
P156	Transuranium Processing Plant Semiannual Report Of Production, Status, and Plans For Period Ending June 30, 1976	L.J. King, J.E. Bigelow, and E.D. Collins	ORNL-5216	NA, 02/1977
P157	Chemical Technology Division, Transuranium Processing Plant Report of Production, Status, and Plans for the Period January 1, 1978 – September 30, 1978	L.J. King, J.E. Bigelow, and E.D. Collins	ORNL-5531	NA, 06/1979
P160	Chemical Technology Division Annual Progress Report; Period Ending March 31, 1977	DE Ferguson et al.	ORNL-5295 UC-10	NA, 10/1977
P161	Safety Analysis Report Radiochemical Engineering Development Center Building 7920	MA Green	SAR/7920-CTD/01	Revision 1, 03/14/2001
P173	Solvent Extraction Studies of Coprocessing Flowsheets – Results from Campaigns 3 and 4 of the Solvent Extraction Test Facility (SETF)	ED Collins, et. al	ORNL/TM-7991	05/1982
P176	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period October 1, 1980 to March 31, 1983	LJ King et al	ORNL 5992, Dist. Category UC-4	NA, 10/1984
P180	Metals and Ceramics Division Annual Progress Report for Period Ending June 30, 1970	JH Frye, Jr, et al.	ORNL-4570, UC-25 – Metals, Ceramics and Materials	NA, 10/1970
P181	Metals and Ceramics Division Annual Progress Report Period Ending June 30, 1972	JH Frye, Jr, et al.	ORNL-4820, UC-25 – Metals Ceramics, and Materials	NA, 09/1972

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P185	Measurements of Fission and Activation Products for Oak Ridge National Laboratory Transuranic Waste Characterization	LK Nguyen, et al.	ORNL/TM-13292	NA, 06/1997
P197	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending December 31, 1968	WD Burch et al	ORNL 4428	NA, 11/1969
P198	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending December 31, 1969	WD Burch et al	ORNL 4540	NA, 06/1970
P199	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending December 31, 1970	LJ King et al	ORNL 4666	NA, 06/1971
P201	Current and Projected Liquid Low-Level Waste Generation at ORNL	SM DePaoli and AB Walker	ORNL/TM-13513	NA, 03/1998
P203	Oak Ridge National Laboratory, The First 50 Years in Oak Ridge National Laboratory Review	L. Johnson and D Schaffer	Vol. 25, Numbers Three and Four	NA, 1992
P204	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending June 30, 1972	LJ King et al	ORNL 4833	NA, 01/1973
P205	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending December 31, 1974	LJ King et al	ORNL 5034, UC-4-Chemistry	NA, 07/1975
P206	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending June 30, 1975	LJ King et al	ORNL 5084, UC-4-Chemistry	NA, 03/1976
P207	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending December 31, 1975	LJ King et al	ORNL 5146, Dist. Category UC-4	NA, 10/1976
P208	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending December 31, 1976	LJ King et al	ORNL 5305 Dist. Category UC-4	NA, 10/1977
P209	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending December 31, 1977	LJ King et al	ORNL 5415, Distribution Category UC-4	NA, 08/1978
P210	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending December 31, 1973	LJ King et al	ORNL 4965, UC-4-Chemistry	NA, 11/1974
P211	Transuranium Processing Plant Semiannual Report of Production, Status, and Plans for Period Ending June 30, 1974	LJ King et al	ORNL 4991, UC-4-Chemistry	NA, 02/1975

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P214	Federal Facility Agreement for the Oak Ridge Reservation	U. S. Environmental Protection Agency Region IV U. S. Department of Energy	DOE/OR-1014	NA, 01/01/1992
P216	The ORNL Chemical Technology Division 1950 - 1994	RL Jolley, et al.	ORNL/M-2733	Revision 1, 10/1994
P222	RCRA Facilities Assessment (RFA) – Oak Ridge National Laboratory	WJ Boegly, Jr., et al.	ORNL/RAP-12/V1	NA, 03/1987
P223	Chemical Technology Division Annual Progress Report for Period Ending May 31, 1969	DE Ferguson, et al.	ORNL-4422	NA, 10/1969
P229	Solvent Extraction Studies of Coprocessing Flowsheets – Results from Campaigns 1 and 2 of the Solvent Extraction Test Facility (SETF)	ED Collins, et. al.	ORNL/TM-7080, Dist. Category UC-86	NA, 07/1982
P230	60 Years of Great Science, 1943 - 2003, in "ORNL Review"	Various	Vol 36, Number 1	NA, 2003
P239	TRU Waste Management –Past, Present, and Future at Oak Ridge National Laboratory	Billingsley, K. M., Guay, K.P., Trabalka, J.R., Riner, G.L.	NA	NA, 03/01/2001
P240	Certification, Packaging and Disposition of Contact-Handled Transuranic (CH-TRU) Waste At the Radiochemical Engineering Development Center (REDC)	ORNL	REDC FO/WH 5100	1,2,3, Various
P241	Oak Ridge National Laboratory Contact-Handled Transuranic Waste Certification Program Plan	R.J. Hydzik	ORNL/TM-10322	Rev. 3, 2, 1, 06/1992
P242	Oak Ridge National Laboratory Contact-Handled Transuranic Waste Certification Program Plan	R.J. Hydzik, Jr	ORNL/TM-10322/R3	Revision 3, 06/1992
P244	Certification Document for Newly Generated Contact-Handled Transuranic Waste	W.D. Box, J. Setaro	ORNL-5985	Rev. 1, 05/1984
P245	Chemical Process Engineering in the Transuanium Processing Plant	E.D. Collins and J.E. Bigelow	CONF76110110	NA, 1976
P251	Box Breakdown Area Operations	NA	CH-UET-OP-003 & CH-P-OP-003	Rev. 4, 7, 9, 12, 15, 18, & 20, 03/13/2007-07/16/2013

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P252	Glove Box Operations	NA	CH-UET-OP-004 & CH-P-OP-004	Rev. 5, 8, 10, 14, 17, 18, & 20, 03/13/2007-06/20/2013
P253	Drum Bag In/Bag Out and Glove Ports	NA	CH-REF-OP-001 & CH-P-OP-011	Rev. 1-1, 10, 12, 13, 14, 16, & 18, 05/02/2007-02/11/2013
P254	Contact Hanadled Waste Repackaging	NA	CH-REF-OP-013 & CH-P-OP-013	Rev. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, & 14, 04/30/2007-08/27/2013
P255	Contact Handled Waste Acceptance Criteria	NA	CH-X-AD-001	Rev. 5, 11, 13, 14, 15, & 25, 10/19/2006-08/29/2013
P256	TRU/Alpha Low Level Waste (LLW) Treatment Project Documented Safety Analysis	Robert McKay	T-CM-FW-R-AD-001	Rev. 13, 03/01/2007
P257	Waste Treatment at the Radiochemical Engineering Development Center	Chemical Technology Division	ORNL/CP-95432	NA, 10/20/1997
P258	Production, Distribution, and Applications of Californium-252 Neutron Sources	Chemical Technology Division	ORNL-CP-102606	NA, 10/03/1999
P259	Chemical Technology Division Segregation of Metals-Containing Wastewater by pH	P.A. Taylor and D.R. McTaggard	ORNL/TM--11406	NA, 10/1990
P260	Radioactive Operations Committee Review of the Transuranium Processing Facility, Building 7920, and the Thorium-Uranium Recycle Facility Building 7930, March 10, 1986	J. A. Setaro	ORNL/CF-86-265	NA, 8/13/1986
P261	Radioactive Operations Committee Review of the Transuranium Processing Plant (TPP), Building 7920	J. A. Setaro	ORNL-CF-87/218	NA, 7/20/1987
P262	Radioactive Operations Committee Review of the Transuranium Processing Plant (TPP), Building 7920	L. C. Williams	ORNL-CF-88/225	NA, 8/01/1988
P263	TRU Operating Manual and Supporting Documentation	NA	NA	NA, 10/10/1980

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P272	Oak Ridge National Laboratory Waste Management Plan	ORNL	ORNL/TM-11433	Rev. 0, 1, 2, & 3, 12/1989 - 12/1993
P275	Radiochemical Engineering Development Center (REDC) Radioactive Solid Low-Level Waste (SLLW) Certification Procedure	ORNL, Chemical Technology Division	REDC FO/WH 4010	Revision 0, 12/07/1994
P276	Determination of H2 Diffusion Rates through Various Closures on TRU Waste Bag-Out Bags	P. D. Noll, E. L. Callis, K. M. Norman, LANL	LA-13616-MS	NA, 06/1999
P277	Project Plan for the Evaluation of REDC Waste for TRU-Waste Radionuclides	L. Nguyen; et.al	ORNL/TM-13087	NA, 09/1996
P279	Safety Analysis for the Transuranium Processing Plant, Building 7920	L. J. King	ORNL-3954	NA, 04/1968
P280	Summary of the Campaign During July 1968 to Process Fourteen Irradiated HFIR Targets in the Transuranium Processing Plant	L. J. King; E. D. Collins	ORNL-TM-2434	NA, 12/1969
P281	Californium-252: A Remarkable Versatile Radioisotope	Irvin W. Osborne-Lee; C. W. Alexander	ORNL/TM-12706	NA, 10/10/1995
P282	Gross Alpha Activity Measurements	Chemical and Analytical Sciences Division, ORNL	Various	Various, Various
P324	Technical Safety Requirements Irradiated Fuels Examination Laboratory Building 3525	M. W. Kohring	ORNL/3525/TSR	Rev. 1, 8/1/2004
P325	Oak Ridge National Laboratory Standardized Safety Analysis Report for Nonreactor Nuclear Facilities	M. W. Kohring	ORNL/NNFD/SSAR	Rev. 1, 5/12/2004
P326	Life Cycle Baseline Summary for ADS 6504IS Isotopes Facilities Deactivation Project at Oak Ridge National Laboratory	NA	ORNL/ER-325	Rev. 1, 11/01/1995
P330	Safety Analysis Report Irradiated Fuels Examination Laboratory / Building 3525	NA	ORNL/3525/SAR	Rev. 0 Change 1, 6/22/2006
P368	Chemistry Division Long Range Plan 1987 - 1991	M. L. Poutman	ORNL/CF-87/244	0, 7/30/1987
P379	Experimental Engineering Section Progress Report for December 1980	R. E. Leuze	ORNL/CF-81/2	0, 1/1/1981
P380	Progress Report on ORNL R&D Waste Management Program for July 1977	R. E. Blanco	ORNL/CF-77/374	0, 8/5/1977
P381	Chemical Development Section Monthly Progress Report for April 1988	J. R. Hightower	ORNL/CF-88/89	0, 5/24/1988

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P385	Analytical Chemistry Division Summary Report: Radioactive Materials Analysis Section	J. R. Stokely	ORNL/CF-86/278	0, 09/01/1986
P401	Radioactive materials Analysis laboratory Quality Assurance Plan for the Characterization of Radioactive Waste	ORNL	QAP-X-96-CASD/RML-001	Revision 2, 10/1997
P405	Analysis of Dosimetry Data from the Aluminum and Beryllium Irradiation Experiment in the RB-7 Facility of HFIR	H. T. Kerr; E. J. Allen; J. H. Swanks	ORNL-TM-4725	NA, 1/30/1975
P410	Separation of Transplutoniums From Lanthanides by Tertiary Amine Extraction	R. D. Baybartz; Boyd Weaver	ORNL-3185	NA, 12/4/1961
P412	Fabrication and Preirradiation Data for High Flux Isotope Reactor Prototype Target Rods	J. D. Sease; D. M. Hewette II	ORNL-TM-811	NA, 6/1964
P415	The HFIR Water Strainer	A. A. Abbatiello; A. P. Fraas	ORNL-TM-3460	NA, 3/1972
P416	Chemical Technologies Division Annual Progress Report For Period Ending May 31, 1965	D. E. Ferguson (Division Director)	ORNL-3830	NA, 11/1965
P420	Summaries of Chemical Technology Division Programs - FY 1978	D. E. Ferguson	ORNL/CF-77/400	NA, 9/10/1977
P422	Analysis of Chemical Technology Division Waste Streams	T. J. Abraham; T. L. Donaldson; A.B. Walker; R. L. Cummins; M. E. Reeves; T. D. Hylton	ORNL/TM-11434	Rev. 0, 07/30/1990
P423	Proceedings of the Workshop on the Management of Radioactively Contaminated Soils, Knoxville, TN, November 10, 1988	T. F. Lomenick	ORNL/TM-11332	NA, 11/21/1989
P432	TRU Waste Processing Center Document Safety Analysis	NA	CM-R-AD-001	Rev. 15, 16, 17, 18, & 25, 10/31/2007-02/02/2012
P472	Radioactive Operations Committee Review of the ORNL Transuranium Research Laboratory	Radioactive Operations Committee	ORNL/CF-87/69	NA, 03/20/1987
P473	Chemical Development Section Monthly Progress Report for March 1987 from J. R. Hightower to R. G. Wymer	J. T. Bell	ORNL/CF-87/89	NA, 05/18/1987
P482	Summary of the Campaign During February 1969 to Process Six Irradiated HFIR Targets in the Transuranium Processing Plant	L. J. King; E. D. Collins	ORNL-TM-3343	0, 8/27/1971

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P484	Alpha Radiolysis and Other Factors Affecting Hydrolysis of Tributyl Phosphate	M. H. Lloyd; R. L. Fellows	ORL-TM-9565	0, 6/27/1985
P485	Problem Safety Summary for Lab-Scale Hot-Cell Studies (Consolidated Fuel Cycle Studies) for Cell 5, Building 2026	J.C. Marten	CD-65	NA, Various
P492	Plutonium, Uranium, and Thorium Distribution Coefficients in the 30 vol % TBP-NDD-Nitric Acid System at 25 and 50 degrees C	J. B. Knauer; M. H. Lloyd; J. T. Barker	ORNL/TM-7804	0, 4/28/1982
P494	Uranium and Plutonium Distribution Coefficients in the 6 vol % and 30 vol % TBP-NDD Systems	J. B. Knauer; J. H. Paehler, Jr., M. G. Stewart	ORNL/TM-7493	0, 3/1981 Pub
P496	The Reduction of Plutonium (VI) to Plutonium (IV) in Nitric Acid by Nitric Oxide or Nitrogen Dioxide Gases	M. R. Bennett; A. D. Kelmers	ORNL/TM-6552	0, 11/30/1978
P497	Separation of Americium; Curium, and Rare Earths from High-Level Wastes by Oxalate Precipitation: Experiments with Synthetic Waste Solutions	C. W. Forsberg	ORNL/TM-6445	0, 1/16/1980
P498	Radiochemical Procedures	L. C/ Henley.	ORNL/TM-6372	0, 6/2/1978
P499	Head-End Processing Studies with Mechanically Blended (U, Pu)O2 Reactor Fuels	J. H. Goode; R. G. Stacy	ORNL/TM-6266	0, 8/3/1978
P500	Iodox Process Tests in a Transuranium Element Production Campaign	E. D. Collins; D. E. Benker	ORNL/TM-6182	0, 6/12/1979
P501	Actinide Partitioning and Transmutation Program Progress Report for Period July 1 to September 30, 1977	D. W. Tedder; J. O. Blomeke	ORNL/TM-6174	0, 3/13/1978
P505	Waste Metal Recovery By Solvent Extraction	D. E. Ferguson; T. C. Reunion	ORNL-TM-4327	0, 7/26/1973
P511	Safety Analysis for the Thorium-Uranium Recycle Facility	J. W. Anderson; S. E. Bolt; J. M. Chandler	ORNL-4278	0, 05/22/1969
P519	State of the Laboratory - 1970	Alvin M. Weinberg	ORNL-CF-70-12-40	0, 12/21/1970
P520	Safety Analysis for the TURF Californium Facility	W. D. Burch	ORNL-CF-69-11-7	0, 11/3/1969
P527	Separation of Berkelium from Trivalent Actinides By Chromate Oxidation and HDEHP Extraction	J. B. Knauer; Boyd Weaver	ORNL-TM-2428	0, 11/14/1968
P535	Background Information about Chem Tech	NA	NA	NA, 5/9/1989
P538	Building 7920 Review: Follow-Up Information / Action Item Listing	J. R. Hightower	NA	NA, 12/20/1990

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P539	Radioisotope Development Laboratory Building 3047 Hazards Report (Isotopes Development Center)	R. A. Robinson	ORNL-TM-946	Rev. 0, 10/05/1964
P540	Publications of the Radioactive Waste Disposal Section Health Physics Division	K. E. Cowser	ORNL-TM-3301	NA, 2/1971
P541	Phase I Safety Analysis Report Update Program (SARUP) Hazard Screening	L. J. King; J. E. Bigelow; M.A. Green; M. B. Sears; R. M. Wham; E. D. Collins	HS/7920/F/IT04/R0	0, 6/1/1992
P542	Operational Safety Requirements Transuranium Processing Plant, Building 7920	L. J. King; J. E. Bigelow; F. R. Chattin; E. D. Collins	ORNL/CF-81/242	1, 12/24/1990
P545	Isotopes Program Review Office of Nuclear Energy	David Bailey; W. H. McVey	NA	NA, 12/15/1988
P549	Hot Cells in the Chemical Technology Division; Bldgs 7920, 7930, 4507, 4501, 3019	E. D. Collins	NA	NA, 10/06/1987
P551	A Self-Replenishing Tritium Target for Neutron Generators	F. F. Haywood; Z. G. Burson; H. E. Banta	ORNL-TM-3397	NA, June 1972
P562	Analytical Chemistry Division Research and Development Monthly Summaries	W. D. Schults	Various	NA, Various
P569	Implementation Plan for U. S. Department of Energy Order 435.1, U. S. Department of Energy - Oak Ridge Operations, Oak Ridge, Tennessee	U. S. Department of Energy - Oak ridge Operations	DOE/OR/01-1879	NA, 06/2000
P582	PCB Decontamination	NA	CH-REF-OP-027	Rev. 1, 08/27/2013
P601	Operation of Nuclear Measurements Corporation Gas-Flow Proportional Counter	C.D. Parks	CASD-AM-TAL-0002	Rev. 0, 03/27/2000
P602	Operation of the Tennelec LB-1000 Low Level Gas-Flow Proportional Counter	C.D. Parks	CASD-AM-TAL-0003	Rev. 0, 04/04/2000
P603	Operation of the Tennelec LB-4000 Low Level Gas-Flow Proportional Counter	C.D. Parks	CASD-AM-TAL-0004	Rev. 0, 04/04/2000
P604	Alpha Spectrometry with the Canberra Genie-ESP Data Acquisition System	C.D. Parks	CASD-AM-TAL-0005	Rev. 0, 05/08/2000

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P605	Standard Analytical Method for Total Plutonium, 2-Thenoyltrifluoroacetone Extraction Method	C.D. Parks, J.M. Keller	CASD-AM-TAL-0006	Rev. 0, 05/24/2000
P606	Oak Ridge National Laboratory Chemical and Analytical Sciences Division Standard Anaytical Method for Total Radioactive Strontium by Extraction Chromatography	C.D. Parks	CASD-AM-TAL-0008	Rev. 0, 6/29/2001
P607	Gross Beta Activity Measurements	C.D. Parks	CASD-AM-TAL-0009	Rev. 0, 06/29/2001
P608	Oak Ridge National Laboratory Chemical and Analytical Sciences Division Standar Analytical Method for Operation of Packard Model 2500TR Liquid Scintillation Counter	C.D. Parks	CASD-AM-TAL-0010	Rev. 0, 07/25/2001
P610	The Resin Method of Sample Preparation For Isotopic Analysis of Am, CM, and CF	R.L. Walker	40307	Rev. NA, 11/14/1987
P611	The Resin Bead Method of Sample Preparation for isotopic Analysis of Pu and U	R.L. Walker	40306	Rev. NA, 08/01/1979
P612	Gross Gamma, Scintillation Method	NA	200365	Rev. NA, NA
P613	Preparation of Carbonate Free LiCl Solution	NA	100441	NA, NA
P614	Anion Exchange Separation of Uranium from Reactor Dissolver Solutions	J.L. Botts	100715	Rev. NA, 03/01/1985
P615	Loading of Resin Beads for Isotopic Dilution Mass Spectrometric Analysis of Amercium-241	J.L. Botts	10936	Rev. NA, 12/07/1987
P616	Determination of Total Solids in TPP Process Solution	J.L. Botts	1107	Rev. NA, 04/11/1988
P617	Methrohm E536 Potentiograph-Potentiometric Titrations	NA	3105	Rev. NA, NA
P618	Operation of Remote Pipetting System ORNL Model Q-5780 (Process Methods) Method No. 1 003109	W.D. Shults	3109	Rev. NA, NA
P619	Operation of Remote Titration System ORNL Model Q-5895	J.L. Botts, L.N. Klatt	1003113	Rev. NA, 01/01/1985
P620	Operation of Spectronic 501 Spectrophotometer	J.L. Botts	3034	Rev. NA, 01/28/1988
P621	Gross Neutrons Determination	J.L. Botts	20953	Rev. NA, 03/29/1988
P622	249-Berkelium Determination	J.L. Botts	31101	Rev. NA, 02/26/1988

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P623	Determination of Neptunium in Fission Product Mixtures	J.L. Botts	2 31534	Rev. NA, 11/25/1987
P624	Determination of Uranium-232 and Uranium-233 by Alpha Spectroscopy	J.L. Botts	2 31926	Rev. NA, 12/30/1987
P625	U-233 Hexone Extraction Method	J.L. Botts	9 0123920	Rev. NA, 02/02/1988
P626	Uranium, Spectrophotometric Ammonium Thiocyanate Method	J.L. Botts	1 219210	Rev. NA, 04/13/1988
P628	Free Acid, Phenolphthalein End-Point	J.L. Botts	1 220025	Rev. NA, 02/02/1988
P629	Free Acid and Hydrolyzable Ion Concentration Using the Remote Titration System, ORNL Model Q-5895	J.L. Botts	1 220034	Rev. NA, 05/09/1988
P630	Free Acid and Adogen Determination in TRU Process Solutions	J.L. Botts	1 221011	Rev. NA, 02/25/1988
P631	Determination of pH of Aqueous Solutions	J.L. Botts	1 230041	Rev. NA, 04/15/1988
P632	Operating Procedure for Weighing and Dissolution Glovebox Line	J.L. Botts	NA	Rev. NA, 2/25/1988
P633	Oak Ridge National Laboratory Chemical and Analytical Sciences Division Standard Analytical Method for Gross Alpha Activity Measures	C.D. Parks	CASD-AM-TAL-0001	Rev. 0, 2/10/2000
P634	Measurements of Fluorescein and Rhodamine B by Fluorescence	J.L. Botts	1221025	Rev. NA, 01/28/1988
P636	Operation and Calibration of the Canberra, Nuclear Data Genie-ESP Data Acquisition and Processing System	M.R. Chattin	CSD-AM-RML-RA04	Rev. 2, 8/22/2005
P637	Administration of Chemical and Analytical Sciences Division Procedures	F.J. Smith	CASD-OP-000-AD01	Rev. NA, 3/15/1994
P638	Oak Ridge National Laboratory Standard Practice Procedure for ORNL Document Management	NA	X-AD-9	Rev. 0, 02/28/1994
P639	Oak Ridge National Laboratory Chemical and Analytical Sciences Division Chemical and Analytical Sciences Division Quality Assurance Plan	NA	QAP-X-94-CASD-001	Rev. 1, 9/29/1995
P640	Radioactive Materials Analytical Laboratory Quality Assurance Plan for the Characterization of Radioactive Waste	JM Keller	QAP-X-96-CASD/RML-001	0, 4, Various

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P641	Oak Ridge National Laboratory Chemical and Analytical Sciences Division Standard Operating Procedure for Handling of Samples and Decontamination of Ion Lenses in the 5505 TRU Laboratory	D.H. Smith	CASD-OP-TRL-RP01	Rev. 1, 7/16/1999
P642	Oak Ridge National Laboratory Chemical and Analytical Sciences Division Standard Operating Procedure for Inorganic Mass Spectrometry Quality Assurance Plan	D.H. Smith and J.L. Wagner	QAP-X-94-CASD/IMS-001	Rev. NA, 07/31/1996
P643	Transuranium Analytical Laboratory QA Program	NA	QA-AC-103-0201	Rev. 0, 1, 11/11/1998, 7/20/1989
P644	Oak Ridge National Laboratory Chemical and Analytical Sciences Division Standard Operating Procedure for Use of Radiochemical Glove Boxes in the Transuranium Research Laboratory	F.J. Smith	CASD-OP-TR-GB01	Rev. 0, 8/22/1995
P645	Configuration Control for the Radioactive Materials Analytical Laboratory, Building 2026	J.L. Botts	AC-OP-105-0308	Rev. 0, 8/23/1993
P646	Oak Ridge National Laboratory Analytical Chemistry Division Standard Operating Procedure for Sample Tracking for the Transuranium Analysis Laboratory	J.L. Botts	AC-OP-103-0805	Rev. 0, 3/23/1989
P647	Oak Ridge National Laboratory Analytical Chemistry Division Standard Operating Procedure for Use and Handling of Chemicals for the Transuranium Analysis Laboratory	J.L. Botts	AC-OP-103-0808	Rev. 0, 3/23/1989, 9/22/1989
P648	Implementation of Quality Control Within the Transuranium Analysis Laboratory (TAL)	April Swafford Meeks	AC-OP-103-0901	Rev. 0, 3/28/1994
P649	Operation of Analytical Balances for the Transuranium Analysis Laboratory	J.L. Botts	AC-OP-103-1201	Rev. 0, 4/3/1989
P650	Chain of Custody Sample Storage for the Transuranium Analysis Laboratory	D.L. Dihel	AC-OP-103-1301	Rev. 0, 11/16/1988, 3/23/1989
P651	Chain of Custody Sample Security for the Transuranium Analysis Laboratory	D.L. Dihel	AC-OP-103-1302	Rev. 0, 3/23/1989
P652	Neutron Activation Analysis Facility Training and Certification Program for Operators of the Pneumatic Tube Systems, PTS-1 and PTS-2	L. Robinson, J.M. Keller	AC-OP-102-0207	Rev. 2, 12/1/1993
P655	Quality Assurance Project Plan For Packaging of Transplutonium Elements and other Radioactive Products by the Radiochemical Engineering Development Center for Off-Site Transportation	J.E. Bigelow	QAP-X-88-CT-001	Rev. 1, 12/1/1988
P656	Quality Assurance Plan for the ORNL Californium Shipping Container Maintained by the REDC for On-Site Transportation	J.E. Bigelow, J.B. Knauer	QAP-X-91-CT-001	Rev. 0, 03/20/1991
P657	Quality Assurance Plan for Modifications and Maintenance of Hot-Cell Support Systems and Adjunct Facilities at the REDC	R.M. Wham	QAP-X-88-CT-002	Rev. 0, 12/20/1989

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P659	Lockhead Martin Energy Research Corporation Oak Ridge National Laboratory Program Description for ORNL Job Hazard Evaluation	NA	ORNL-SH-P29	Rev. 1, 9/10/1999
P660	Waste Certification Program Plan	NA	NA	Rev. NA, 3/30/2004
P662	Duties and Responsibilities of the Sample Custodian for the Transuranium Analysis Laboratory	D.L. Dihel	AC-OP-103-0801	Rev. 0, 3/28/1989
P663	Data Review for the Transuranium Analysis Laboratory	D.L. Dihel	AC-OP-103-0301	Rev. 0, 03/27/1989
P664	Sample Chain-of-Custody for the Transuranium Analysis Laboratory	D.L. Dihel	AC-OP-103-0804	Rev. 0, 03/23/1989
P665	Quality Assurance Program Requirements for Projects Utilizing Hot-Cell Facilities	NA	HC/QA-11560	Rev. 0, 4/12/1988
P666	Oak Ridge National Laboratory Transuranic Waste Certification Program	J.H. Smith, et.al	ORNL/TM-10322	Rev. 1, June 1987
P667	Quality Assurance Program	NA	ORNL/M-811	Various, Various
P668	RMAL-ORNL Quality Assurance Project Plan for the TRU Waste Characterization Program	NA	QAP-X-94/CASD/RML-002	Rev. 0, 6/1/1995
P669	Preparation and Documentation of Radioactive Standards, Carriers, Inorganic and Organic Standard Solutions	N.A. Teasley, Jr., J.M. Giquinto, M.P. Maskarinee	CASD-OP-RML-AD04	Rev. 0, 1/31/1995
P670	Chemical and Analytical Sciences Division Training Plan for Nuclear Facilities	R.F. Peacher	CASD-OP-000-TR02	Rev. 1, 7/1/1996
P671	Sample Management in the Radioactive Materials Analytical Laboratory, (RMAL), Building 2026	J.M. Giaquinto	CASD-OP-RML-AD02	Rev. 1, 3/31/1995
P672	Work Policies and Practices, Radioactive Materials Analytical Laboratory (RMAL), Building 2026	J. M. Giaquinto and R. D. Canaan; J.M. Keller	CASD-OP-RML-AD01	Various, Various
P673	The Analytical Chemistry Division Quality Control Program	S.K. Hollady	QA-AC-000-0901	Rev. 1, 10/251990
P674	Chemical and Analytical Sciences Division Training Program Plan	F.J. Smith	CASD-OP-000-TR01	Rev. 1, 6/1/1996
P675	Office of Quality Programs and Inspection Quality Assurance Plan	NA	QAP-X-96-QD-001	Rev. NA, 7/30/1996
P677	High Radiation Level Analytical Laboratory (HRLAL) Facility QA Program	J.L. Botts	QA-AC-105-0201	Rev. 0, 8/20/1990
P678	Radiochemical Technology Section Quality Assurance Plan	NA	RTS/QA/17	Rev. NA, 07/1992

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P679	Chemical Technology Division Isotope Technology Section Quality Management Plan for the Radiochemical Engineering Development Center	R.M. Wham	REDC-QMP-1	Rev. 0, December 1996
P681	QA Requirements for TRU Waste Certification Program	NA	QA-L-20-100	Rev. 3, 01/31/1987
P682	Chemical Technology Division Self-Assessment Program Plan CY 1996-1998	L.E. McNeese	ORNL/CF-96/2	Rev. NA, January 1996
P683	Oak Ridge National Laboratory Organizational Charts and Document for Transferring Responsibilities to NNFD Beginning October 1, 2002	NA	NA	Rev. NA, October 2002
P685	Bagging Practices and Techniques for Standard Glovebox Operations	J.L. Botts	AC-OP-100-0910	Rev. 0, Various
P686	Preparation and Documentation of Radioactive Standards and Carriers for the Transuranium Analysis Laboratory	D.L. Dihel	AC-OP-103-0603	Rev. 0, March 1989
P687	Quality Assurance Plan for Contact-Handled Transuranic Waste Certification and Operations	NA	QAP-X-93-WMRA-056	Rev. 0, July 1993
P688	Waste Examination and Assay Facility (WEAF) Operations	W.I. Dothard	QAP-X-91-ESHC/WM-002	Rev. 1, June 1993
P689	ORNL Quality Assurance Project Plan for the Transuranic Waste Characterization Program	NA	WMRA-WMP-601	Rev. 0, December 1995
P690	Quality Assurance Plan for Research and Development Activities within the Chemical Development Section of the Chemical Technology Division	NA	QAP-X-88-CT-009	Rev. NA, January 1989
P692	Quality Assurance Program Manual Analytical Chemistry Division	NA	ORNL/M-806	Rev. NA, 10/01/1989
P693	ORNL Self-Assessment Program	NA	ORNL-QA-P03	Rev. 2, 12/20/2000
P694	ORNL Issues Management Program	NA	ORNL-QA-P04	Rev. 2, 9/29/2000
P695	ORNL Nonconformance Control Procedure	NA	ORNL-QA-P05	Rev. 1, 05/27/1998
P696	Deviation Procedure	NA	ORNL-QA-P06	DRAFT, DRAFT
P697	List of All Comments on QA-P07 ORNL Lessons Learned Program	Vince Bishop	ORNL-QA-P07	Rev. NA, 04/27/1998
P698	Control and Calibration of Measuring and Test Equipment at ORNL	NA	x-GP-8	Rev. 0, 3/18/1994
P699	ORNL Nonconformance Reporting	NA	X-QA-9	Rev. 0, 5/20/1996
P782	SNM Safeguards and Security at Building 7920, the Transuranium processing Plant (TRU)	E. D. Collins	NA	0, 3/7/1980

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P784	Procedures and Information on Trash Removal from Cell G TURF	E. Cagle; D. Osucha	NA	NA, Various
P785	Dissolution of Pu-240/Am-241 Oxide Powder & Separation of Pu-240/Am-241 by MP-1 Column Elution	REDC	SP-PU240-INEL	NA, 09/09/2003
P786	Preparationof PuO2 Micro Spheres by TRU Resin Bead Loading and Calcination	Miting Du	REDC-Pu-7920.5	Revision 0, 08/20/2005
P787	Conversion of NH499TcO4 to H99TcO4 & Synthesis of (C2H5)4N99TcO4	Miting Du	REDC-Tc-Conv-1	Revision 1, 07/30/2004
P788	Neutron Dosimeter Assembly Outline	REDC	IM-OP-1.0	2 and 3, Various
P789	Dosimter Wire Fabrication	REDC	IM-OP-2.0	Revisions 2 and 3, 02/26/1996; 03/26/2008
P790	Preparation of Dosimeter Capsules	REDC	IM-OP-3.0	2 and 3, Various
P791	Weighing and Dispensing Dosimeter Wires	REDC	IM-OP-4.0	2, 3 and 4, Various
P792	Dosimeter Welding and Inspection	REDC	IM-OP-5.0	Revisions 2 and 3, 3/1/1996; 03/26/2008
P793	Gamma Counting of Dosimeters	REDC	IM-OP-6.0	2 and 3, Various
P794	Loading /Unloading Procedure for the REDC Cast Cask	REDC	IM-OP-10	1, 3/26/2008
P795	Segmentation of Targets and Cleaning of Cut Segments	REDC	IM-OP-11.0	Revisions 1 and 2, 03/26/2008
P796	Dissolution of Aluminum from Target Segments	REDC	IM-OP-12.0	Revision 1 and 2, 03/26/2008
P797	Nickel Pellet Dissolution and AIX Feed Preparation	REDC	IM-OP-13.0	Revisions 1 and 2, 03/26/2008
P798	Anion Exchange Purification of Ni-63	REDC	IM-OP-14.0	Revisions 1 and 2, 03/26/2008
P799	Feed Preparation for Cation Exchange Purification of Ni-63	REDC	IM-OP-15.0	Revisions 0 and 1, 03/26/2008
P800	Cation Exchange Purification of Ni-63	REDC	IM-OP-16.0	Revisions 0 and 1, 03/26/2008

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P801	Removal of Chromium by Solvent Extraction	REDC	IM-OP-17.0	Revision 0, 03/26/2008
P802	Radiation Contamination Procedure: Decommissioning and Disposal of Alpha Glove Boxes (REF: TCFOM-10.3)	REDC	RC-OP-3.0	Revision 0, 03/26/2008
P803	Radiation/Contamination Procedure: Alpha Glove Box Operating Procedures	REDC	RC-OP-19.0	Revision 5, 11/09/1998
P804	Actinide Product Finishing/Special Projects Procedure: Actinide/Lanthanide Separation by Extraction Chromatography	REDC	PF-OP-10.0	Revision 0, 03/26/2008
P805	Actinide Product Finishing/Special Projects Procedure: Product Solution Volume Reduction/Product Evaporation	REDC	PF-OP-11.0	Revision 2, 03/26/2008
P806	Actinide Product Finishing/Special Projects Procedure: Fabrication of Electrodepositions Using Isopropanol Electrolyte	REDC	PF-OP-12.0	Revision 1, 03/26/2008
P807	Actinide Product Finishing/Special Projects Procedure: Fabrication of Electrodepositions Using Ammonium Acetate Electrolyte	REDC	PF-OP-13.0	Revision 1, 03/26/2008
P808	Pressurized Ion Exchange Column Preparation, Resin Loading, and Pre-Run Conditioning (Cave B)	REDC	PF-OP-14.0	Revision 0, 10/04/1994
P809	Actinide Product Finishing/Special Projects Procedure: Weighing and Dispensing of Radioactive Product Samples	REDC	PF-OP-17.0	Revision 0, 03/26/2008
P810	Actinide Product Finishing/Special Projects Procedure: Preparation of Samples for Radiochemical Analysis	REDC	PF-OP-18.0	Revision 2, 03/26/2008
P811	Nuclear Materials Processing Group Research Technical Procedure: Evaporation to Dryness of Solutions Using Infrared heat	Curtis Porter; REDC	NMP-PF-11.0	Revision 0, 02/16/2005
P812	Actinide Product Finishing / Special Projects Procedure: Fabrication and Testing of a Cf-252 Hemispherical Fission Chamber	N/A	PF-OP-15.0/R1	0, 1, Various
P818	Actinide Product Finishing/Special Projects Procedure: Fabrication and Testing of a Cf-252 Hemispherical Fission Chamber	REDC	PF-OP-15.0	Revisions 0 and 1, 08/13/2001 and 09/18/2001
P819	Actinide Product Finishing/Special Projects Procedure: Actinide/Lanthanide Separation Studies for the Advanced Fuel Cycle Initiative	REDC	PF-OP-30.0	Revision 0, 05/22/2003
P820	Actinide Product Finishing/Special Projects Procedure: Preparation of Chemical Reagents	REDC	PF-OP-1.0	Revision 3, 03/26/2008
P821	Pressurized Ion Exchange Column Preparation, Resin Loading, and Pre-Run Conditioning (Cave A)	REDC	PF-OP-2.0	Revision 1, 04/15/1993

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P822	Actinide Product Finishing/Special Projects Procedure: Micro-Ion Exchange Column Preparation and Pre-Run Conditioning	REDC	PF-OP-3.0	Revision 2, 03/26/2008
P823	Actinide Separation by Pressurized Chromatographic Elution from Cation Exchange Resin in Cave B	REDC	PF-OP-4.0	Revision 0, 10/09/2000
P824	Actinide Product Finishing/Special Projects Procedure: Actinide/Lanthanide Separation by Chromatographic Elution from Cation Exchange Resin	REDC	PF-OP-6.0	Revision 1, 10/14/1994
P825	Actinide Product Finishing/Special Projects Procedure: Cationic Cleanup of Actinides/Lanthanides by Ion Exchange	REDC	PF-OP-7.0	Revision 2, 03/26/2008
P826	Actinide Product Finishing/Special Projects Procedure: Fission Product Removal by Alcoholic-HCl Ion Exchange	REDC	PF-OP-8.0	Revision 2, 03/26/2008
P827	Actinide Product Finishing/Special Projects Procedure: Organic Scrub of the Berkelium (Bk) Product from the Berkex Process	REDC	PF-OP-9.0	Revision 2, 03/26/2008
P828	Actinide product Finishing Special projects Procedure; REDC; Material Transfers with the Shield Transfer Carrier ("Mule")	REDC	PF-OP-26.0	2, 3/26/2008
P830	Chemical Technology Division, Isotope Preparation Department: Contaminated Solid Waste Handling Procedure	Isotopes, REDC	IP-003	Rev. 0 & 1, 09/01/1987; 02/15/1989
P848	Glove Box Operations, Building 3038, Alpha Handling Facility	K. W. Haff; B. D. Patton	IP-1608	Rev. 1, 04/29/1994
P850	ORNL Computerized Hazardous Materials Tracking System	P. Knight; D. Atkins; M. Eisenhower; T. Clark	NA	NA, 5/1985
P851	Hot Cell Experimental Procedure	F. R. Chattin	HC-EX-1	NA, 2/21/1990
P852	Standard Procedures for Hot Cell Operations (Cleanex Procedures) for Building 7920	NA	NA	NA, 8/1/1985
P853	Hot Cell Procedure: Tank T-60: Clean Out of Organic Used in a Diluent Wash Stage	F. R. Chattin	HC-OP-1010;1027; 1038	0, 6/29/1989
P854	Hot Cell Operating Procedure: Sampling of Actinide Oxide Product	Fred Chattin	HC-OP-930	NA, 2/15/1990
P855	Safety Standards	Various	NA	NA, Various
P877	Analytical Chemistry Division Employee Handbook	ORNL	M-2791	NA, 04/1993

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P882	Independent Review of Safety Systems (Document Reviewed: Safety Analysis TURF, Building 7930)	NA	NA	NA, March 1991
P883	Memorandum of Understanding (MOU) Listing between Chem Tech Division and Health Protection Division	B. D. Patton	NA	NA, 4/20/1989
P885	Procedure for Trash Removal from Cell G TURF	N/A	NA	NA, 04/06/1983
P889	Basic Principles of Operation in the Chem Tech Division	NA	NA	NA, 6/30/1989
P894	Packaging and Transportation - Chem Tech Division	B. D. Patton	NA	NA, 5/8/1989
P905	Health Physics Procedure - Handling and Transfer of Radioactive Materials within the Laboratory and Guide for the Transfer of Materials Between Contaminated Enclosure Systems and Non-Contaminated Areas	ORNL	Procedure 4.1	NA, 01/01/1976
P910	Radioactive Operations Committee (ROC) Review of Building 7920 (TRU Facility)	Radioactive Operations Committee, ORNL	ORNL/CF-78/311	NA, 09/20/1978
P911	Quarterly Progress Report for the Chemical and Energy Research Section of the Chemical Technology Division: July-September 1999	R. T. Jubin; ORNL	ORNL/TM-1999/304	NA, March 2001
P928	Calculation of the Requirements for Operation of Refractory-Metal Components at High Temperature in Vacuum	R.E. Clausing	ORNL-TM-334	Rev. NA, 9/18/1962
P930	Independent Review of Safety Analysis Documentation for Radiochemical Engineering Development Center - Building 7930 - Inspection Record package	Performance Development Corporation	NA	NA, 3/1991
P932	Radioactive Operations Committee and Office of Operational Safety Review of the Radiochemical Engineering Development Center and the Radiochemical Processing Plant, December 12-15, 1988	NA	NA	NA, 12/1988
P934	A New Field Work Proposal for the Isotopes Sales and Distribution Program	Hightower; Johnson	NA	NA, 1988 - 1990
P942	Procedure for Disposal of F-126 Contents to MV Waste Tank WC-20	NA	NA	NA, NA
P946	Operating Manual for the ORNL Filter.Removal Carrier	General Engineering Division; ORNL	68-3-18	NA, 03/1968
P947	Cm II Can Operating Procedure, Transferring Cm II Cans from the Mark 42 Transfer Cask to the Mark 42 Storage Facility	NA	CmII-OP-1.0	Revision 0, 02/09/1998

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
P948	Transferring Mark 42 Segments (for Verification) from the Mark 42 Storage Facility to Cubicle 7 and memo to R. M. Wham re: Determination of Fissionable Material Content for Target Assembly X42Y72 in Bldg 7920	NA	MK-OP-6.0	NA, Various
P949	Transferring Mark 42 Segments (for Verification) from the Mark 42 Storage Facility to Cubicle 7 and memo to R. M. Wham re: Determination of Fissionable Material Content for Target Assembly X33Y15 in Bldg 7920	C. W. Alexander	MK-OP-6.0	Revision 0, 02/19/1997
P950	Mark 42 Operating Procedure, Transferring mark 42 Segments from the Mark 42 Storage Facility to Cubicle 7	C. W. Alexander	MK-OP-7.0	Revision 1, 06/12/2001
P951	Advanced Fuel Cycle Initiative (AFCI) Semmiannual Review	Buzz Savage	NA	NA, 9/13/2004
P952	Global Nuclear Energy Partnership Technology Development Plan	GNEP Technical Integration Office	GNEP-TECH-TR-PP-2007-00020	0, 7/25/2007
P953	Phased Construction Completion Report for the 22 Trench Waste Retrieval Project at ORNL	N/A	DOE/OR/01-2305&D1	0, 8/2006
P956	Segregation and Management of Solid Radioactive Materials	NA	NA	NA, 11/27/1985, 05/15/1986
U004	Draft Information for BESAC Review of HFIR (8/17/98)	J. E. Bigelow	NA	NA, 08/17/1998
U011	Safety Analysis: Transuranium Processing Plant, Building 7920	L. J. King, J. E. Bigelow, E. D. Collins, and W. T. McDuffee	ORNL/TM-7688	Draft, 12/1984
U038	ORNL TRU Waste Historical Survey; Volumes 1, 2, and 3—Origins and Characteristics of Remote-Handled Transuranic Wastes (Trabalka report) Plus Appendices	J.R. Trabalka, A. J. Mattus, S.N. Storch	BJC/OR-395-V/1,2,3	Draft, 09/2001
U039	Oak Ridge Reservation Transuranic Waste Acceptable Knowledge Summary Report for the Radiochemical Engineering Development Center: Newly Generated Contact-Handled Transuranic Waste from Isotope Production	Eberline Services for DOE	ORNL-CH-AK-TBD/RA	Draft, 07/12/2002
U041	Waste Stream Profile Sheet for 7920-HCAL-007 R1 and Supporting Documentation	D. Coffey	7920-HCAL-007 R1	Revision 1, 09/06/2002
U044	Weston Report: Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations	ORNL/Betty Humphrey	AK-ORNL-001	Rev. 3A & 4, 05/24/2006; 06/19/2006
U045	Waste Stream Profile Sheet for Building 7920, Hot Cells and Analytical Labs	Wayne Evans	7920-HCAL-002	NA, 04/19/1999

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U046	RH Debris Waste Process Flow Descriptions	NA	RH-R-PR-001	Rev. 0, Draft D, NA
U047	Transuranic Waste Processing Center at Oak Ridge National Laboratory Remote Handled Transuranic Waste Container Selection and Transfer Plan	NA	RH-A-AD-0 02	Rev. 0 DRAFT, NA
U048	Remote Handled Transuranic Waste Transfer Project Scope and Inventory Assessment	NA	BJC/OR-DRAFT	Rev. NA, 10/2007
U049	Waste Stream Profile Sheet for 7920-HCAL-005 and Supporting documentation	ORNL	7920-HCAL-005	NA, 08/18/1999
U059	Brief History of ORNL	NA	NA	NA, 3/2/1993
U090	ORNL RH TRU Data Extracted from Process Information Package for Radiological Characterization for Campaigns 68, 69, 70, 71, 72, 73, and M1	ORNL	NA	NA, Various
U091	ORNL RH TRU Data Extracted REDC Process Information Package for Radiological Characterization for Campaigns M2, M3, M4, M5, M6, M7, M8, M9, M10, M11, M12, M13, M14, M15, M16	ORNL	NA	NA, Various
U092	ORNL RH TRU Data Extracted REDC Process Information Package for Radiological Characterization for Campaigns: 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67 - SETF Period	ORNL	NA	NA, Various
U093	ORNL RH TRU Data Extracted REDC Process Information Package for Radiological Characterization for Campaigns: 33-55 - Pre-SETF Period	ORNL	NA	NA, Various
U094	Status Briefing: Radiological Characterization of REDC RH TRU Waste at ORNL	NA	NA	NA, June 11-12, 2008
U105	Waste Stream Profile Sheet for Building 7920, Room 211, Waste Stream 7920-R211-001	Wayne Evans; Don Coffey	7920-R211-001	NA, 7/15/1999
U106	Waste Stream Profile Sheet for Building 7920, Room 108, Waste Stream 7920-R109-001 and 7920-R109-001R1	Wayne Evans; Don Coffey	NA	NA, Various
U107	Waste Stream Profile Sheet for Building 7920, Room 111, ORNL Waste Stream 7920-R111-001, and Radiological Characterization of waste from Building 7920 - Room 111 "Shielded 7920-R111 Caves, A and B"	Wayne Evans; Don Coffey	NA	NA, Various
U108	Waste Stream Profile Sheet for Building 7920, Room 109, ORNL Waste Stream 7920-R109-002	Don Coffey; Wayne Evans	NA	NA, Various
U109	Waste Stream Profile Sheet for Building 7920, Room 211, ORNL Waste Stream 7920-R211-002, AND Radiological Characterization of glovebox waste from Building 7920 • Room 211 "Product Finishing Glovebox Lab"	Wayne Evans; Don Coffey	NA	NA, Various

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U110	Data Quality Objectives (DQO) Worksheet for Building 7920, Labs 209 and 211	ORNL, Roy Banning	DQO # 08-004	NA, 07/15/2008
U111	Radiological Characterization and Quantification of Waste under WSPS REDC-001 using Microshield	Various	WSPS REDC-001	4, 6, 7, 8, Various
U112	Waste Characterization Checklist (WCC)	T. Lehberger; J. Selph	WCC REDC-001	3 & 4, Various
U124	Contamination Control Plan for Hot Cell (TWPC Hot Cell)	ORNL	NA	Draft, NA
U125	Maintenance Work Control, Attachment C: Maintenance Work Order #CM-10-003	K. East	CM-10-003	NA, 1/12/10
U126	Maintenance Work Control, Attachment C: Maintenance Work Order #CM-10-100	Kevin East	CM-10-100	NA, 8/3/2010
U403	Log Book: Cave A Liner Replacement Activities	NA	NA	NA, Various
U412	Logbook Reference 6R1 - Cf-252 Electrodeposition Processing - Initial CX, TEVA, and Final CX Purifications (REDC Bldg 7920)	NA	NA	NA, Various
U415	Transuranium Material Transfer	Various	Various	NA, Various
U420	Research and Technical Notebook No. A-103608-G, Assigned to Curtis Porter, Process Development, REDC, Chemical Technology, Building 7920	Curtis Porter	A-103608-G	NA, Various
U424	ORNL Technical Notebook No. A-106986-G, Assigned to Milt Lloyd, Chem Tech Division	Milt Lloyd	A-106986-G	NA, Various
U425	ORNL Technical Notebook No. A-106985-G - Milt Lloyd; Susan North	Milt Lloyd	Logbook A-106985-G	NA, Various
U426	ORNL Technical Notebook no. A-106984-G; Susan North and Milt Lloyd	Milt Lloyd	Logbook A-106984-G	NA, Various
U428	Unclassified Notebook No. A-6272, Assigned to O. K. Tallent, Chem Tech Department, Building 7920, Issued 2/4/1971	O. K. Tallent	A-6272	NA, Various
U429	Unclassified Notebook A-6271: Building 7920, O.K. Tallent	O. K. Tallent	A-6271	0, Various
U432	O.K. Tallent Logbook A-106981-G Transferred to Milt Lloyd (Chem Tech Division, Building 7920), Dated 09/14/1994 (Solvent Extraction, etc.)	O.K. Tallent, Milt Lloyd	A-106981-G	NA, Various
U433	ORNL Technical Logbook No. A-106990-G, Milt Lloyd, Chem Technology Division Building 7920, Solvent Extraction	Milt Lloyd	A-106990-G	NA, Various
U435	ORNL Technical Notebook A-106991-G, Milt Lloyd, Building 7920 Chem Tech Division, Solvent Extraction	Milt Lloyd	A-106991-G	0, 09/15/1994

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U436	Unclassified Notebook No. A-6227, Milt Lloyd, Building 7920 Chem Tech Division	Milt Lloyd	A-6227	NA, Various
U437	ORNL Technical Notebook No. A-106992-G, Milt Lloyd and Susan North Lewis, Building 7920	Milt Lloyd	Logbook A-106992-G	NA, Various
U438	Unclassified Notebook No. A-6229, Milt Lloyd logbook, Building 7920 (REDC)	M. H. Lloyd	A-6229	NA, Various
U439	ORNL Technical Notebook No. A-106981-G for Milt Lloyd and O.K. Tallent, Chem Technology Division, Building 7920	Milt Lloyd; Tallent	Logbook A-106981-G	NA, Various
U441	ORNL Technical Notebook A-106988-G, Milt Lloyd and Bob Jones, Chemical Technology Division, Building 7920	Milt Lloyd, Bob Jones	Logbook A-106988-G	NA, Various
U442	Unclassified notebook No, A-6307, R. A. Ward, Health Physics, Bldg 7920	R. P. Ward	A-6307	NA, Various
U443	Unclassified Notebook No. A-6226, Milt Lloyd, Chem Tech, Bldg 7920	M. H. Lloyd	Logbook A-6226	NA, Various
U452	Research and Technical Notebook: Building 7920 (MS 6384) No. A108099-G, Curtis Porter, Chem Technology Division (Isotope Technology)	Curtis Porter	A-108099-G	0, Various
U453	ORNL Technical Notebook No. A106984-G, Milt Lloyd, Jeff Wade, O.K. Tallent, Chem Technology Division, Bldg 7920, Solvent Extraction	Milt Lloyd	Logbook A-106984-G	NA, Various
U477	ORNL Technical Notebook No. A-105094; Building 7920; REDC - Curtis Porter	C. E. Porter	Logbook A-105094	NA, Various
U478	ORNL Technical Notebook No. A-102161; Chemical Technology / Finished Products / J. T. Wiggens	J. T.Wiggens	Logbook A-102161	NA, Various
U479	Logbook; TURF Project; H. C. Savage (Bldg 7930)	H. C. Savage	NA	NA, Various
U480	Logbook TURF (Bldg 7930) Operations Log #1; Pre-MSRE Fuel	NA	Logbook TURF Log #1	NA, Various
U481	Logbook REDC Building 7930 (TURF Facility); M. E. Littleton	M. E. Littleton	NA	NA, Various
U482	TURF Logbook 16L4; Building 7930; M. E. Littleton	M. E. Littleton	Logbook: TURF 16L4	NA, Various
U483	ORNL Technical Logbook; C. E. McFarland; Building 3038	C. E. McFarland	Logbook A-9372	NA, 02/20/1980 - 12/30/1980
U484	ORNL Technical Notebook No. A-105094; Assigned to C. E. Porter on 11/01/1991; ITS/REDC; Products Research and Development Projects	C. E. Porter	A-105094	NA, Various
U488	Log Book; Chemical technology Division; Building 7920; 1999 - 2000; Curtis Porter	Curtis Porter	NA	NA, Various
U489	Curtis Porter; Building 7920; Chemical Technology Division	Curtis Porter	NA	NA, Various

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U493	Logbook TURF Building Log; 10/16/1973 - 12/17/1982	NA	NA	NA, Various
U494	Logbook: TURF (Bldg 7930) Logbook #12; 1/3/1983 - 8/21/1984	M. E. Littleton	Logbook TURF #12	NA, Various
U495	Logbook: TURF (Bldg 7930) E. B. Cagle 1987	E. B. Cagle	NA	NA, Various
U496	Logbook: TURF (Bldg 7930) Logbook E. B. Cagle; May 10, 1985	E. B. Cagle	NA	NA, Various
U497	Logbook: Log #1; Building 7930; W. Bostic, W. Miller; R. Bowman, F. Brown (TURF Bldg)	William Bostic; William Miller; R. Bowman; F. Brown	NA	NA, Various
U498	Logbook: TURF (Bldg 7930) Logbook 14 L2; 8/22/1984 - 6/23/1985	M. E. Littleton	NA	NA, Various
U499	Logbook: TURF (Bldg 7930) Log #11; 1/1/1971 - 10/5/1973	Wallis; Bostic	NA	NA, Various
U500	Logbook: TURF (Bldg 7930) Logbook 15L3; M. E. Littleton; 6/24/1986 - 8/5/1988	M. E. Littleton	NA	NA, Various
U501	Logbook: G. A. West; C. E. Roberts; H. C. Thompson; 1/4/1972; Bldg 7920 Waste Logbook	G. A. West; C. E. Roberts; H. C. Thompson	NA	NA, Various
U502	Logbook: TRU Log (Maintenance & Waste); G. A. West; C. E. Roberts; H. C. Thompson; Bldg 7920	G. A. West	NA	NA, Various
U503	Logbook: TRU Maintenance & Waste Disposal; Building 7920; 12/1/1977 - 2/2/1979; West; Roberts; Thompson	G. A. West; C. E. Roberts; H. C. Thompson	NA	NA, Various
U504	Isotopes Staff List	NA	NA	NA, 6/24/1988
U505	Lab Notebook: RE-2 - Analytical Chemistry Division - Charles Alexander - Building 7920	Charles (Chuck) Alexander	NA	NA, Various
U506	Research & Technical Notebook No. Te-1 - Chemical Technology Division - Building 7920 - Charles (Chuck) Alexander - A-107733-G	Charles (Chuck) Alexander	A-107733-G	NA, Various
U507	Research & Technical Notebook - Notebook No.(SM-1) A-107736-G - Building 7920, MS 6384 - Charles Alexander	Charles (Chuck) Alexander	A-107736-G	NA, Various
U508	Lab Notebook 21/150/REC - Building 7920 - Charles (Chuck) Alexander	Charles (Chuck) Alexander	21/150/REC	NA, Various
U519	TRU Log, Vol. 504, Logbook # A-8632, L. J. King, Chem Tech Division, Bldg 7920; 01/28/1979 - 02/05/1979	L.J. King	Logbook # A-8632	NA, Various

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U528	Technical Notebook - Chuck Alexander - Building 7920	Charles Alexander	21/300/R; SL-AM241-SP-1	NA, 08/06/2003 - 08/01/2006
U529	Technical Notebook - Charles Alexander, Building 7920	Charles Alexander	Logbook # B000334	NA, 12/11/1985- 07/29/1988
U530	Logbook A-103674; REDC Mark 42 Process Development; Charles (Chuck) Alexander; Building 7920; issued to G. D. O'Kelley	Charles (Chuck) Alexander	Logbook A-103674	NA, 10/13/1989
U531	Logbook - Building 7920 - TRU Maintenance and Waste Disposal - 02/05/1979	NA	NA	NA, 02/05/1979
U532	Logbook - Waste Transfer Area (LAA Area) - Building 7920 - C. E. Roberts - 1977	C. E. Roberts	NA	NA, 09/1977 - 03/1978
U533	Logbook #9 - Building 7920 - 07/1968 thru 01/1969	Bowman, Devall, & Miller	Logbook #9	NA, 07/1968 - 01/1969
U534	Logbook - Building 7920 - 01/1992 thru 11/1993	NA	NA	NA, 01/1992 - 11/1993
U535	Logbook - Building 7920 - Process H20 Shutdown - 04/1979 thru 02/1984	NA	NA	NA, 04/1979 - 02/1984
U536	Logbook - Building 7920 - 01/1989 thru 01/1990 - Waste Logbook	NA	NA	NA, 01/1989 - 01/1990
U537	Logbook - Building 7920 - 11/1982 thru 08/1984 - Waste Logbook	NA	NA	NA, 11/1982 - 08/1984
U538	Logbook - Building 7920 - 01/1984 thru 06/1984 - Waste Logbook	NA	NA	NA, 01/02/1984 - 06/08/1984
U539	Logbook - Building 7920 - 09/1981 thru 11/1982 - Waste Logbook	NA	NA	NA, 09/01/1981 - 11/08/1982
U540	Logbook - Building 7920 - 06/1980 thru 08/1981 - Waste Logbook	NA	NA	NA, 06/02/1980 - 08/27/1981
U541	Logbook - Building 7920 - 11/1969 thru 10/1972 - Waste Logbook	NA	NA	NA, 11/17/1969 - 10/23/1972
U542	Logbook - Building 7920 - 02/1972 thru 01/1973 - Waste Logbook	NA	NA	NA, 02/24/1972 - 01/10/1973
U543	Logbook - Buildings 7920 and 7930 - 06/1985 thru 09/1986 - Waste Logbook	NA	NA	NA, 06/12/1985 - 09/22/1986
U544	Logbook - Building 7920 - Bill Bryan - 12/1967 thru 02/1972	Bill Bryan	NA	NA, 12/01/1967 - 02/23/1972

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U545	Logbook - Building 7920 - 11/1967 thru 12/1974 - Building Maintenance	NA	NA	NA, 11/03/1967 - 12/31/1974
U546	Logbook – Building 7920 - 02/1980 thru 11/1987 - Casks to SWSA (Best Estimates from UCN-2822 and TRU Log Books)	NA	NA	NA, 02/14/1980 – 11/05/1987
U548	PCB Related Documentation - Environmental Monitoring and Protection Committee Meeting Minutes	R. G. Jordan	NA	NA, 03/30/1978 - 11/29/1978
U568	Coupled End-to-End Demonstration Project Task Sheets - Separations	NA	CETE Task #: 4.1.4 thru 4.1.9	Rev. 0, 05/07/2007 - 05/08/2007
U601	CCP Calculation Package: Sample Radionuclide Information Input Check	J. Vance	ORNL-RH-01	Rev. 0 & 1, 04/19/2008 & 07/22/2008
U602	CCP Calculation Package: Sample Data Decay Correction	J. Vance	ORNL-RH-02	Rev. 0, 04/19/2008
U603	CCP Calculation Package: Campaigns 69 and M5 Information Input Check	J. Vance	ORNL-RH-03	Rev. 0, 04/19/2008
U604	CCP Calculation Package: HFIR Campaigns in SETF Information Input Check	J. Vance	ORNL-RH-04	Rev. 0 & 1, 04/16/2009 & 06/02/2009
U605	CCP Calculation Package: Mark 42 Campaign Inventory Information Input Check	J. Vance	ORNL-RH-05	Rev. 0, 04/19/2008
U606	CCP Calculation Package: Radiological Inventories for SETF Campaigns	James H. Holderness	ORNL-RH-06	Rev. 0, 04/16/2008
U607	CCP Calculation Package: Drum DTC Derivation for Cs-137, Eu-152 and Eu-154	Jim Holderness	ORNL-RH-07	Rev. 2, 02/13/2009
U608	CCP Calculation Package: Determination of Reportable Isotopes-Mark 42 Period	J. Vance	ORNL-RH-08	Rev. 0, 04/16/2008
U609	CCP Calculation Package: Campaign Inventory Information Input Check	J. Vance	ORNL-RH-09	Rev. 0, 04/01/2008
U610	CCP Calculation Package: Uncertainty Analysis	J. Vance	ORNL-RH-10	Rev. 0, 05/08/2008
U611	CCP Calculation Package: DTC Spreadsheet Mark 42 Period-Mark/HFIR	J. Vance	ORNL-RH-11	Rev. 1, 2, & 3, 05/19/2008, 05/22/2008, & 06/25/2008
U612	CCP Calculation Package: Development of Cs-137 Partition Factors	J. Vance	ORNL-RH-12	Rev. 0, 04/02/2008

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Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U613	CCP Calculation Package: MCNP5 Uncertainty Analysis	James H. Holderness	ORNL-RH-13	Rev. 0 & 1, 04/19/2008 & 02/09/2010
U614	CCP Calculation Package: Determination of Cm-242 Processed in Campaign 69	James H. Holderness	ORNL-RH-14	Rev. 0, 04/19/2008
U615	CCP Calculation Package: Development of Campaigns 69 and M5 Inventories	David Moody	ORNL-RH-15	Rev. 0, 04/19/2008
U616	CCP Calculation Package: Direct Assay Information Input Check	J. Vance	ORNL-RH-16	Rev. 0, 05/13/2008
U617	CCP Calculation Package: Direct Assay Data Analysis	J. Vance	ORNL-RH-17	Rev. 0, 05/13/2008
U618	CCP Calculation Package: Scaling Factor Development for Mark 42 Time Period	J. Vance	ORNL-RH-18	Rev. 0, 04/19/2008
U619	CCP Calculation Package: Scaling Factor Development for the SETF Time Period	J. Vance	ORNL-RH-19	Rev. 0 & 1, 04/06/2009 & 06/02/2009
U620	CCP Calculation Package: Fission Product Contribution to Total Dose Rate	J. Vance	ORNL-RH-20	Rev. 0, 04/19/2008
U621	CCP Calculation Package: Sample Scaling Factor Development	J. Vance	ORNL-RH-21	Rev. 0, 04/19/2008
U622	CCP Calculation Package: SR-90/Cs-137 Scaling Factor Development	J. Vance	ORNL-RH-22	Rev. 0, 05/14/2008
U623	CCP Calculation Package: DTC Spreadsheet Mark 42 Period-HFIR/HFIR	J. Vance	ORNL-RH-23	Rev. 1, 2, & 3, 05/19/2008, 05/22/2008, & 06/25/2008
U624	CCP Calculation Package: Pre-SETF Period Information Input Check	J. Vance	ORNL-RH-24	Rev. 0, 06/01/2009
U625	CCP Calculation Package: Uncertainty Analysis for SETF Time Period	James Holderness	ORNL-RH-25	Rev. 0 & 1, 04/06/2009 & 06/02/2009
U626	CCP Calculation Package: Determination of Neutron Surface to 1-m Dose Ratio	J. H. Holderness	ORNL-RH-26	Rev. 0, 05/23/2008
U627	CCP CalculationPackage: Ratio Between Contact and One-Meter Dose Rates	J. Vance	ORNL-RH-27	Rev. 0, 05/23/2008
U628	CCP Calculation Package: MCNP5 Neutron Dose Rate Model	James H. Holderness	ORNL-RH-28	Rev. 0, 08/10/2008
U629	CCP Calculation Package: MCNP5 Neutron Dose Rate Model for 72-B	James H. Holderness	ORNL-RH-29	Rev. 0, 08/10/2008

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U630	Corrective Action Plan Report - Oak Ridge National Laboratory, Re: Plutonium ES&N Vulnerability Assessment; Lack of Technical Limits for Building 7920 Hot Cell Fire Scenarios and Personnel Contamination While Examining Scanning Electron Microscope	NA	ID #10019668 & ID #10019607	NA, 10/24/1994 - 02/15/1995
U631	Corrective Action Reports - Oak Ridge National Laboratory, Re: Unneeded Plutonium Stored On-Site; Loss of Building 7920 Supply and Building Exhaust Ventilation; Loss of Institutional Memory; & Nuclear Criticality Safety Approval	NA	ID #10019662, #10019917, #10019667, & #10025667	NA, 05/31/1995 - 05/28/1996
U632	Memo: Request for extension of calibration interval on two Snoopy Surveys	F. R. Chattin	NA	NA, 03/15/1995
U633	Internal Correspondence re: Closeout of CARS Items for Implementation Plan for 10CFR830.120 Ref ID: I0022216	D. B. Owsley	NA	NA, 05/23/1995
U634	Internal Correspondence, Re: Comments from Second Review of HP Manual Procedures	J. B. Knauer	NA	NA, 01/03/1995
U635	Internal Correspondence, Re: Meeting with Waste Management and Remedial Action's Martin Tull, 10-28-93, 12/2/93, and 12/14/93	R. E. Schreiber	NA	NA, 11/01/1993, 12/14/1993, & 12/15/1993
U636	Internal Correspondence, Re: Self-Assessment for Conduct of Maintenance in the Radiochemical Engineering Development Center (REDC); Self-Assessment of NSR-19	J. B. Knauer & R. M. Wham	0049284 REDC-DCC	NA, 07/21/1995 & 03/14/1996
U637	Internal Correspondence, Re: Solid Low Level Waste (SLL) Certification Procedure, 8/2 Draft, for Radiochemical Engineering Development Center (REDC)	R. M. Wham	REDC FO/WH 4010	Rev. 0, 08/02/1994 & 08/12/1994
U638	Internal Correspondence, Re: Contract DE-AC05-96OR22464, Completion of Training Items to Meet 5480.20A Criteria	R. M. Wham	0051222 REDC-DCC	NA, 07/01/1996
U639	Letter, Re: Defense Programs (DP) Support of Cf-252 Neutron Source Program	R. M. Wham	0043099 REDC-DCC	NA, 05/20/1994
U640	Letter, Re: Response to Quality Assurance Questionnaire	J. B. Knauer	0044348 REDC-DCC	NA, 11/09/1994
U641	Internal Correspondence, Re: CARS Item I0018302, Records Inventory and Disposition Schedules (RIDS) for Radiochemical Engineering Development Center (REDC) Records; Biennial Review of REDC Quality Assurance Plans; and Authorization to Certify Waste	B. H. Kron, T. R. Jones, & B. V. Wojtowicz	0045159, 0045370, & 0049364 REDC-DCC	NA, 02/13/1995, 05/19/1995, & 09/08/1995
U642	Internal Correspondence, Re: Agreements Between Radiochemical Engineering Development Center (REDC) and Waste Management and Remedial Action Division (WMRAD); REDC Waste Handling Procedures Training; and Waste Acceptance Criteria for TRU Waste Storage	R. M. Wham, D. B. Owsley, & Dick Schreiber	0043954, 0049625, & 0051262 REDC-DCC	NA, 08/31/1994, 11/13/1995, & 07/15/1996

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U643	Letter, Re: Comments on Sampling Plan for RH-TRU Waste from the REDC	R. D. Taylor	0051214 REDC-DCC	NA, 06/25/1996
U644	Memorandum, Re: Management Assessment Team for Ir-192 Production	L. E. McNeese	0053317 REDC-DCC	NA, 12/06/1996
U645	Interoffice Memorandum, Re: ORNL Records Management Review of Selected CTD Procedures	Juli Green Stewart	0050558 REDC-DCC	NA, 12/05/1995
U646	Internal Correspondence, Re: REDC Waste Quality Assurance	R. E. Schreiber	0042667 REDC-DCC	NA, 04/13/1994
U647	Issue Paper: Does Oak Ridge Have High-level Waste (HLW)?	John E. Patterson	NA	NA, 11/19/1999
U648	CCP Calculation Package: Estimate of Cs-137 Partition Factors for Sr-90, Sb-125, and Eu-155	J. Vance	ORNL-RH-30	Rev. 0, 04/06/2009
U650	CCP Calculation Package: Uncertainty Analysis for Pre-SETF Time Period	James Holderness	ORNL-RH-32	Rev. 0, 06/01/2009
U651	CCP Calculation Package: DTC Spreadsheet SETF Time Period	James Holderness	ORNL-RH-33	Rev. 0 & 1, 04/06/2009 & 06/02/2009
U652	CCP Calculation Package: DTC Spreadsheet Pre-SETF Period	James Holderness	ORNL-RH-34	Rev. 0, 05/26/2009
U653	CCP Calculation Package: Scaling Factor Development for Pre-SETF Time Period	James Holderness	ORNL-RH-35	Rev. 0, 06/01/2009
U654	CCP Calculation Package: Determination of Reportable Isotopes-SETF Period	J. Vance	ORNL-RH-36	Rev. 0 & 1, 04/06/2009 & 06/02/2009
U655	CCP Calculation Package: Determination of Reportable Isotopes - Pre-SETF Period	J. Vance	ORNL-RH-37	Rev. 0, 06/01/2009
U656	CCP Calculation Package: Determination of Partition Factors for REDC Campaigns	J. Vance	ORNL-RH-38	Rev. 0, 1, & 2, 04/06/2009, 04/27/2009, & 06/02/2009
U657	CCP Calculation Package: Direct Assay Information Input Check	J. Vance	ORNL-RH-39	Rev. 0, 04/06/2009
U658	CCP Calculation Package: Direct Assay Information Input Check - Pre-SETF	J. Vance	ORNL-RH-40	Rev. 0, 06/01/2009
U659	CCP Calculation Package: Direct Assay Data Analysis	J. Vance	ONRL-RH-41	Rev. 0 & 1, 04/06/2009 & 06/02/2009

Attachment 4 - Acceptable Knowledge Source Document Information List (continued)

Source Document Tracking Number [a/c]	Title or Description [a]	Author	Document # [b]	Document Revision # and Date
U660	CCP Calculation Package: Direct Assay Data Analysis - Pre-SETF	J. Vance	ORNL-RH-42	Rev. 0, 06/01/2009
U661	CCP Calculation Package: Residual Cs-137 Activity in HFIR Campaigns	James Holderness	ORNL-RH-43	Rev. 0, 06/01/2009
U663	CCP Calculation Package: Cs-137 Curies in Typical HFIR Target	J. Vance	ORNL-RH-45	Rev. 0, 04/06/2009
U667	CCP Calculation Package: Regression Analysis of Sample Data	James Holderness	ORNL-RH-49	Rev. 0, 04/06/2009
U668	CCP Calculation Package: Alternative Scaling Factors for Mark 42 Time Period	James Holderness	ORNL-RH-50	Rev. 0, 04/06/2009

[a] From Acceptable Knowledge Souce Document Summaries (Attachments 3)

[b] Or publisher's document number if available

[c] In the case where a AK Summary Report has been revised based on information in Attachment 11- Acceptable Knowledge Source Document Discrepancy Resolution form, identify the tracking number.

Acceptable Knowledge Expert: Kevin J. Peters / [signature] Date: 12/23/2013
Print/Sign

Attachment 5 – Hazardous Constituents

Site(s): ORNL

Waste Stream Description: ORNL Isotopes Facilities CH-TRU Debris Waste

Waste Stream Number: OR-ISTP-CH-HET

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Metal Compounds (CCP-PO-001 – Table C3-8 & 40 CFR Part 261) [i]										
Arsenic	N	N/A	N/A	N/A	N/A	D004	N/A	N/A	N	N/A
Barium	Y	Unknown	N/A	N/A	N	D005	N/A	N/A	D005	N/A
Beryllium	Y	Unknown	N/A	N/A	N/A	N/A	N/A	P015	N	N/A
Cadmium	Y	Unknown	N/A	N/A	N	D006	N/A	N/A	D006	N/A
Chromium	Y	Unknown	N/A	N/A	N	D007	N/A	N/A	D007	N/A
Lead	Y	Unknown	N/A	N/A	N	D008	N/A	N/A	D008	N/A
Mercury	Y	Unknown	N/A	N/A	N	D009	N/A	U151	D009	N/A
Selenium	N	N/A	N/A	N/A	N/A	D010	N/A	N/A	N	N/A
Silver	Y	Unknown	N/A	N/A	N	D011	N/A	N/A	D011	N/A
Volatile Organic Compounds (CCP-PO-001 – Tables C3-2 and C3-4 & 40 CFR Part 261)										
1,1,1-Trichloroethane	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U226	N	N/A
1,1,2,2-Tetrachloroethane	N	N/A	N/A	N/A	N/A	N/A	N/A	U209	N	N/A
1,1,2-Trichloro-1,2,2-trifluoroethane	N	N/A	N/A	N/A	N/A	N/A	F001/F002	N/A	N	N/A
1,1,2-Trichloroethane	N	N/A	N/A	N/A	N/A	N/A	F002	U227 [k]	N	N/A
1,1-Dichloroethane	N	N/A	N/A	N/A	N/A	N/A	N/A	U076 [k]	N	N/A
1,1-Dichloroethylene	N	N/A	N/A	N/A	N/A	D029	N/A	U078	N	N/A
1,2-Dichlorobenzene [d]	N	N/A	N/A	N/A	N/A	N/A	F002	U070	N	N/A
1,2-Dichloroethane	N	N/A	N/A	N/A	N/A	D028	N/A	U077 [k]	N	N/A
1,4-Dichlorobenzene [d]	N	N/A	N/A	N/A	N/A	D027	N/A	U072	N	N/A
2-Ethoxyethanol	N	N/A	N/A	N/A	N/A	N/A	F005	U359 [k]	N	N/A
2-Nitropropane	N	N/A	N/A	N/A	N/A	N/A	F005	U171 [k]	N	N/A
Acetone	Y	Unknown	Y	N	N/A	N/A	F003	U002	N	N/A
Benzene	Y	Unknown	Y	N	N/A	D018	F005	U019	F005	N/A

ORIGINAL

Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-ISTP-CH-HET

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Volatile Organic Compounds (continued)										
Bromoform	N	N/A	N/A	N/A	N/A	N/A	N/A	U225 [k]	N	N/A
Butanol (n-Butyl alcohol)	N	N/A	N/A	N/A	N/A	N/A	F003	U031 [k]	N	N/A
Carbon disulfide	N	N/A	N/A	N/A	N/A	N/A	F005	P022 [k]	N	N/A
Carbon tetrachloride	Y	Unknown	N/A	N	N	D019	F001	U211 [k]	D019	N/A
Chlorobenzene	N	N/A	N/A	N/A	N/A	D021	F002	U037	N	N/A
Chloroform	Y	Unknown	N/A	N	N	D022	N/A	U044	D022	N/A
Cyclohexanone	N	N/A	N/A	N/A	N/A	N/A	F003	U057 [k]	N	N/A
Ethyl acetate	N	N/A	N/A	N/A	N/A	N/A	F003	U112 [k]	N	N/A
Ethyl benzene	N	N/A	N/A	N/A	N/A	N/A	F003	N/A	N	N/A
Ethyl ether	N	N/A	N/A	N/A	N/A	N/A	F003	U117 [k]	N	N/A
Formaldehyde [g]	N	N/A	N/A	N/A	N/A	N/A	N/A	U122	N	N/A
Hydrazine [h]	N	N/A	N/A	N/A	N/A	N/A	N/A	U133	N	N/A
Isobutanol	N	N/A	N/A	N/A	N/A	N/A	F005	U140 [k]	N	N/A
Methanol	Y	Unknown	N/A	N	N/A	N/A	F003	U154	N	N/A
Methyl ethyl ketone	N	N/A	N/A	N/A	N/A	D035	F005	U159	N	N/A
Methyl isobutyl ketone	N	N/A	N/A	N/A	N/A	N/A	F003	U161 [k]	N	N/A
Methylene chloride	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U080 [k]	N	N/A
Pyridine [d]	N	N/A	N/A	N/A	N/A	D038	F005	U196	N	N/A
Tetrachloroethylene	N	N/A	N/A	N/A	N/A	D039	F001/F002	U210	N	N/A
Toluene	Y	Unknown	Y	N	N/A	N/A	F005	U220	F005	N/A
trans-1,2-Dichloroethylene	N	N/A	N/A	N/A	N/A	N/A	N/A	U079	N	N/A
Trichloroethylene	Y	Unknown	Y	N	N/A	D040	F001/F002	U228	F002	N/A
Trichlorofluoromethane	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U121 [k]	N	N/A
Vinyl Chloride	N	N/A	N/A	N/A	N/A	D043	N/A	U043	N	N/A
Xylenes	Y	Unknown	N/A	N	N/A	N/A	F003	U239	N	N/A

Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-ISTP-CH-HET

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Semivolatile Organic Compounds (CCP-PO-001 – Table C3-6 & 40 CFR Part 261)										
2,4,5-Trichlorophenol	N	N/A	N/A	N/A	N/A	D041 [k]	F027 [k]	N/A	N	N/A
2,4,6-Trichlorophenol	N	N/A	N/A	N/A	N/A	D042 [k]	F027 [k]	N/A	N	N/A
2,4-Dinitrophenol	N	N/A	N/A	N/A	N/A	N/A	N/A	P048 [k]	N	N/A
2,4-Dinitrotoluene	N	N/A	N/A	N/A	N/A	D030	N/A	U105	N	N/A
Cresols	N	N/A	N/A	N/A	N/A	D026	F004	U052	N	N/A
Cresols (m)	N	N/A	N/A	N/A	N/A	D024 [k]	N/A	N/A	N	N/A
Cresols (o)	N	N/A	N/A	N/A	N/A	D023 [k]	N/A	N/A	N	N/A
Cresols (p)	N	N/A	N/A	N/A	N/A	D025 [k]	N/A	N/A	N	N/A
Hexachlorobenzene	N	N/A	N/A	N/A	N/A	D032	N/A	U127 [k]	N	N/A
Hexachlorobutadiene	N	N/A	N/A	N/A	N/A	D033	N/A	U128 [k]	N	N/A
Hexachloroethane	N	N/A	N/A	N/A	N/A	D034	N/A	U131 [k]	N	N/A
Nitrobenzene	N	N/A	N/A	N/A	N/A	D036	F004	U169 [k]	N	N/A
Pentachlorophenol	N	N/A	N/A	N/A	N/A	D037	F027 [k]	N/A	N	N/A
Pesticides and Herbicides (40 CFR Part 261)										
2,4,5-TP (Silvex)	N	N/A	N/A	N/A	N/A	D017 [k]	F027 [k]	N/A	N	N/A
2,4-D	N	N/A	N/A	N/A	N/A	D016 [k]	N/A	U240 [k]	N	N/A
Chlordane	N	N/A	N/A	N/A	N/A	D020 [k]	N/A	U036 [k]	N	N/A
Endrin	N	N/A	N/A	N/A	N/A	D012 [k]	N/A	P051 [k]	N	N/A
Heptachlor (and its epoxide)	N	N/A	N/A	N/A	N/A	D031 [k]	N/A	P059 [k]	N	N/A
Lindane	N	N/A	N/A	N/A	N/A	D013 [k]	N/A	U129 [k]	N	N/A
Methoxychlor	N	N/A	N/A	N/A	N/A	D014 [k]	N/A	U247 [k]	N	N/A
Toxaphene	N	N/A	N/A	N/A	N/A	D015 [k]	N/A	P123 [k]	N	N/A

Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-ISTP-CH-HET

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Other Constituents										
Wastewater treatment sludges from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F006	N/A		N/A
Spent cyanide plating bath solutions from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F007	N/A		N/A
Spent cyanides stripping and cleaning bath solutions from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F009	N/A		N/A
Total PCB Concentration [j]	Y	>RL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Additional EPA Hazardous Constituents (List)	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Note: If sampling homogeneous waste, identify all chemical constituents listed in tables C3-4, C3-6 and C3-8 of the WAP										
Additional State Hazardous Constituents [b] (List) [e]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Potentially Flammable VOCs (List) [e,f]: Acetone, Benzene, Methanol, Toluene, Xylene	Y	Unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tentatively Identified Compounds (List) [e]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-ISTP-CH-HET

a Source: Title 40 Code of Federal Regulations Part 261, Identification and Listing of Hazardous Waste
b. Source: Cite applicable state regulation
c. Superscript not used
d. Can also be analyzed as a semivolatile organic compound
e. Add rows or attach additional sheets as necessary
f. Flammable VOCs included in the CH-TRAMPAC
g. Required only for homogeneous solids and soil/gravel from LANL and SRS
h. Required only for homogeneous solids and soil/gravel from ORNL and SRS
i. Antimony, nickel, thallium, vanadium, and zinc are included in Table C3-8 of CCP-PO-001 but are not regulated under 40 CFR Part 261, and therefore, are not subject to AK evaluation per CCP-PO-001.
j. Source: Title 40 Code of Federal Regulations Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.
k. This EPA hazardous waste Number is not permitted for WIPP disposal.

NOTE: If any of the information requested on this form is not available or not applicable, enter N/A in the appropriate box.

Acceptable Knowledge Expert: Allen Dickerson / _____ Date: 5/17/2011
Print Sign

DIVIDER

PAGE

Site(s): Oak Ridge National Laboratory

Waste Stream Description: Nuclear Fuel Services Contact-Handled TRU Waste Stored at Oak Ridge National Laboratory

Waste Stream Number: OR-NFS-CH-HOM-A

Compound	Suspected Present? (Y/N)	Suspected Concentration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Metal Compounds (CCP-PO-001 – Table B3-8 & 40 CFR Part 261) [i]										
Arsenic	Y	< 5 mg/L	N/A	N/A	Y	D004	N/A	N/A	N	N/A
Barium	Y	> 100 mg/L	N/A	N/A	N	D005	N/A	N/A	N [l]	N/A
Beryllium	Y	<1%	N/A	N/A	Y	N/A	N/A	P015	N	N/A
Cadmium	Y	Unknown	N/A	N/A	N	D006	N/A	N/A	D006	N/A
Chromium	Y	Unknown	N/A	N/A	Y	D007	N/A	N/A	N	N/A
Lead	Y	Unknown	N/A	N/A	Y	D008	N/A	N/A	N	N/A
Mercury	Y	Unknown	N/A	N/A	N	D009	N/A	U151	D009	N/A
Selenium	N	N/A	N/A	N/A	N/A	D010	N/A	N/A	N	N/A
Silver	Y	Unknown	N/A	N/A	Y	D011	N/A	N/A	N	N/A
Volatile Organic Compounds (CCP-PO-001 – Tables B3-2 and B3-4 & 40 CFR Part 261)										
1,1,1-Trichloroethane	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U226	N	N/A
1,1,2,2-Tetrachloroethane	N	N/A	N/A	N/A	N/A	N/A	N/A	U209	N	N/A
1,1,2-Trichloro-1,2,2-trifluoroethane	N	N/A	N/A	N/A	N/A	N/A	F001/F002	N/A	N	N/A
1,1,2-Trichloroethane	N	N/A	N/A	N/A	N/A	N/A	F002	U227 [k]	N	N/A
1,1-Dichloroethane	N	N/A	N/A	N/A	N/A	N/A	N/A	U076 [k]	N	N/A
1,1-Dichloroethylene	N	N/A	N/A	N/A	N/A	D029	N/A	U078	N	N/A
1,2-Dichlorobenzene [d]	N	N/A	N/A	N/A	N/A	N/A	F002	U070	N	N/A
1,2-Dichloroethane	N	N/A	N/A	N/A	N/A	D028	N/A	U077 [k]	N	N/A
1,4-Dichlorobenzene [d]	N	N/A	N/A	N/A	N/A	D027	N/A	U072	N	N/A
2-Ethoxyethanol	N	N/A	N/A	N/A	N/A	N/A	F005	U359 [k]	N	N/A
2-Nitropropane	N	N/A	N/A	N/A	N/A	N/A	F005	U171 [k]	N	N/A
Acetone	N	N/A	N/A	N/A	N/A	N/A	F003	U002	N	N/A
Benzene	N	N/A	N/A	N/A	N/A	D018	F005	U019	N	N/A

ORIGINAL

Waste Stream Number: OR-NFS-CH-HOM-A

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Volatile Organic Compounds (continued)										
Bromoform	N	N/A	N/A	N/A	N/A	N/A	N/A	U225 [k]	N	N/A
Butanol (n-Butyl alcohol)	N	N/A	N/A	N/A	N/A	N/A	F003	U031 [k]	N	N/A
Carbon disulfide	N	N/A	N/A	N/A	N/A	N/A	F005	P022 [k]	N	N/A
Carbon tetrachloride	N	N/A	N/A	N/A	N/A	D019	F001	U211 [k]	N	N/A
Chlorobenzene	N	N/A	N/A	N/A	N/A	D021	F002	U037	N	N/A
Chloroform	N	N/A	N/A	N/A	N/A	D022	N/A	U044	N	N/A
cis-1,2-Dichloroethylene [c]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N	N/A
Cyclohexanone	N	N/A	N/A	N/A	N/A	N/A	F003	U057 [k]	N	N/A
Ethyl acetate	N	N/A	N/A	N/A	N/A	N/A	F003	U112 [k]	N	N/A
Ethyl benzene	N	N/A	N/A	N/A	N/A	N/A	F003	N/A	N	N/A
Ethyl ether	N	N/A	N/A	N/A	N/A	N/A	F003	U117 [k]	N	N/A
Formaldehyde [g]	N	N/A	N/A	N/A	N/A	N/A	N/A	U122	N	N/A
Hydrazine [h]	N	N/A	N/A	N/A	N/A	N/A	N/A	U133	N	N/A
Isobutanol	N	N/A	N/A	N/A	N/A	N/A	F005	U140 [k]	N	N/A
Methanol	N	N/A	N/A	N/A	N/A	N/A	F003	U154	N	N/A
Methyl ethyl ketone	N	N/A	N/A	N/A	N/A	D035	F005	U159	N	N/A
Methyl isobutyl ketone	N	N/A	N/A	N/A	N/A	N/A	F003	U161 [k]	N	N/A
Methylene chloride	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U080 [k]	N	N/A
Pyridine [d]	N	N/A	N/A	N/A	N/A	D038	F005	U196	N	N/A
Tetrachloroethylene	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U210	N	N/A
Toluene	N	N/A	N/A	N/A	N/A	N/A	F005	U220	N	N/A
trans-1,2-Dichloroethylene	N	N/A	N/A	N/A	N/A	N/A	N/A	U079	N	N/A
Trichloroethylene	N	N/A	N/A	N/A	N	D040	F001/F002	U228	N	N/A
Trichlorofluoromethane	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U121 [k]	N	N/A
Vinyl Chloride	N	N/A	N/A	N/A	N/A	D043	N/A	U043	N	N/A
Xylenes	N	N/A	N/A	N/A	N/A	N/A	F003	U239	N	N/A

Waste Stream Number: OR-NFS-CH-HOM-A

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Semivolatile Organic Compounds (CCP-PO-001 – Table B3-6 & 40 CFR Part 261)										
2,4,5-Trichlorophenol	N	N/A	N/A	N/A	N/A	D041 [k]	F027 [k]	N/A	N	N/A
2,4,6-Trichlorophenol	N	N/A	N/A	N/A	N/A	D042 [k]	F027 [k]	N/A	N	N/A
2,4-Dinitrophenol	N	N/A	N/A	N/A	N/A	N/A	N/A	P048 [k]	N	N/A
2,4-Dinitrotoluene	N	N/A	N/A	N/A	N/A	D030	N/A	U105	N	N/A
Cresols	N	N/A	N/A	N/A	N/A	D026	F004	U052	N	N/A
Cresols (m)	N	N/A	N/A	N/A	N/A	D024 [k]	N/A	N/A	N	N/A
Cresols (o)	N	N/A	N/A	N/A	N/A	D023 [k]	N/A	N/A	N	N/A
Cresols (p)	N	N/A	N/A	N/A	N/A	D025 [k]	N/A	N/A	N	N/A
Hexachlorobenzene	N	N/A	N/A	N/A	N/A	D032	N/A	U127 [k]	N	N/A
Hexachlorobutadiene	N	N/A	N/A	N/A	N/A	D033	N/A	U128 [k]	N	N/A
Hexachloroethane	N	N/A	N/A	N/A	N/A	D034	N/A	U131 [k]	N	N/A
Nitrobenzene	N	N/A	N/A	N/A	N/A	D036	F004	U169 [k]	N	N/A
Pentachlorophenol	N	N/A	N/A	N/A	N/A	D037	F027 [k]	N/A	N	N/A
Pesticides and Herbicides (40 CFR Part 261)										
2,4,5-TP (Silvex)	N	N/A	N/A	N/A	N/A	D017 [k]	F027 [k]	N/A	N	N/A
2,4-D	N	N/A	N/A	N/A	N/A	D016 [k]	N/A	U240 [k]	N	N/A
Chlordane	N	N/A	N/A	N/A	N/A	D020 [k]	N/A	U036 [k]	N	N/A
Endrin	N	N/A	N/A	N/A	N/A	D012 [k]	N/A	P051 [k]	N	N/A
Heptachlor (and its epoxide)	N	N/A	N/A	N/A	N/A	D031 [k]	N/A	P059 [k]	N	N/A
Lindane	N	N/A	N/A	N/A	N/A	D013 [k]	N/A	U129 [k]	N	N/A
Methoxychlor	N	N/A	N/A	N/A	N/A	D014 [k]	N/A	U247 [k]	N	N/A
Toxaphene	N	N/A	N/A	N/A	N/A	D015 [k]	N/A	P123 [k]	N	N/A

Waste Stream Number: OR-NFS-CH-HOM-A

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Other Constituents										
Wastewater treatment sludges from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F006	N/A	N/A	N/A
Spent cyanide plating bath solutions from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F007	N/A	N/A	N/A
Spent cyanides stripping and cleaning bath solutions from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F009	N/A	N/A	N/A
Total PCB Concentration [j]	Y	< 50 ppm	N/A	N	N/A	N/A	N/A	N/A	N/A	N/A
Additional EPA Hazardous Constituents (List)	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Note: If sampling homogeneous waste, identify all chemical constituents listed in tables B3-4, B3-6 and B3-8 of the WAP										
Additional State Hazardous Constituents [b] (List) [e]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Potentially Flammable VOCs (List) [e,f]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tentatively Identified Compounds (List) [e]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Waste Stream Number: OR-NFS-CH-HOM-A

a Source: Title 40 Code of Federal Regulations Part 261, Identification and Listing of Hazardous Waste
b. Source: Cite applicable state regulation
c. Source: CCP-PO-001, Transuranic Waste Characterization Quality Assurance Project Plan (QAPjP)
d. Can also be analyzed as a semivolatile organic compound
e. Add rows or attach additional sheets as necessary
f. Flammable VOCs included in the CH-TRAMPAC
g. Required only for homogeneous solids and soil/gravel from LANL and SRS
h. Required only for homogeneous solids and soil/gravel from ORNL and SRS
i. Antimony, nickel, thallium, vanadium, and zinc are included in Table B3-8 of CCP-PO-001 but are not regulated under 40 CFR Part 261, and therefore, are not subject to AK evaluation.
j. Source: Title 40 Code of Federal Regulations Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.
k. This EPA hazardous waste Number is not permitted for WIPP disposal.
l. The trip blank contained 193 mg/L which is also above the regulatory level. The barium may have been introduced from one of the extraction columns used in the analysis, therefore D005 is not assigned.

NOTE: If any of the information requested on this form is not available or not applicable, enter N/A in the appropriate box.

Acceptable Knowledge Expert: Allen Dickerson (Print) _____ (Sign) **Date:** 12/16/2010

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Attachment 5 – Hazardous Constituents

Site(s): Oak Ridge National Laboratory

Waste Stream Description: Soil waste from Nuclear Fuel Services (OR-NFS-CH-SOIL)

Waste Stream Number: OR-NFS-CH-SOIL

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Metal Compounds (CCP-PO-001 – Table C3-8 & 40 CFR Part 261) [i]										
Arsenic	N	N/A	N/A	N/A	N/A	D004	N/A	N/A	N	N/A
Barium	N	N/A	N/A	N/A	N/A	D005	N/A	N/A	N	N/A
Beryllium	N	N/A	N/A	N/A	N/A	N/A	N/A	P015	N	N/A
Cadmium	N	N/A	N/A	N/A	N/A	D006	N/A	N/A	N	N/A
Chromium	N	N/A	N/A	N/A	N/A	D007	N/A	N/A	N	N/A
Lead	N	N/A	N/A	N/A	N/A	D008	N/A	N/A	N	N/A
Mercury	N	N/A	N/A	N/A	N/A	D009	N/A	U151	N	N/A
Selenium	N	N/A	N/A	N/A	N/A	D010	N/A	N/A	N	N/A
Silver	N	N/A	N/A	N/A	N/A	D011	N/A	N/A	N	N/A
Volatile Organic Compounds (CCP-PO-001 – Tables C3-2 and B3-4 & 40 CFR Part 261)										
1,1,1-Trichloroethane	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U226	N	N/A
1,1,2,2-Tetrachloroethane	N	N/A	N/A	N/A	N/A	N/A	N/A	U209	N	N/A
1,1,2-Trichloro-1,2,2-trifluoroethane	N	N/A	N/A	N/A	N/A	N/A	F001/F002	N/A	N	N/A
1,1,2-Trichloroethane	N	N/A	N/A	N/A	N/A	N/A	F002	U227 [k]	N	N/A
1,1-Dichloroethane	N	N/A	N/A	N/A	N/A	N/A	N/A	U076 [k]	N	N/A
1,1-Dichloroethylene	N	N/A	N/A	N/A	N/A	D029	N/A	U078	N	N/A
1,2-Dichlorobenzene [d]	N	N/A	N/A	N/A	N/A	N/A	F002	U070	N	N/A
1,2-Dichloroethane	N	N/A	N/A	N/A	N/A	D028	N/A	U077 [k]	N	N/A
1,4-Dichlorobenzene [d]	N	N/A	N/A	N/A	N/A	D027	N/A	U072	N	N/A
2-Ethoxyethanol	N	N/A	N/A	N/A	N/A	N/A	F005	U359 [k]	N	N/A
2-Nitropropane	N	N/A	N/A	N/A	N/A	N/A	F005	U171 [k]	N	N/A
Acetone	N	N/A	N/A	N/A	N/A	N/A	F003	U002	N	N/A
Benzene	N	N/A	N/A	N/A	N/A	D018	F005	U019	N	N/A

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Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-NFS-CH-SOIL

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Volatile Organic Compounds (continued)										
Bromoform	N	N/A	N/A	N/A	N/A	N/A	N/A	U225 [k]	N	N/A
Butanol (n-Butyl alcohol)	N	N/A	N/A	N/A	N/A	N/A	F003	U031 [k]	N	N/A
Carbon disulfide	N	N/A	N/A	N/A	N/A	N/A	F005	P022 [k]	N	N/A
Carbon tetrachloride	N	N/A	N/A	N/A	N/A	D019	F001	U211 [k]	N	N/A
Chlorobenzene	N	N/A	N/A	N/A	N/A	D021	F002	U037	N	N/A
Chloroform	N	N/A	N/A	N/A	N/A	D022	N/A	U044	N	N/A
Cyclohexanone	N	N/A	N/A	N/A	N/A	N/A	F003	U057 [k]	N	N/A
Ethyl acetate	N	N/A	N/A	N/A	N/A	N/A	F003	U112 [k]	N	N/A
Ethyl benzene	N	N/A	N/A	N/A	N/A	N/A	F003	N/A	N	N/A
Ethyl ether	N	N/A	N/A	N/A	N/A	N/A	F003	U117 [k]	N	N/A
Formaldehyde [g]	N	N/A	N/A	N/A	N/A	N/A	N/A	U122	N	N/A
Hydrazine [h]	N	N/A	N/A	N/A	N/A	N/A	N/A	U133	N	N/A
Isobutanol	N	N/A	N/A	N/A	N/A	N/A	F005	U140 [k]	N	N/A
Methanol	N	N/A	N/A	N/A	N/A	N/A	F003	U154	N	N/A
Methyl ethyl ketone	N	N/A	N/A	N/A	N/A	D035	F005	U159	N	N/A
Methyl isobutyl ketone	N	N/A	N/A	N/A	N/A	N/A	F003	U161 [k]	N	N/A
Methylene chloride	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U080 [k]	N	N/A
Pyridine [d]	N	N/A	N/A	N/A	N/A	D038	F005	U196	N	N/A
Tetrachloroethylene	Y	Unknown	Y	N	N	D039	F001/F002	U210	F002	N/A
Toluene	N	N/A	N/A	N/A	N/A	N/A	F005	U220	N	N/A
trans-1,2-Dichloroethylene	N	N/A	N/A	N/A	N/A	N/A	N/A	U079	N	N/A
Trichloroethylene	N	N/A	N/A	N/A	N/A	D040	F001/F002	U228	N	N/A
Trichlorofluoromethane	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U121 [k]	N	N/A
Vinyl Chloride	N	N/A	N/A	N/A	N/A	D043	N/A	U043	N	N/A
Xylenes	N	N/A	N/A	N/A	N/A	N/A	F003	U239	N	N/A

Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-NFS-CH-SOIL

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Semivolatile Organic Compounds (CCP-PO-001 – Table C3-6 & 40 CFR Part 261)										
2,4,5-Trichlorophenol	N	N/A	N/A	N/A	N/A	D041 [k]	F027 [k]	N/A	N	N/A
2,4,6-Trichlorophenol	N	N/A	N/A	N/A	N/A	D042 [k]	F027 [k]	N/A	N	N/A
2,4-Dinitrophenol	N	N/A	N/A	N/A	N/A	N/A	N/A	P048 [k]	N	N/A
2,4-Dinitrotoluene	N	N/A	N/A	N/A	N/A	D030	N/A	U105	N	N/A
Cresols	N	N/A	N/A	N/A	N/A	D026	F004	U052	N	N/A
Cresols (m)	N	N/A	N/A	N/A	N/A	D024 [k]	N/A	N/A	N	N/A
Cresols (o)	N	N/A	N/A	N/A	N/A	D023 [k]	N/A	N/A	N	N/A
Cresols (p)	N	N/A	N/A	N/A	N/A	D025 [k]	N/A	N/A	N	N/A
Hexachlorobenzene	N	N/A	N/A	N/A	N/A	D032	N/A	U127 [k]	N	N/A
Hexachlorobutadiene	N	N/A	N/A	N/A	N/A	D033	N/A	U128 [k]	N	N/A
Hexachloroethane	N	N/A	N/A	N/A	N/A	D034	N/A	U131 [k]	N	N/A
Nitrobenzene	N	N/A	N/A	N/A	N/A	D036	F004	U169 [k]	N	N/A
Pentachlorophenol	N	N/A	N/A	N/A	N/A	D037	F027 [k]	N/A	N	N/A
Pesticides and Herbicides (40 CFR Part 261)										
2,4,5-TP (Silvex)	N	N/A	N/A	N/A	N/A	D017 [k]	F027 [k]	N/A	N	N/A
2,4-D	N	N/A	N/A	N/A	N/A	D016 [k]	N/A	U240 [k]	N	N/A
Chlordane	N	N/A	N/A	N/A	N/A	D020 [k]	N/A	U036 [k]	N	N/A
Endrin	N	N/A	N/A	N/A	N/A	D012 [k]	N/A	P051 [k]	N	N/A
Heptachlor (and its epoxide)	N	N/A	N/A	N/A	N/A	D031 [k]	N/A	P059 [k]	N	N/A
Lindane	N	N/A	N/A	N/A	N/A	D013 [k]	N/A	U129 [k]	N	N/A
Methoxychlor	N	N/A	N/A	N/A	N/A	D014 [k]	N/A	U247 [k]	N	N/A
Toxaphene	N	N/A	N/A	N/A	N/A	D015 [k]	N/A	P123 [k]	N	N/A

Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-NFS-CH-SOIL

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Other Constituents										
Wastewater treatment sludges from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F006	N/A	N	N/A
Spent cyanide plating bath solutions from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F007	N/A	N	N/A
Spent cyanides stripping and cleaning bath solutions from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F009	N/A	N	N/A
Total PCB Concentration [j]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Additional EPA Hazardous Constituents (List)	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Note: If sampling homogeneous waste, identify all chemical constituents listed in tables C3-4, C3-6 and C3-8 of the WAP										
Additional State Hazardous Constituents [b] (List) [e]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Potentially Flammable VOCs (List) [e,f]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tentatively Identified Compounds (List) [e]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-NFS-CH-SOIL

a Source: Title 40 Code of Federal Regulations Part 261, Identification and Listing of Hazardous Waste
b. Source: Cite applicable state regulation
c. Superscript not used
d. Can also be analyzed as a semivolatile organic compound
e. Add rows or attach additional sheets as necessary
f. Flammable VOCs included in the CH-TRAMPAC
g. Required only for homogeneous solids and soil/gravel from LANL and SRS
h. Required only for homogeneous solids and soil/gravel from ORNL and SRS
i. Antimony, nickel, thallium, vanadium, and zinc are included in Table C3-8 of CCP-PO-001 but are not regulated under 40 CFR Part 261, and therefore, are not subject to AK evaluation per CCP-PO-001.
j. Source: Title 40 Code of Federal Regulations Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.
k. This EPA hazardous waste Number is not permitted for WIPP disposal.

NOTE: If any of the information requested on this form is not available or not applicable, enter N/A in the appropriate box.

Acceptable Knowledge Expert: C. Allen Dickerson (Print) / (Sign) Date: 2/3/2011

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Attachment 5 – Hazardous Constituents

Site(s): Oak Ridge National Laboratory

Waste Stream Description: RH Debris from Building 7920 REDC Operations

Waste Stream Number: OR-REDC-RH-HET

Compound	Suspected Present? (Y/N)	Suspected Concentration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Metal Compounds (CCP-PO-001 Table B3-8 & 40 CFR Part 261) [l]										
Arsenic	Y	Unknown	N/A	N/A	N	D004	N/A	N/A	D004	N/A
Barium	Y	Unknown	N/A	N/A	N	D005	N/A	N/A	D005	N/A
Beryllium	Y	<1 wt%	N/A	N/A	N	N/A	N/A	P015	N	N/A
Cadmium	Y	Unknown	N/A	N/A	N	D006	N/A	N/A	D006	N/A
Chromium	Y	Unknown	N/A	N/A	N	D007	N/A	N/A	D007	N/A
Lead	Y	Unknown	N/A	N/A	N	D008	N/A	N/A	D008	N/A
Mercury	Y	Unknown	N/A	N/A	N	D009	N/A	U151	D009	N/A
Selenium	Y	Unknown	N/A	N/A	N	D010	N/A	N/A	D010	N/A
Silver	Y	Unknown	N/A	N/A	N	D011	N/A	N/A	D011	N/A
Volatile Organic Compounds (CCP-PO-001 Tables B3-2 and B3-4 & 40 CFR Part 261)										
1,1,1-Trichloroethane	Y	Unknown	Y	N	N/A	N/A	F001/F002	U226	F002	N/A
1,1,2,2-Tetrachloroethane	N	N/A	N/A	N/A	N/A	N/A	N/A	U209	N	N/A
1,1,2-Trichloro-1,2,2-trifluoroethane	N	N/A	N/A	N/A	N/A	N/A	F001/F002	N/A	N	N/A
1,1,2-Trichloroethane	Y	Unknown	Y	N	N/A	N/A	F002	U227 [k]	F002	N/A
1,1-Dichloroethane	N	N/A	N/A	N/A	N/A	N/A	N/A	U076 [k]	N	N/A
1,1-Dichloroethylene	N	N/A	N/A	N/A	N/A	D029	N/A	U078	N	N/A
1,2-Dichlorobenzene [d]	N	N/A	N/A	N/A	N/A	N/A	F002	U070	N	N/A
1,2-Dichloroethane	N	N/A	N/A	N/A	N/A	D028	N/A	U077 [k]	N	N/A
1,4-Dichlorobenzene [d]	N	N/A	N/A	N/A	N/A	D027	N/A	U072	N	N/A
2-Ethoxyethanol	N	N/A	N/A	N/A	N/A	N/A	F005	U359 [k]	N	N/A
2-Nitropropane	N	N/A	N/A	N/A	N/A	N/A	F005	U171 [k]	N	N/A
Acetone	Y	Unknown	Y	N	N/A	N/A	F003	U002	N	N/A
Benzene	Y	Unknown	Y	N	N/A	D018	F005	U019	F005	N/A

Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-REDC-RH-HET

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Volatile Organic Compounds (continued)										
Bromoform	N	N/A	N/A	N/A	N/A	N/A	N/A	U225 [k]	N	N/A
Butanol (n-Butyl alcohol)	N	N/A	N/A	N/A	N/A	N/A	F003	U031 [k]	N	N/A
Carbon disulfide	N	N/A	N/A	N/A	N/A	N/A	F005	P022 [k]	N	N/A
Carbon tetrachloride	Y	Unknown	N (F001)	N	N/A	D019	F001	U211 [k]	D019	N/A
Chlorobenzene	N	N/A	N/A	N/A	N/A	D021	F002	U037	N	N/A
Chloroform	N	N/A	N/A	N/A	N/A	D022	N/A	U044	N	N/A
cis-1,2-Dichloroethylene [c]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N	N/A
Cyclohexanone	N	N/A	N/A	N/A	N/A	N/A	F003	U057 [k]	N	N/A
Ethyl acetate	N	N/A	N/A	N/A	N/A	N/A	F003	U112 [k]	N	N/A
Ethyl benzene	N	N/A	N/A	N/A	N/A	N/A	F003	N/A	N	N/A
Ethyl ether	N	N/A	N/A	N/A	N/A	N/A	F003	U117 [k]	N	N/A
Formaldehyde [g]	N	N/A	N/A	N/A	N/A	N/A	N/A	U122	N	N/A
Hydrazine [h]	Y	Unknown	Y	N	N/A	N/A	N/A	U133	N	N/A
Isobutanol	N	N/A	N/A	N/A	N/A	N/A	F005	U140 [k]	N	N/A
Methanol	Y	Unknown	Y	N	N/A	N/A	F003	U154	N	N/A
Methyl ethyl ketone	N	N/A	N/A	N/A	N/A	D035	F005	U159	N	N/A
Methyl isobutyl ketone	Y	Unknown	Y	N	N/A	N/A	F003	U161 [k]	N	N/A
Methylene chloride	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U080 [k]	N	N/A
Pyridine [d]	N	N/A	N/A	N/A	N/A	D038	F005	U196	N	N/A
Tetrachloroethylene	N	N/A	N/A	N/A	N/A	D039	F001/F002	U210	N	N/A
Toluene	Y	Unknown	Y	N	N/A	N/A	F005	U220	F005	N/A
trans-1,2-Dichloroethylene	N	N/A	N/A	N/A	N/A	N/A	N/A	U079	N	N/A
Trichloroethylene	Y	Unknown	Y	N	N/A	D040	F001/F002	U228	F002	N/A
Trichlorofluoromethane	N	N/A	N/A	N/A	N/A	N/A	F001/F002	U121 [k]	N	N/A
Vinyl Chloride	N	N/A	N/A	N/A	N/A	D043	N/A	U043	N	N/A
Xylenes	Y	Unknown	Y	N	N/A	N/A	F003	U239	N	N/A

Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-REDC-RH-HET

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Semivolatile Organic Compounds (CCP-PO-001 Table B3-6 & 40 CFR Part 261)										
2,4,5-Trichlorophenol	N	N/A	N/A	N/A	N/A	D041 [k]	F027 [k]	N/A	N	N/A
2,4,6-Trichlorophenol	N	N/A	N/A	N/A	N/A	D042 [k]	F027 [k]	N/A	N	N/A
2,4-Dinitrophenol	N	N/A	N/A	N/A	N/A	N/A	N/A	P048 [k]	N	N/A
2,4-Dinitrotoluene	N	N/A	N/A	N/A	N/A	D030	N/A	U105	N	N/A
Cresols	N	N/A	N/A	N/A	N/A	D026	F004	U052	N	N/A
Cresols (m)	N	N/A	N/A	N/A	N/A	D024 [k]	N/A	N/A	N	N/A
Cresols (o)	N	N/A	N/A	N/A	N/A	D023 [k]	N/A	N/A	N	N/A
Cresols (p)	N	N/A	N/A	N/A	N/A	D025 [k]	N/A	N/A	N	N/A
Hexachlorobenzene	N	N/A	N/A	N/A	N/A	D032	N/A	U127 [k]	N	N/A
Hexachlorobutadiene	N	N/A	N/A	N/A	N/A	D033	N/A	U128 [k]	N	N/A
Hexachloroethane	N	N/A	N/A	N/A	N/A	D034	N/A	U131 [k]	N	N/A
Nitrobenzene	N	N/A	N/A	N/A	N/A	D036	F004	U169 [k]	N	N/A
Pentachlorophenol	N	N/A	N/A	N/A	N/A	D037	F027 [k]	N/A	N	N/A
Pesticides and Herbicides (40 CFR Part 261)										
2,4,5-TP (Silvex)	N	N/A	N/A	N/A	N/A	D017 [k]	F027 [k]	N/A	N	N/A
2,4-D	N	N/A	N/A	N/A	N/A	D016 [k]	N/A	U240 [k]	N	N/A
Chlordane	N	N/A	N/A	N/A	N/A	D020 [k]	N/A	U036 [k]	N	N/A
Endrin	N	N/A	N/A	N/A	N/A	D012 [k]	N/A	P051 [k]	N	N/A
Heptachlor (and its epoxide)	N	N/A	N/A	N/A	N/A	D031 [k]	N/A	P059 [k]	N	N/A
Lindane	N	N/A	N/A	N/A	N/A	D013 [k]	N/A	U129 [k]	N	N/A
Methoxychlor	N	N/A	N/A	N/A	N/A	D014 [k]	N/A	U247 [k]	N	N/A
Toxaphene	N	N/A	N/A	N/A	N/A	D015 [k]	N/A	P123 [k]	N	N/A

Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-REDC-RH-HET

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Other Constituents										
Wastewater treatment sludges from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F006	N/A	N	N/A
Spent cyanide plating bath solutions from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F007	N/A	N	N/A
Spent cyanides stripping and cleaning bath solutions from electroplating operations	N	N/A	N/A	N/A	N/A	N/A	F009	N/A	N	N/A
Total PCB Concentration [i] (May be present in pumps and capacitors)	Y	Unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Additional EPA Hazardous Constituents (List)	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Note: If sampling homogeneous waste, identify all chemical constituents listed in tables B3-4, B3-6 and B3-8 of the WAP										
Additional State Hazardous Constituents [b] (List) [e]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Potentially Flammable VOCs (List) [e,f] Acetone Benzene Cylcohexane Ethyl Ether (not specific) Methanol Methyl ethyl ketone Methyl istobutyl ketone Toluene Xylenes	Y	Unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Attachment 5 – Hazardous Constituents (continued)

Waste Stream Number: OR-REDC-RH-HET

Compound	Suspected Present? (Y/N)	Suspected Concen-tration (ppm)	Used as a solvent? [a] (Y/N/NA)	Associated with packaging? (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Other Constituents (cont.)										
Tentatively Identified Compounds (List) [e]	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

a Source: Title 40 Code of Federal Regulations Part 261, Identification and Listing of Hazardous Waste
b. Source: Cite applicable state regulation
c. Source: CCP-PO-001 CCP Transuranic Waste Characterization Quality Assurance Project Plan
d. Can also be analyzed as a semivolatile organic compound
e. Add rows or attach additional sheets as necessary
f. Flammable VOCs included in the CH-TRAMPAC
g. Required only for homogeneous solids and soil/gravel from LANL and SRS
h. Required only for homogeneous solids and soil/gravel from ORNL and SRS
i. Antimony, nickel, thallium, vanadium, and zinc are included in Table B3-8 of CCP-PO-001 but are not regulated under 40 CFR Part 261, and therefore, are not subject to AK evaluation per the WIPP-WAP Section B4.
j. Source: Title 40 Code of Federal Regulations Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.
k. This EPA hazardous waste Number is not permitted for WIPP disposal.

NOTE: If any of the information requested on this form is not available or not applicable, enter N/A in the appropriate box.

Acceptable Knowledge Expert: Kevin J. Peters / Christopher Chancellor signing for
Print Sign

Date: 06/23/2009

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Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523

Fax Number: 575-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Christopher J. Chancellor
Ship to:	CCP Central Records/ CCP Records Custodian 4021 National Parks Highway - MS GSA 203, Carlsbad, NM 88220	Site:	Oak Ridge National Laboratory
		Company:	Los Alamos National Laboratory
		Telephone Number:	575-706-5343
Telephone Number:	575-234-7523	Date Sent:	06/24/2009

Controlled Copy No.	Description	Record Date	Total Pages
NA	Attachment 5 - Hazardous Constituents for Waste Stream OR-REDC-RH-HET	11/16/2006	5
NA	NA	NA	0

Comments:

Please supercede previous Attachment 5.

Acceptance/Rejection Signature and Date

Records Accepted [X] Signature — TAMI PARKER Printed Name — 6/24/09 Date

Records Rejected [ ] Signature — Printed Name — Date

Reason for Rejection: NA

Re-submittal: Signature — Printed Name — Date

HP Color LaserJet

Fax Confirmation Report

CCP RECORDS
5752347033
Jun-24-2009 7:50AM

Job	Date	Time	Type	Identification	Duration	Pages	Result
810	6/24/2009	7:49:07AM	Send	96283238	0:50	1	OK

Controlled Copy

CCP-QP-008, Rev. 14 **Effective Date: 09/19/2007**
CCP Records Management **Page 29 of 29**

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523
Fax Number: 575-234-7014

☒ Original Record
☐ Fax Record
☐ Electronic Record

Attn:	Sheila Pearcy	From:	Christopher J. Chancellor
Ship to:	CCP Central Records/ CCP Records Custodian	Site:	Oak Ridge National Laboratory
	4021 National Parks Highway - MS GSA 203, Carlsbad, NM 88220	Company:	Los Alamos National Laboratory
		Telephone Number:	575-708-6343
Telephone Number:	575-234-7523	Date Sent:	06/24/2009

NA	Attachment B - Hazardous Constituents for Waste Stream OR-REDC-RH-HET	11/16/2006	5
NA	NA	NA	0

Please supercede previous Attachment B.

Acceptance/Rejection Signature and Date

Records Accepted ☒ Signature: Tami Parker — Printed Name: TAMI PARKER — Date: 6/24/09

Records Rejected ☐ Signature _____ — Printed Name _____ — Date _____

Reason for Rejection: NA

Re-submittal: Signature _____ — Printed Name _____ — Date _____

Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging

Site(s): Oak Ridge National Laboratory

Waste Stream Description: ORNL Isotopes Facilities CH-TRU Debris Waste

Container ID Numbers: See CCP-TP-005, Attachment 8 for containers in this waste stream

Waste Stream Number: OR-ISTPCH-HET	
Physical Waste Form (e.g., debris, solidified waste)	Debris
Summary Category Group [a]	S5000
Waste Matrix Code Group [a]	Heterogeneous Debris Waste
Waste Matrix Code [b]	S5400
Waste Material Parameter Weights [c]	Estimated Waste Stream Weight Percent Average (attach evaluation justifying percentages)
Iron-based metals/alloys	32.4%
Aluminum-based metals/alloys	1.7%
Other metals	9.3%
Other inorganic materials	2.0%
Cellulosics	16.2%
Rubber	8.9%
Plastics (waste materials)	29.3%
Organic matrix	0.0%
Inorganic matrix	0.3%
Soils/Gravels	0.0%
Packaging Materials	Present (Y/N)?
Steel	Y
Plastics	Y
Prohibited Wastes [d,e,f,g]	Present (Y/N)?
Observable liquid shall be no more than 1 percent by volume of the outermost container at the time of RTR or VE. Observable liquid shall be no more than 60 milliliters or 3 percent by volume, whichever is greater, in an internal container. Observable liquid shall not be present in a container with EPA HWN U134 assigned.	Y
Non-radionuclide pyrophoric materials	N
Sealed containers > 4 liters	Y
Hazardous waste not occurring as co-contaminants with TRU mixed waste (non-mixed hazardous waste)	N

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Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging (continued)

Waste Stream Number: OR-ISTP-CH-HET	
Explosives	N
Compressed gases	Y
Residual hydrofluoric acid (if U134 assigned to stream)	N
Residual PCB liquids [j]	N
Ignitables (EPA Hazardous Waste Number D001)	N
Corrosives (EPA Hazardous Waste Number D002)	N
Reactives (EPA Hazardous Waste Number D003)	N
Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes [h]	N
Spent Nuclear fuel or high-level waste [i]	N
Any un-vented plastic bags > 4 liters that have been heat-sealed	Y
Additional Information (if available)	Some drums in this waste stream may contain radionuclide pyrophorics. To ensure radionuclide pyrophorics are completely reacted before WIPP disposal, inner containers (regardless of size) in all drums in this waste stream are examined during waste repackaging, or by RTR or VE, to determine if they contain a potentially pyrophoric or other reactive material. If these materials are identified, they are removed from the waste stream or remediated.
Packaging	
Waste container type?	Prior to 1987: 30-gallon and 55-gallon Department of Transportation (DOT) Specification 17C carbon steel stainless-steel drums Post 1987: DOT Specification 7 A Type A 55-gallon drums
Liner type?	Prior to 1987: Plastic drum liner bags Post 1987: Drums are lined with a cardboard liner and a 6-mil poly liner bag; rigid liners are not used
Is liner punctured?	N/A (Rigid liners were not used)
Is filter vent installed?	Y (Each container will be inspected for the presence of an approved filter vent)
Maximum number of confinement layers	3

a. Source: *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (CCP-PO-001) Introduction.
b. Source: *Transuranic Waste Baseline Inventory Report* (DOE/CAO-95-1121) or DOE Waste Treatability Group Guidance (DOE/LLW-217). Note: the waste matrix code should not be assigned at the summary category group level.
c. Source: CCP-PO-001 – Table C3-1. Attach the Waste Material Parameter Evaluation Memorandum used to estimate values include in this Table (see Section 4.4.27).
d. Source: CCP-PO-001 – Section C-1c
e. Source: *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WAC)(DOE/WIPP-02-3122), Section 3
f. Source: *TRUPACT-II Content Codes* (TRUCON) (DOE/WIPP 89-004)
g. Source: *TRUPACT-II Authorized Methods for Payload Control (TRAMPAC), Nuclear Waste Partnership*, LLC

h. This waste has been approved for disposal at the WIPP by the Permittee as documented by Appendix C1 of the WIPP RCRA Part B Permit Application and the Permittee's approval and assignment of the applicable TRUCON Codes for this waste stream.
i. Source: *Nuclear Waste Policy Act of 1982* (42 U.S.C. 10101)
j. Source: Polychlorinated Biphenyls (PCBs) manufacturing, Processing, Distribution and Commerce, and Use Prohibitions (40 CFR 761)

Acceptable Knowledge Expert: JEFF HARRISON / [signature] Date: 1/16/2014
Print Sign

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Memorandum

To: CCP Records

From: Jeff Harrison, CCP AKE

Date: April 29, 2011

RE: Waste Matrix Code and Waste Material Parameter Evaluation for Waste Stream OR-ISTP-CH-HET, Contact-Handled Transuranic Debris Waste Generated in the Isotopes Facilities at Oak Ridge National Laboratory

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In accordance to *CCP Acceptable Knowledge Documentation*, CCP-TP-005, Section 4.4.24, Waste Material Parameters (WMP) shall be estimated on a weight percent basis for the waste stream, documenting the assumptions and justification for deriving the estimated WMP.

Waste Matrix Code

The waste matrix code was assigned to Waste Stream OR-ISTP-CH-HET based on the evaluation of AK information relating to the physical form of the waste recorded on UCN-2822 and UCN-2109 waste disposal forms, RTR conducted by ORNL several years ago, and limited RTR and VE performed by EnergX at the TWPC. The volume percent combustible on the UCN-2822 and UCN-2109 forms is highly variable ranging from 0 to 100 percent. The RTR and VE data also indicate a high degree of variability.

There are 469 containers with a UCN-2822 form. Older versions of this form provide a very brief and generic description of the waste, but do not indicate the percent combustible. About half (245 of 469) the containers with a UCN-2822 form provide total volume and combustible volume in cubic feet in which a percent combustible can be calculated. The volume percent combustible ranges from 0 to 100 percent with an average of 38.8 percent. There are 16 containers with a UCN-2109 form; however, early versions of this form do not identify the volume percent combustible. There are 11 containers with a UCN-2109 form that includes volume percent combustible with a range from 25 to 75 percent with an average of 42.7 percent. The calculated average volume percent combustible from the combined UCN-2109 and UCN-2822 form data is average of 39 percent. The combustible data and calculations are included as Attachment A.

Due to the high degree of variability in the amount of combustible waste, Waste Matrix Code S5400, Heterogeneous Debris, is applied to this waste stream. The definition of this Waste Matrix Code is provided in the DOE/LLW-217, DOE Waste Treatability Group Guidance. This category includes waste that is at least 50 percent, by volume, debris materials that do not meet the criteria for assignment as either an Inorganic Debris (S5100) or Organic Debris (S5300).

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Waste Material Parameters

The waste material parameter weight estimates for waste stream OR-ISTP-CH-HET were derived from limited VE performed at the TWPC in 2006 and 2007. There are 36 drums from this waste stream that have TWPC VE data. The VE was not performed under the CCP TRU Waste Certification Program, and therefore, the data are considered AK (Reference M190). In 2006 and 2007, the TWPC conducted RTR on approximately 80 drums in this waste stream; however, RTR did not provide an estimate of the waste material parameter weights (Reference M189). An analysis of the VE data was performed, the results of which are presented in the table below. The waste material parameter data and calculations are included in Attachment B.

Waste Stream OR-ISTP-CH-HET Waste Material Parameters

Waste Material Parameter	Weight Percent	Weight Percent Range
Fe Based Metals/Alloys	32.4%	0% – 89.2%
Al based Metals/Alloys	1.7%	0% – 18.1%
Other Metals/Alloys	9.3%	0% – 79.9%
Other Inorganic Materials	2.0%	0% – 25.6%
Cellulosics	16.2%	0% – 73.1%
Rubber	8.9%	0% – 90.0%
Plastics (waste materials)	29.3%	0% – 90.0%
Organic Matrix [1]	0.0%	0% – 2.3%
Inorganic Matrix [2]	0.3%	0% – 6.3%
Soils/Gravel	0.0%	0% – 0.0%
Sum	**100%**	

Attachment A

Evaluation of Combustible Data from Form UCN-2822 and UCN-2109

Container ID	Form	Total Vol. (Cu. Ft.)	Combust Vol. (Cu. Ft.)	Combustible Vol%	Type of Waste
X10C0303312	UCN-2822	6	6	100.0%	DS
X10C0303313	UCN-2822	8	5	62.5%	DS
X10C9309201	UCN-2822	240	0	0.0%	CE
X10C9309204	UCN-2822	308	0	0.0%	DD
X10C9309217	UCN-2822	180	10	5.6%	DS
X10C9311059	UCN-2822	7.35	0	0.0%	DS
X10C9311062	UCN-2822	7.35	0	0.0%	DS
X10C9311063	UCN-2822	7.35	0	0.0%	DS
X10C9311066	UCN-2822	7.35	0	0.0%	DS
X10C9311067	UCN-2822	7.35	0	0.0%	DS
X10C9311069	UCN-2822	7.35	0	0.0%	--
X10C9311072	UCN-2822	8	5	62.5%	DS
X10C9311078	UCN-2822	3	0	0.0%	CE
X10C9311089	UCN-2822	7.5	5	66.7%	DD
X10C9311113	UCN-2822	7.5	6	80.0%	DD
X10C9311119	UCN-2822	8	0	0.0%	DS
X10C9311133	UCN-2822	8	1	12.5%	DS
X10C9311139	UCN-2822	284	30	10.6%	CE
X10C9311173	UCN-2822	8	0	0.0%	DS
X10C9311174	UCN-2822	8	0	0.0%	DS
X10C9311193	UCN-2822	7.35	0	0.0%	--
X10C9311194	UCN-2822	7.5	3	40.0%	DS
X10C9311196	UCN-2822	7.35	0	0.0%	DS
X10C9311220	UCN-2822	7.35	0	0.0%	DS
X10C9311221	UCN-2822	7.35	0	0.0%	DS
X10C9311222	UCN-2822	7.35	0	0.0%	--
X10C9311225	UCN-2822	8	8	100.0%	DS
X10C9311229	UCN-2822	7.35	0	0.0%	DS, DD
X10C9311230	UCN-2822	7.35	0	0.0%	DS
X10C9311233	UCN-2822	8	0	0.0%	DS
X10C9311234	UCN-2822	8	8	100.0%	DS
X10C9311238	UCN-2822	7.35	0	0.0%	--
X10C9311239	UCN-2822	8	1	12.5%	--
X10C9311240	UCN-2822	7.35	7.35	100.0%	--
X10C9311252	UCN-2822	8	0	0.0%	DS
X10C9311261	UCN-2822	8	0.4	5.0%	--
X10C9311267	UCN-2822	8	0	0.0%	DS
X10C9311278	UCN-2822	8	0	0.0%	DS
X10C9311279	UCN-2822	7	0	0.0%	CE
X10C9311281	UCN-2822	7	0	0.0%	CE
X10C9311285	UCN-2822	8	0	0.0%	DS
X10C9311290	UCN-2822	8	0	0.0%	DS
X10C9311298	UCN-2822	7.5	5	66.7%	DS
X10C9311302	UCN-2822	8	0	0.0%	DS
X10C9311303	UCN-2822	7	7	100.0%	DS
X10C9311313	UCN-2822	7.4	0	0.0%	--
X10C9311323	UCN-2822	8	0	0.0%	DS
X10C9311326	UCN-2822	8	5	62.5%	DS
X10C9311332	UCN-2822	8	8	100.0%	DS
X10C9311334	UCN-2822	8	5	62.5%	DS
X10C9311351	UCN-2822	8	5	62.5%	DS

Attachment A

Evaluation of Combustible Data from Form UCN-2822 and UCN-2109

Container ID	Form	Total Vol. (Cu. Ft.)	Combust Vol. (Cu. Ft.)	Combustible Vol%	Type of Waste
X10C9311359	UCN-2822	8	5	62.5%	DS
X10C9311360	UCN-2822	7.4	0	0.0%	--
X10C9311364	UCN-2822	8	5	62.5%	DS
X10C9311374	UCN-2822	8	8	100.0%	DS
X10C9311380	UCN-2822	8	0	0.0%	DD
X10C9311383	UCN-2822	8	5	62.5%	DS
X10C9311386	UCN-2822	7.35	0	0.0%	DS
X10C9311396	UCN-2822	7.5	2	26.7%	DS
X10C9311431	UCN-2822	8	8	100.0%	DS
X10C9311461	UCN-2822	5.5	0	0.0%	DD
X10C9311471	UCN-2822	9.43	0	0.0%	--
X10C9311472	UCN-2822	8	8	100.0%	DS
X10C9311475	UCN-2822	7	7	100.0%	DS
X10C9311479	UCN-2822	8	5	62.5%	DS
X10C9311484	UCN-2822	7.4	0	0.0%	--
X10C9311490	UCN-2822	8	8	100.0%	DS
X10C9311509	UCN-2822	8	0	0.0%	--
X10C9311511	UCN-2822	8	8	100.0%	DS
X10C9311512	UCN-2822	7	0	0.0%	--
X10C9311517	UCN-2822	8	0	0.0%	DS
X10C9311520	UCN-2822	8	0	0.0%	DS
X10C9311555	UCN-2822	8	5	62.5%	DS
X10C9311556	UCN-2822	8	5	62.5%	DS
X10C9311558	UCN-2822	8	0	0.0%	--
X10C9311571	UCN-2822	8	0	0.0%	--
X10C9311671	UCN-2822	7	7	100.0%	DS
X10C9311674	UCN-2822	8	3	37.5%	DD
X10C9311680	UCN-2822	7.5	0	0.0%	DD
X10C9311681	UCN-2822	7.35	0	0.0%	DS
X10C9311697	UCN-2822	4.5	3	66.7%	DD
X10C9311698	UCN-2822	5.5	4	72.7%	DD
X10C9311700	UCN-2822	6	6	100.0%	DS
X10C9311710	UCN-2822	6	6	100.0%	DS
X10C9311727	UCN-2822	7	5	71.4%	DS
X10C9311738	UCN-2822	6	5	83.3%	DS
X10C9311757	UCN-2822	8	5	62.5%	DS
X10C9311765	UCN-2822	3.5	1.5	42.9%	CE
X10C9311774	UCN-2822	8	8	100.0%	DS
X10C9311777	UCN-2822	8	8	100.0%	DS
X10C9311781	UCN-2822	8	0	0.0%	DD
X10C9311795	UCN-2822	6	6	100.0%	DS
X10C9311797	UCN-2822	6	6	100.0%	DS
X10C9311810	UCN-2822	8	0	0.0%	DS
X10C9311811	UCN-2822	6	6	100.0%	DS
X10C9311812	UCN-2822	7	5	71.4%	DS
X10C9311834	UCN-2822	7.5	1	13.3%	CE
X10C9311886	UCN-2822	8	6	75.0%	DS
X10C9311915	UCN-2822	7	3	42.9%	CE
X10C9311954	UCN-2822	8	2	25.0%	--
X10C9311999	UCN-2822	8	8	100.0%	DS
X10C9312003	UCN-2822	8	0	0.0%	DS

Attachment A

Evaluation of Combustible Data from Form UCN-2822 and UCN-2109

Container ID	Form	Total Vol. (Cu. Ft.)	Combust Vol. (Cu. Ft.)	Combustible Vol%	Type of Waste
X10C9312020	UCN-2822	8	0	0.0%	DS
X10C9312021	UCN-2822	8	0	0.0%	DS
X10C9312029	UCN-2822	7.35	0	0.0%	DS
X10C9312037	UCN-2822	8	5	62.5%	DS
X10C9312056	UCN-2822	7.4	0	0.0%	--
X10C9312063	UCN-2822	8	0.4	5.0%	--
X10C9312064	UCN-2822	8	0	0.0%	--
X10C9312067	UCN-2822	8	0	0.0%	DS
X10C9312077	UCN-2822	8	8	100.0%	DS
X10C9312084	UCN-2822	7	0	0.0%	--
X10C9312096	UCN-2822	8	8	100.0%	DS
X10C9312098	UCN-2822	7	0	0.0%	--
X10C9312100	UCN-2822	14	0	0.0%	CE
X10C9312107	UCN-2822	8	0	0.0%	DS
X10C9312108	UCN-2822	7.5	7.5	100.0%	DS
X10C9312110	UCN-2822	8	8	100.0%	DS
X10C9312143	UCN-2822	6	6	100.0%	DS
X10C9312144	UCN-2822	5.5	1	18.2%	CE
X10C9312154	UCN-2822	8	5	62.5%	DD
X10C9312157	UCN-2822	7.5	0	0.0%	DS
X10C9312170	UCN-2822	7.4	0	0.0%	--
X10C9312189	UCN-2822	25	5	20.0%	CE
X10C9312198	UCN-2822	6	0	0.0%	DS
X10C9312222	UCN-2822	7.5	6	80.0%	DS
X10C9312229	UCN-2822	7.5	0	0.0%	CE
X10C9312231	UCN-2822	8	0	0.0%	CE
X10C9312238	UCN-2822	8	5	62.5%	DS
X10C9312253	UCN-2822	7.5	1	13.3%	DD
X10C9312256	UCN-2822	8	4	50.0%	DS
X10C9312269	UCN-2822	8	0	0.0%	DS
X10C9312272	UCN-2822	8	0.4	5.0%	--
X10C9312282	UCN-2822	7.5	6	80.0%	DD
X10C9312311	UCN-2822	7.35	0	0.0%	DS
X10C9312335	UCN-2822	7.5	1	13.3%	DD
X10C9312337	UCN-2822	8	4	50.0%	DS
X10C9312348	UCN-2822	7.35	0	0.0%	--
X10C9312387	UCN-2822	14	0	0.0%	CE
X10C9312391	UCN-2822	8	8	100.0%	DS
X10C9312394	UCN-2822	25	5	20.0%	DD
X10C9312405	UCN-2822	7.5	5	66.7%	DD, DS, NC
X10C9312419	UCN-2822	8	5	62.5%	--
X10C9312454	UCN-2822	7.35	0	0.0%	--
X10C9312458	UCN-2822	7.5	7.5	100.0%	DS
X10C9312460	UCN-2822	7.35	0	0.0%	--
X10C9312467	UCN-2822	7.5	7.5	100.0%	DS
X10C9312472	UCN-2822	7.5	0	0.0%	DD
X10C9312473	UCN-2822	7.5	3	40.0%	DD, DS, NC
X10C9312474	UCN-2822	7.35	0	0.0%	--
X10C9312484	UCN-2822	7.5	5	66.7%	CE, DD
X10C9312486	UCN-2822	7.5	0	0.0%	DD
X10C9312530	UCN-2822	8	4	50.0%	DS

Attachment A

Evaluation of Combustible Data from Form UCN-2822 and UCN-2109

Container ID	Form	Total Vol. (Cu. Ft.)	Combust Vol. (Cu. Ft.)	Combustible Vol%	Type of Waste
X10C9312532	UCN-2822	8	0	0.0%	DS
X10C9312539	UCN-2822	6	0	0.0%	DS
X10C9312542	UCN-2822	8	8	100.0%	DS
X10C9312548	UCN-2822	8	8	100.0%	DS
X10C9312553	UCN-2822	8	5	62.5%	DS
X10C9312587	UCN-2822	7.5	5	66.7%	CE, DD
X10C9312644	UCN-2822	8	5	62.5%	DS
X10C9312674	UCN-2822	7.4	0	0.0%	--
X10C9312676	UCN-2822	8	8	100.0%	DS
X10C9312696	UCN-2822	7.4	0	0.0%	DD
X10C9312716	UCN-2822	8	0	0.0%	DS
X10C9312719	UCN-2822	8	0	0.0%	--
X10C9312721	UCN-2822	8	5	62.5%	DS
X10C9312723	UCN-2822	8	8	100.0%	DS
X10C9312740	UCN-2822	7.5	0	0.0%	CE
X10C9312745	UCN-2822	8	8	100.0%	DS
X10C9312754	UCN-2822	8	0	0.0%	DS
X10C9312765	UCN-2822	7.5	5	66.7%	DD
X10C9312775	UCN-2822	6	6	100.0%	DS
X10C9312779	UCN-2822	7.35	0	0.0%	--
X10C9312787	UCN-2822	6	3	50.0%	DS
X10C9312789	UCN-2822	8	8	100.0%	DS
X10C9312790	UCN-2822	8	4	50.0%	DS
X10C9312803	UCN-2822	6	6	100.0%	DS
X10C9312806	UCN-2822	7.5	5	66.7%	DD
X10C9312818	UCN-2822	6	6	100.0%	DS
X10C9312822	UCN-2822	8	8	100.0%	DS
X10C9312828	UCN-2822	8	8	100.0%	DS
X10C9312831	UCN-2822	8	1	12.5%	DD
X10C9312832	UCN-2822	7.3	1	13.7%	DS
X10C9312834	UCN-2822	7	2	28.6%	CE
X10C9312857	UCN-2822	8	8	100.0%	DS
X10C9312884	UCN-2822	8	8	100.0%	DS
X10C9312906	UCN-2822	8	1	12.5%	CE
X10C9312911	UCN-2822	8	1	12.5%	CE
X10C9312923	UCN-2822	8	0	0.0%	DS
X10C9312938	UCN-2822	6	5	83.3%	DS
X10C9312942	UCN-2822	6	0	0.0%	DS
X10C9312945	UCN-2822	6	6	100.0%	DS
X10C9312946	UCN-2822	8	0	0.0%	--
X10C9312947	UCN-2822	6	0	0.0%	DS
X10C9312958	UCN-2822	8	0	0.0%	DS
X10C9312972	UCN-2822	7	0.5	7.1%	CE
X10C9312973	UCN-2822	7.5	0.5	6.7%	CE
X10C9312995	UCN-2822	8	8	100.0%	DS
X10C9313025	UCN-2822	8	0	0.0%	DS
X10C9313031	UCN-2822	8	8	100.0%	DS
X10C9313046	UCN-2822	8	0	0.0%	DD
X10C9313087	UCN-2822	6	0	0.0%	DS
X10C9313094	UCN-2822	8	8	100.0%	DS
X10C9313095	UCN-2822	8	4	50.0%	DS

Attachment A

Evaluation of Combustible Data from Form UCN-2822 and UCN-2109

Container ID	Form	Total Vol. (Cu. Ft.)	Combust Vol. (Cu. Ft.)	Combustible Vol%	Type of Waste
X10C9313096	UCN-2822	8	0	0.0%	--
X10C9313101	UCN-2822	7.5	6	80.0%	DS
X10C9313102	UCN-2822	8	7.2	90.0%	--
X10C9313103	UCN-2822	8	0	0.0%	DS
X10C9313105	UCN-2822	6	3	50.0%	DS
X10C9313106	UCN-2822	6	0	0.0%	--
X10C9313107	UCN-2822	6	3	50.0%	DS
X10C9313108	UCN-2822	6	5	83.3%	DS
X10C9313110	UCN-2822	8	0	0.0%	DS
X10C9313111	UCN-2822	7	0	0.0%	CE
X10C9313112	UCN-2822	6	6	100.0%	DS
X10C9313113	UCN-2822	6	3	50.0%	DS
X10C9313119	UCN-2822	8	0	0.0%	DS
X10C9313138	UCN-2822	8	2	25.0%	--
X10C9313591	UCN-2822	7	4	57.1%	DD
X10C9313593	UCN-2822	8	2	25.0%	CE
X10C9313648	UCN-2822	7.5	6	80.0%	DD, DS
X10C9313665	UCN-2822	8	5	62.5%	DS
X10C9400001	UCN-2822	8	1	12.5%	CE
X10C9400031	UCN-2822	7.4	3.7	50.0%	CE
X10C9400032	UCN-2822	7.4	5	67.6%	DD
X10C9400038	UCN-2822	7.3	1.825	25.0%	CE
X10C9400045	UCN-2822	5	0	0.0%	CE
X10C9400066	UCN-2822	8	1.6	20.0%	CE
X10C9400070	UCN-2822	7.4	6.4	86.5%	DD
X10C9400121	UCN-2822	8	8	100.0%	DS
X10C9400149	UCN-2822	7.5	3.5	46.7%	DS
X10C9400154	UCN-2822	8	4	50.0%	DS
X10C9400202	UCN-2822	7.35	0	0.0%	DS
X10C9400218	UCN-2822	7.5	4	53.3%	DS
X10C9400242	UCN-2822	8	8	100.0%	DD
X10C9400243	UCN-2822	10	2	20.0%	DS
X10C9400246	UCN-2822	8	0	0.0%	DD
X10C9400258	UCN-2822	8	4	50.0%	DS
X10C9400265	UCN-2822	8	0	0.0%	DS
X10C9400277	UCN-2822	7.5	6	80.0%	DD
X10C9400283	UCN-2822	8	0	0.0%	DD
X10C9902186	UCN-2822	7	1	14.3%	DS
X10C9902198	UCN-2822	8	1	12.5%	DS
X10C9902200	UCN-2822	8	7.6	95.0%	DD
X10C9902206	UCN-2822	7	3.5	50.0%	DD
X10C0401430	UCN-2109	--	--	50.0%	--
X10C0404147	UCN-2109	--	--	50.0%	--
X10C9308369	UCN-2109	--	--	25.0%	--
X10C9310152	UCN-2109	--	--	25.0%	--
X10C9310169	UCN-2109	--	--	50.0%	--
X10C9310218	UCN-2109	--	--	25.0%	--
X10C9311353B	UCN-2109	--	--	40.0%	--
X10C9400373	UCN-2109	--	--	50.0%	--
X10C9400399	UCN-2109	--	--	40.0%	--
X10C9400400	UCN-2109	--	--	40.0%	--

Attachment A

Evaluation of Combustible Data from Form UCN-2822 and UCN-2109

Container ID	Form	Total Vol. (Cu. Ft.)	Combust Vol. (Cu. Ft.)	Combustible Vol%	Type of Waste
X10C9801421	UCN-2109	--	--	75.0%	--
	UCN-2822				
	Average			**38.8%**	
	Min			**0.0%**	
	Max			**100.0%**	
	UCN-2109				
	Average			**42.7%**	
	Min			**25%**	
	Max			**75%**	
	Combined				
	Average			**39.0%**	

Attachment B

Waste Material Parameter Evaluation Using TWPC VE Data

			Waste Material Parameters (kg)											Packaging Materials			
CONTAINER ID	PARENT ID	Orig Facility	Fe-based alloys	Al-based alloys	Other metals	Other inorganic material	Cellulosics	Rubber	Plastics	Organic matrix	Inorganic matrix	Soils/ gravel	TOTAL	Iron-based alloys	Cellulosics	Plastics	TOTAL
X10C0501650	X10C9312391	9204-3	1.02	0.68			1.7		29.94	0.68			34.02	27.2	4	1.2	32.4
X10C0501673	X10C9400149	9204-3	15.76				0.58	0.5	4.07				20.91	27.2	3.8	1	32
X10C0501694	X10C9312262	9204-3	0.4			0.06	4.25	0.81	29.16				34.68	27	4	1	32
X10C0501721	X10C9312282	3047	25.87	5.16		17.18	1.71	1.57	15.62				67.11	27.2	4	1	32.2
X10C0501741	X10C9311479	3033A	8.28		0.28	2.29	1.65	1.2	10.14				23.84	27.2	4	1	32.2
X10C0501748	X10C9311475	9204-3	1.62				1.62		29.16				32.4	28	4	1	33
X10C0501810	X10C9400265	3028	2.21			3.66	9.19	4.99	3.2				23.25	27	4	1	32
X10C0501835	X10C9311139	3038	0.45	0.11			4.14	4.17	8.73				17.6	28.4	3.8	1	33.2
X10C0501588	X10C9311139	3038	29.58		0.25		11.74	0.46	1.43	1.04			44.5	27.2	4	1	32.2
X10C0501589	X10C9311139	3038	53.68				5.04		1.48				60.2	27.6	4	1	32.6
X10C0501590	X10C9311139	3038	32.89	5.12	5.12			2.03	30.44				75.6	27.8	4	1	32.8
X10C0501594	X10C9311139	3038	0.4				4.5	1.14	9.36				15.4	27.4	4	1	32.4
X10C0501595	X10C9311139	3038	45.24		2.44		4.88		2.44				55	27.2	4	1	32.2
X10C0501596	X10C9311139	3038	10.04				2.36	0.44	15.16				28	27.2	4	1.2	32.4
X10C0501597	X10C9311139	3038	0.78		0.27		5.8	6.3	7.85				21	27.2	4	1	32.2
X10C0501598	X10C9311139	3038	0.68				0.68	8.16	9.08				18.6	27.4	4	1	32.4
X10C0501599	X10C9311139	3038	0.6				0.6	10.8					12	27.2	4	1	32.2
X10C0501602	X10C9311139	3038	0.08				1.24	7.3	6.98				15.6	27.4	3.6	1	32
X10C0501603	X10C9311139	3038	7.18				1.84	1.54	16.64				27.2	27.4	4	1	32.4
X10C0501604	X10C9311139	3038	0.08				5.66	0.99	14.67				21.4	27.2	4	1	32.2
X10C0501605	X10C9311139	3038	3.02	0.77	0.19		6.76	4.5	15.96				31.2	27.2	4	1	32.2
X10C0501524	X10C9311139	3038	8.8				7.12		4.42	0.06			20.4	27.4	3.8	1	32.2
X10C0501525	X10C9311139	3038	0.8				7.36	2.71	6.93				17.8	27.4	4	1	32.4
X10C0501526	X10C9311139	3038	10.98				5.55	4.49	3.78				24.8	27.4	3.8	1	32.2
X10C0501529	X10C9311139	3038	22.01				7.15	3.19	6.45				38.8	27.4	4	1	32.4
X10C0501530A	X10C9311139	3038			47.63		3.72	3.8	4.45				59.6	27.8	3.8	1	32.6
X10C0501531	X10C9311139	3038	16.5		31.18		2.56	1.4	0.16				51.8	27.6	3.8	1	32.4
X10C0501532	X10C9311139	3038	45.76		4.16		0.49	3.69	4.1				58.2	27.6	4	1	32.6
X10C0501533	X10C9311139	3038	6	6	6.66		3.96	2.98	7.6				33.2	27.6	4	1	32.6
X10C0501534	X10C9311139	3038	20.7		0.46		6.84	2.22	0.33		2.05		32.6	27.6	3.8	1	32.4
X10C0501536	X10C9311139	3038	0.09	1.35	0.09		5.51	8.83	0.33				16.2	27.4	4	1	32.4
X10C0501838	X10C9311139	3038	0.09				8.45	4.03	13.83				26.4	24.4	3.8	1	29.2
X10C0501828	X10C9311139	3038	0.25				12.5	6.25	6				25	28.2	4	1	33.2
X10C0501539	X10C9311139	3038	0.48				20.55	0.48	9.69				31.2	27.6	4	1	32.6
X10C0501540	X10C9311139	3038					14.77	1.27	4.16				20.2	27.4	4	1	32.4
X10C0501541	X10C9311139	3038	2.18		8.48		4.18		4.16				19	27.4	3.8	1	32.2
Organic = 54.28%		**Sum**	**374.5**	**19.19**	**107.21**	**23.19**	**186.65**	**102.24**	**337.9**	**1.78**	**2.05**	**0**	**1154.71**				
Inorganic = 45.72%		**Wt%**	**32.43%**	**1.66%**	**9.28%**	**2.01%**	**16.16%**	**8.85%**	**29.26%**	**0.000%**	**0.33%**	**0.000%**	**100.00%**				

Attachment B

Waste Material Parameter Evaluation Using TWPC VE Data

	Waste Material Parameters (kg)									
CONTAINER ID	Fe-based alloys wt%	Al-based alloys wt%	Other metals wt%	Other inorganic material wt%	Cellulosics wt%	Rubber wt%	Plastics wt%	Organic matrix wt%	Inorganic matrix wt%	Soils/gravel wt%
X10C0501650	3.0%	2.0%	0.0%	0.0%	5.0%	0.0%	88.0%	2.0%	0.0%	0.0%
X10C0501673	75.4%	0.0%	0.0%	0.0%	2.8%	2.4%	19.5%	0.0%	0.0%	0.0%
X10C0501694	1.2%	0.0%	0.0%	0.2%	12.3%	2.3%	84.1%	0.0%	0.0%	0.0%
X10C0501721	38.5%	7.7%	0.0%	25.6%	2.5%	2.3%	23.3%	0.0%	0.0%	0.0%
X10C0501741	34.7%	0.0%	1.2%	9.6%	6.9%	5.0%	42.5%	0.0%	0.0%	0.0%
X10C0501748	5.0%	0.0%	0.0%	0.0%	5.0%	0.0%	90.0%	0.0%	0.0%	0.0%
X10C0501810	9.5%	0.0%	0.0%	15.7%	39.5%	21.5%	13.8%	0.0%	0.0%	0.0%
X10C0501835	2.6%	0.6%	0.0%	0.0%	23.5%	23.7%	49.6%	0.0%	0.0%	0.0%
X10C0501588	66.5%	0.0%	0.6%	0.0%	26.4%	1.0%	3.2%	2.3%	0.0%	0.0%
X10C0501589	89.2%	0.0%	0.0%	0.0%	8.4%	0.0%	2.5%	0.0%	0.0%	0.0%
X10C0501590	43.5%	6.8%	6.8%	0.0%	0.0%	2.7%	40.3%	0.0%	0.0%	0.0%
X10C0501594	2.6%	0.0%	0.0%	0.0%	29.2%	7.4%	60.8%	0.0%	0.0%	0.0%
X10C0501595	82.3%	0.0%	4.4%	0.0%	8.9%	0.0%	4.4%	0.0%	0.0%	0.0%
X10C0501596	35.9%	0.0%	0.0%	0.0%	8.4%	1.6%	54.1%	0.0%	0.0%	0.0%
X10C0501597	3.7%	0.0%	1.3%	0.0%	27.6%	30.0%	37.4%	0.0%	0.0%	0.0%
X10C0501598	3.7%	0.0%	0.0%	0.0%	3.7%	43.9%	48.8%	0.0%	0.0%	0.0%
X10C0501599	5.0%	0.0%	0.0%	0.0%	5.0%	90.0%	0.0%	0.0%	0.0%	0.0%
X10C0501602	0.5%	0.0%	0.0%	0.0%	7.9%	46.8%	44.7%	0.0%	0.0%	0.0%
X10C0501603	26.4%	0.0%	0.0%	0.0%	6.8%	5.7%	61.2%	0.0%	0.0%	0.0%
X10C0501604	0.4%	0.0%	0.0%	0.0%	26.4%	4.6%	68.6%	0.0%	0.0%	0.0%
X10C0501605	9.7%	2.5%	0.6%	0.0%	21.7%	14.4%	51.2%	0.0%	0.0%	0.0%
X10C0501524	43.1%	0.0%	0.0%	0.0%	34.9%	0.0%	21.7%	0.3%	0.0%	0.0%
X10C0501525	4.5%	0.0%	0.0%	0.0%	41.3%	15.2%	38.9%	0.0%	0.0%	0.0%
X10C0501526	44.3%	0.0%	0.0%	0.0%	22.4%	18.1%	15.2%	0.0%	0.0%	0.0%
X10C0501529	56.7%	0.0%	0.0%	0.0%	18.4%	8.2%	16.6%	0.0%	0.0%	0.0%
X10C0501530A	0.0%	0.0%	79.9%	0.0%	6.2%	6.4%	7.5%	0.0%	0.0%	0.0%
X10C0501531	31.9%	0.0%	60.2%	0.0%	4.9%	2.7%	0.3%	0.0%	0.0%	0.0%
X10C0501532	78.6%	0.0%	7.1%	0.0%	0.8%	6.3%	7.0%	0.0%	0.0%	0.0%
X10C0501533	18.1%	18.1%	20.1%	0.0%	11.9%	9.0%	22.9%	0.0%	0.0%	0.0%
X10C0501534	63.5%	0.0%	1.4%	0.0%	21.0%	6.8%	1.0%	0.0%	6.3%	0.0%
X10C0501536	0.6%	8.3%	0.6%	0.0%	34.0%	54.5%	2.0%	0.0%	0.0%	0.0%
X10C0501838	0.3%	0.0%	0.0%	0.0%	32.0%	15.3%	52.4%	0.0%	0.0%	0.0%
X10C0501828	1.0%	0.0%	0.0%	0.0%	50.0%	25.0%	24.0%	0.0%	0.0%	0.0%
X10C0501539	1.5%	0.0%	0.0%	0.0%	65.9%	1.5%	31.1%	0.0%	0.0%	0.0%
X10C0501540	0.0%	0.0%	0.0%	0.0%	73.1%	6.3%	20.6%	0.0%	0.0%	0.0%
X10C0501541	11.5%	0.0%	44.6%	0.0%	22.0%	0.0%	21.9%	0.0%	0.0%	0.0%
MIN	**0.000%**	**0.000%**	**0.000%**	**0.000%**	**0.000%**	**0.000%**	**0.000%**	**0.000%**	**0.000%**	**0.000%**
MAX	**89.17%**	**18.07%**	**79.92%**	**25.60%**	**73.12%**	**90.00%**	**90.00%**	**2.34%**	**6.29%**	**0.000%**

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Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging

Site(s): Oak Ridge National Laboratory

Waste Stream Description: Immobilized liquids and fines waste from Nuclear Fuel Services, Inc.

Container ID Numbers: See CCP-TP-005, Attachment 8 for containers in this waste stream

Waste Stream Number: OR-NFS-CH-HOM-A	
Physical Waste Form (e.g., debris, solidified waste)	Homogeneous solids
Summary Category Group [a]	S3000
Waste Matrix Code Group [a]	Solidified Organics and Inorganics
Waste Matrix Code [b]	S3900
Waste Material Parameter Weights [c]	Estimated Waste Stream Weight Percent Average (attach evaluation justifying percentages)
Iron-based metals/alloys	6.1%
Aluminum-based metals/alloys	0%
Other metals	0%
Other inorganic materials	0%
Cellulosics	0%
Rubber	0%
Plastics (waste materials)	12.2%
Organic matrix	9.8%
Inorganic matrix	71.9%
Soils/Gravels	0%
Packaging Materials	Present (Y/N)?
Steel	Y
Plastics	Y
Prohibited Wastes [d,e,f,g]	Present (Y/N)?
Observable liquid shall be no more than 1 percent by volume of the outermost container at the time of RTR or VE. Observable liquid shall be no more than 60 milliliters or 3 percent by volume, whichever is greater, in an internal container. Observable liquid shall not be present in a container with EPA HWN U134 assigned.	Y
Non-radionuclide pyrophoric materials	N
Sealed containers > 4 liters	N
Hazardous waste not occurring as co-contaminants with TRU mixed waste (non-mixed hazardous waste)	N

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Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging (continued)

Waste Stream Number: OR-NFS-CH-HOM-A	
Explosives	N
Compressed gases	N
Residual hydrofluoric acid (if U134 assigned to stream)	N
Residual PCB liquids [i]	N
Ignitables (EPA Hazardous Waste Number D001)	N
Corrosives (EPA Hazardous Waste Number D002)	N
Reactives (EPA Hazardous Waste Number D003)	N
Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes [h]	N
Spent Nuclear fuel or high-level waste [i]	N
Any un-vented plastic bags > 4 liters that have been heat-sealed	Y
Additional Information (if available)	N
Packaging	
Waste container type?	55-gallon drums (some include pipe components)
Liner type?	polyethylene drum liner bags
Is liner punctured?	N/A
Is filter vent installed?	Y
Maximum number of confinement layers	1

a. Source: *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (CCP-PO-001) Introduction.
b. Source: *Transuranic Waste Baseline Inventory Report* (DOE/CAO-95-1121) or DOE Waste Treatability Group Guidance (DOE/LLW-217). Note: the waste matrix code should not be assigned at the summary category group level.
c. Source: CCP-PO-001 – Table C3-1. Attach the Waste Material Parameter Evaluation Memorandum used to estimate values include in this Table (see Section 4.4.27).
d. Source: CCP-PO-001 – Section C-1c
e. Source: *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WAC)(DOE/WIPP-02-3122), Section 3
f. Source: *TRUPACT-II Content Codes* (TRUCON) (DOE/WIPP 89-004)
g. Source: *TRUPACT-II Authorized Methods for Payload Control (TRAMPAC), Nuclear Waste Partnership*, LLC
h. This waste has been approved for disposal at the WIPP by the Permittee as documented by Appendix C1 of the WIPP RCRA Part B Permit Application and the Permittee's approval and assignment of the applicable TRUCON Codes for this waste stream.
i. Source: *Nuclear Waste Policy Act of 1982* (42 U.S.C. 10101)
j. Source: Polychlorinated Biphenyls (PCBs) manufacturing, Processing, Distribution and Commerce, and Use Prohibitions (40 CFR 761)

Acceptable Knowledge Expert: Jeff Harrison / Jeff Harrison Date: 12/5/2013
Print Sign

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Not part of page count

To: CCP Records

Memorandum

From: Jeff Harrison, CCP AKE

Date: November 1, 2010

RE: Waste Material Parameter Analysis for Waste Stream OR-NFS-CH-HOM-A, Nuclear Fuel Services Contact-Handled Transuranic-Immobilized Liquids and Fines Stored at Oak Ridge National Laboratory

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In accordance to *CCP Acceptable Knowledge Documentation*, CCP-TP-005, Revision 19, Section 4.4.24, Waste Material Parameters (WMP) shall be estimated on a weight percent basis for the waste stream, documenting the assumptions and justification for deriving the estimated WMP.

Waste stream OR-NFS-CH-HOM-A is comprised of immobilized liquids, fines, and other high activity residual materials. Respirable fines were immobilized with Portland cement and water in 2-liter HDPE bottles, and dry absorbent was added to the top of the cured waste. Aqueous liquids were immobilized with RADSORB (organic polymer absorbent) in 2-liter HDPE bottles. Miscellaneous metals (e.g., sweepings, hardware) are contained throughout the RADSORB absorbent matrix. In addition, there are a couple of HDPE bottles containing very small quantities of scrap metal such as nuts and bolts with no absorbent.

Since this waste stream is a combination of inorganic and organic homogeneous solids, Waste Matrix Code S3900, Other Homogeneous Solids, is applied to this waste stream. The definition of this Waste Matrix Code is provided in the DOE Waste Treatability Group Guidance. This category includes waste that is consistent with the definition for the homogeneous solids (S3000) summary category, but does not meet the criteria specified for either of the inorganic homogeneous solids (S3100) or organic homogeneous solids (S3200) summary categories.

Each 2-liter HDPE bottle was bagged out of the glovebox in one 12-mil PVC bag and one 25-mil nylon reinforced polyethylene bag . Depending on the level of radioactivity, the bottles were placed into a plastic centering sleeve inside the 55-gallon drum or directly into the drum. If the drum was not completely filled, NFS may have completed a layer of bottles with wrapped empty 2-liter bottles. A RADPAD absorbent pad (cellulosic laminate containing an organic polymer) was placed in the bottom of the drum and the rigid liner. A polyethylene drum liner bag also may have been placed inside the rigid liner.

The bottles and plastic bags loaded directly into drums will be repackaged at the TWPC into a cardboard tube configuration. The bottles and plastic bags contained in a plastic centering sleeve may remain in this configuration or may be repackaged into the cardboard tube configuration.

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Waste Material Parameter Analysis for Waste Stream OR-NFS-CH-HOM-A, Revision 0

The waste material parameter weight estimates for waste stream OR-NFS-CH-HOM-A were derived from NFS container disposal paperwork, procedures, product information, and a review of previous WEAF RTR data.

NFS Form 28-001, *TRU Waste Data Package*, lists the gross weight and tare weight for each drum (Reference M003). The reported tare weights vary, and based on a review of the WEAF RTR data (Reference M126), it appears the tare weights include some of the inner packaging materials (e.g., rigid liner, plastic centering sleeve). It is assumed that the 2-liter HDPE bottles and heat-sealed bags are not included in the tare weight. The attached product information indicates a Nalgene® 2-liter HDPE wide-mouth bottle weighs 200 grams (0.44 lbs). The weight of a typical bag-out bag provided in RTR procedure CCP-TP-053 is 100 grams (0.22 lbs), and each HDPE bottle is contained in two plastic bag-out bags (0.44 lbs). The plastic bags and 2-liter HDPE bottles are included in the table as "plastics (waste materials)." For the purpose of estimating waste material parameter weights, other packaging materials are not included in the calculation.

The weight of the immobilized waste was calculated by summing the weights of the HDPE bottles and plastic bags and subtracting this total from the net weight of each drum. The WEAF RTR was reviewed to determine the contents of each bottle and to estimate the volume utilization and the volume percentage of the different materials in each bottle (Reference M202). These percentages were converted to actual volumes and then to weights based on an assumed density (see below) for the different waste materials (i.e., grouted fines, RADSORB organic polymer absorbent, and miscellaneous metals).

According to the NFS procedure for segregation and immobilization of particulate fines (Reference P274), the amount of fines in a 2-liter HDPE bottle varied, and the amount of cement and water mixed with the fines varied depending on the amount of fines. The density of the fines material is unknown so the density of the immobilized fines cannot be calculated. Instead, a density of 2.403 is assumed which is the density of concrete with gravel and of wet mortar (see attached density data).

Review of the WEAF RTR data identified numerous 2-liter HDPE bottles containing miscellaneous metals throughout a transparent resin matrix. The metals identified by RTR include scrap, sweepings, hardware (e.g., nuts, bolts, washers), and hand tools (e.g., screwdriver, wrench). To estimate the weight of the metals, the density of iron (7.85) was used (see attached density data). Based on a comparison of the net weight of the waste to the calculated weights, it appears that the volume of metals was overestimated in the review of the WEAF RTR. The metal percentages were adjusted so that the net weights and calculated weights were more comparable. It is possible that other residual debris materials (e.g., paint chips, cheesecloth, gasket material, paper filter media) may be contained in the resin matrix, but cannot be identified by RTR due to their lower densities.

Waste Material Parameter Analysis for Waste Stream OR-NFS-CH-HOM-A, Revision 0

The consistency and density of the resin matrix observed in the WEAF RTR is consistent with an organic polymer absorbent, such as RADSORB, which is a solid, granular, cross-linked homopolymer, and was a common absorbent used by NFS. RADSORB has an average density of 0.62 and can absorb up to 250 times its weight in water and up to 30 times its weight in aqueous chemical solutions (Reference M011). However, based on the net weights of the waste, it doesn't appear as if the bottles contain anywhere near that amount of liquid.

As an example, the following describes how the weights were calculated for drum NFS0150:

- This drum has a gross weight of 119 lbs and a tare weight of 100 lbs so the net weight is 19 lbs. It is assumed that the 19 lbs consists of the bottles of waste and the heat-sealed bags.
- There are three bottles in this drum. Each bottle has an empty weight of 0.44 lbs and is contained in two heat-sealed bags (0.22 lbs ea.) so the total weight of plastic is 2.64 lbs [(0.44 x 3 bottles) + (0.22 x 6 bags).
- Bottle 1 was estimated by RTR to contain 70% RADSORB and 30% metal (by volume) and is 100% full. 122 in^3 x 0.70 x 0.0224 lbs/in^3 = 1.913 lbs RADSORB. 122 in^3 x 0.30 x 0.28 lbs/in^3 = 10.248 lbs metal. 0.88 (plastic) + 1.913 + 10.248 = 13.041 lbs total weight.
- Bottle 2 was estimated by RTR to contain 70% grouted fines and 20% RADSORB (by volume) and is 90% full. 122 in^3 x 0.70 x 0.0862 lbs/in^3 = 7.361 lbs grouted fines. 122 in^3 x 0.20 x 0.0224 lbs/in^3 = 0.547 lbs RADSORB. 0.88 (plastic) + 7.361 + 0.547 = 8.788 lbs total weight.
- Bottle 3 was estimated by RTR to contain 64% RADSORB and 16% metal (by volume) and is 80% full. 122 in^3 x 0.64 x 0.0224 lbs/in^3 = 1.749 lbs RADSORB. 122 in^3 x 0.16 x 0.28 lbs/in^3 = 5.466 lbs metal. 0.88 (plastic) + 1.749 + 5.466 = 8.095 lbs total weight.
- The sum of the three bottles is 29.924 lbs (13.041 + 8.788 + 8.095). The actual net weight is only 19 lbs. Bottle 1 was adjusted to 90% RADSORB and 10% metal, and Bottle 3 was adjusted to 75% RADSORB and 5% metal. This adjustment results in a total weight of 20.181 lbs which is only 6.2% heavier than 19 lbs.

Waste Stream OR-NFS-CH-HOM-A Waste Material Parameters

Waste Material Parameter	Weight Percent	Weight Percent Range
Aluminum-based Metal/Alloy	0%	0%
Iron-based Metal/Alloy	6.1%	0% – 57.3%
Other Metals/Alloy	0%	0%
Other Inorganic Materials	0%	0%
Cellulosics	0%	0%
Plastics (waste materials)	12.2%	10.4% – 32.8%
Rubber	0%	0%
Organic Matrix	9.8%	2.5% – 50.1%
Inorganic Matrix	71.9%	0% – 85.6%
Soils/Gravel	0%	0%

Bottle Specifications

Nominal Capacity	Description	Catalog Number	Approx. Item Capacity	Material	Color	Screw Closure Size/mm	Closure Cat. No.	I.D. Neck (mm/in.)	Ht. w/ Closure (mm/in.)	Ht. w/out Closure (mm/in.)	O.D. Bottle (mm/in.)
1 Liter (32 oz.)	Bottle, WM, Square	2114-0032	1,190	HDPE	Natural	63	71-2160-0830	63/2 1/16	181/7 1/16	176/6 15/16	95/3 3/4 Square
	Jar, Straight-Side, WM	DS2115-1000	1,075	PFA	Natural	120	—	111/4 3/8	132/5 3/16	130/5 1/32	107/4 7/32
	Jar, Straight-Side, WM	2116-1000	1,230	PC	Clear	120	71-2155-1200	112/4 7/16	151/5 15/16	130/5 1/8	112/4 7/16
	Jar, Straight-Side, WM	2117-1000	1,230	PMP	Clear	120	71-2185-1200	112/4 7/16	151/5 15/16	137/5 3/8	112/4 7/16
	Jar, Straight-Side, WM	2118-0032	1,230	PP	Natural	120	71-2155-1200	112/4 7/16	151/5 15/16	137/5 3/8	112/4 7/16
	Jar, Straight-Side, WM	2119-1000	1,230	PC	Grey	120	71-2155-1200	112/4 7/16	151/5 15/16	137/5 3/8	112/4 7/16
	Jar, Mason	2115-1000	1,200	PP	Natural	70	71-2154-0700	61/2 3/8	213/8 3/8	201/7 15/16	94/3 11/16
	Bottle, Heavy Duty	2125-1000	1,100	RDPE	Natural	53B	71-2160-0530	39/1 1/2	226/8 7/8	220/8 5/8	93/3 11/16
	Bottle, Heavy Duty	2126-1000	1,100	PP	Natural	53B	71-2160-0530	39/1 1/2	226/8 7/8	220/8 5/8	93/3 11/16
	Bottle, Env. Sample, WM	DS2155-0032	1,090	HDPE	Amber	63	71-2171-0630	52/2 1/16	199/7 13/16	195/7 11/16	91/3 5/8
	Bottle, Env. Sample, WM	2189-0032	1,090	HDPE	Natural	63	71-2150-0630	52/2 1/16	199/7 13/16	195/7 11/16	91/3 5/8
	Bottle, Fluorinated, WM	2197-0032	1,100	FLPE	Natural	63	71-2150-0630	52/2 1/16	199/7 13/16	195/7 11/16	91/3 5/8
	Bottle, PassPort, WM	2199-0032	1,100	HDPE	Natural	63	71-2150-0630	53/2 1/16	199/7 13/16	195/7 11/16	91/3 5/8
	Bottle, Large, NM	2205-0032	1,180	PC	Clear	38-430	71-2160-0384	27/1 1/16	221/8 3/4	217/8 1/2	99/3 7/8
	Carboy w/Tubulation	2302-0001	1,100	LDPE	Natural	38-430	71-2160-0384	27/1 1/16	216/8 1/2	213/8 3/8	91/3 5/8
	Bottle, Biotainer	2515-1000	1,200	PC	Lt. Blue	48	36-2515-0480	37/1 15/32	201/7 29/32	—	99/3 27/32 Square
1.5 Liter	Bottle, NM	2104-0048	1,560	HDPE	Natural	63	71-2150-0630	52/2 1/16	284/11 3/16	278/11	91/3 5/8
	Bottle, Low Particulate	382099-1000	1,100	HDPE	Natural	38-430	71-2160-0384	27/1 1/16	216/8 1/2	212/8 3/8	91/3 5/8
	Bottle, NM	1600-0064	2,200	FEP	Clear	38-430	71-2174-0384	25/1	245/9 5/8	239/9 7/16	121/4 3/4
	Bottle, Rect.	2007-0064	2,120	HDPE	Natural	63	71-2150-0630	51/2	242/9 1/2	234/9 3/16	152x64/6x3 3/16
	Bottle, Rect.	2008-0064	2,000	HDPE	Amber	63	71-2171-0630	51/2	242/9 1/2	234/9 3/16	152x64/6x3 3/16
	Bottle, Square	2015-2000	2,400	PC	Clear	53B	71-2160-0530	39/1 1/2	271/10 11/16	265/10 7/16	116/4 9/16
	Media Bottle, Stadis	2019-2000	2,400	PETG	Clear	53B	71-2161-0053	39/1 1/2	271/10 11/16	265/10 7/16	116/4 9/16
	Bottle, Fluorinated, NM	2097-0005	2,100	FLPE	Natural	38-430	—	27/1 1/16	250/9 13/16	246/9 11/16	120/4 3/4
	Bottle, WM	2100-0064	2,050	FEP	Clear	53	71-2174-0530	43/1 11/16	232/9 1/8	226/8	119/4 11/16
2 Liter (1/2 gal.)	Bottle, EP Tox, WM	2101-2000	2,300	FEP	Clear	100	—	89/3 1/2	241/9 1/2	235/9 1/4	119/4 11/16
	Jar, Mason	2115-2000	2,135	PP	Natural	70	71-2154-0700	61/2 3/8	244/9 5/8	235/9 1/4	119/4 11/16
	Bottle, Large, WM	2120-0005	2,140	HDPE	Natural	100	71-2150-1000	89/3 1/2	244/9 5/8	235/9 1/4	119/4 11/16
	Bottle, Large, WM	2121-0005	2,200	PP	Natural	100	71-2150-1000	89/3 1/2	244/9 5/8	235/9 1/4	120/4 3/4
	Bottle, Large, Fluorinated, WM	2124-0005	2,140	FLPE	Natural	100	71-2150-1000	89/3 1/2	244/9 5/8	235/9 1/4	120/4 3/4
	Bottle, Heavy Duty	2125-2000	2,200	HDPE	Natural	53B	71-2160-0530	39/1 1/2	260/10 1/4	254/10	119/4 11/16
	Bottle, Heavy Duty	2126-2000	2,200	PP	Natural	53B	71-2160-0530	39/1 1/2	260/10 1/4	254/10	119/4 11/16
	Bottle, NM	2202-0005	2,100	LDPE	Natural	38-430	71-2160-0384	25/1	249/9 13/16	244/9 5/8	121/4 3/4
	Bottle, NM	2203-0005	2,200	PP	Natural	38-430	71-2160-0384	25/1	249/9 13/16	244/9 5/8	121/4 3/4
	Bottle, Large, NM	2204-0005	2,100	PP	Amber	38-430	71-2171-0384	25/1	249/9 13/16	244/9 5/8	121/4 3/4
	Bottle, Large, NM	DS2205-0210	2,275	PC	Clear	38-430	71-2160-0384	25/1	249/9 13/16	244/9 5/8	121/4 3/4
	Carboy, w/Tubulation	2302-0005	2,100	LDPE	Natural	38-430	71-2160-0384	25/1	249/9 13/16	244/9 5/8	121/4 3/4
	Bottle, Biotainer	2515-2000	2,400	PC	Lt. Blue	48	36-2515-0480	36/1 13/32	265/10 7/16	—	116/4 9/16 Square
2.5 Liter (5/8 gal.)	Bottle, Large, NM	DS2205-0250	2,730	PC	Clear	38-430	71-2160-0384	25/1	296/11 5/8	290/11 7/16	121/4 3/4
3 Liter (1 gal.)	Jar, Mason	2115-3000	3,325	PP	Natural	70	71-2154-0700	61/2 3/8	348/13 11/16	336/13 1/4	155/6 1/8
	Bottle, Fluorinated, NM	2097-0010	4,160	FLPE	Natural	38-430	—	26/1 1/32	334/13 1/8	330/13	153/6
	Bottle, PassPort, NM	2099-0010	4,300	HDPE	Natural	38-430	71-2160-0384	27/1 1/16	334/13 1/8	330/13	153/6
	Bottle, Large, WM	2120-0010	4,200	HDPE	Natural	100	71-2150-1000	89/3 1/2	288/11 5/16	279/11	153/6
	Bottle, Large, WM	2121-0010	4,300	PP	Natural	100	71-2150-1000	89/3 1/2	288/11 5/16	279/11	153/6
	Bottle, Large, WM, Square	2122-0010	4,300	PP	Natural	100	71-2150-1000	89/3 1/2	282/11 1/8	277/10 15/16	142/5 5/8 Square
	Bottle, Large, WM, Square	2123-0010	4,300	HDPE	Natural	100	71-2150-1000	89/3 1/2	292/11 1/2	284/11 3/16	142/5 5/8 Square
4 Liter (1 gal.)	Bottle, Heavy Duty	2125-4000	4,100	HDPE	Natural	83B	71-2160-0830	65/2 9/16	338/13 5/16	327/12 7/8	155/6 1/8
	Bottle, Heavy Duty	2126-4000	4,100	PP	Natural	83B	71-2160-0830	65/2 9/16	338/13 5/16	327/12 7/8	155/6 1/8
	Bottle, NM	2202-0010	4,300	LDPE	Natural	38-430	71-2160-0384	25/1	333/13 1/8	328/12 15/16	152/6
	Bottle, NM	2203-0010	4,400	PP	Natural	38-430	71-2160-0384	25/1	333/13 1/8	328/12 15/16	152/6
	Bottle, Large, NM	2204-0010	4,300	PP	Amber	38-430	71-2171-0384	25/1	333/13 1/8	328/12 15/16	152/6
	Bottle, Large, NM	DS2205-0010	4,500	PC	Clear	38-430	71-2160-0384	25/1	333/13 1/8	328/12 15/16	152/6
	Jug, w/Handle	2220-0010	4,000	LDPE	Natural	38-430	71-2160-0384	25/1	304/11 15/16	301/11 7/8	152/6
	Jug, w/Handle	2221-0010	4,100	PP	Natural	38-430	71-2160-0384	25/1	304/11 15/16	301/11 7/8	152/6
	Carboy, w/Tubulation	2302-0010	4,200	LDPE	Natural	38-430	71-2160-0384	25/1	333/12 15/16	328/13	152/6
	Carboy, w/Spigot	2318-0010	3,800	LDPE	Natural	38-430	71-2160-0384	28/1 1/32	335/13 3/16	330/13	154/6 1/8
	Bottle, Biotainer (Jug)	2589-4000	3,900	HDPE	Natural	38	—	28/1 7/64	299/11 49/64	—	143/5 5/8 Square
	Bottle, Biotainer (Jug)	2589-4999	3,900	HDPE	Natural	38	—	28/1 7/64	299/11 49/64	—	143/5 5/8 Square
	Bottle, Biotainer (Jug)	342589-4000	3,900	HDPE	Natural	38	—	28/1 7/64	299/11 49/64	—	143/5 5/8 Square

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* I called this phone number and asked what the empty weight of this bottle is. They said the nominal weight of this bottle is 200 g.

Chromic acid, flake	1201
Chromium	6856
Chromium ore	2162
Cinders, furnace	913
Cinders, Coal, ash	641
Clay, dry excavated	1089
Clay, wet excavated	1826
Clay, dry lump	1073
Clay, fire	1362
Clay, wet lump	1602
Clay, compacted	1746
Clover seed	769
Coal, Anthracite, solid	1506
Coal, Anthracite, broken	1105
Coal, Bituminous, solid	1346
Coal, Bituminous, broken	833
Cobaltite (cobolt ore)	6295
Coconut, meal	513
Coconut, shredded	352
Coffee, fresh beans	561
Coffee, roast beans	432
Coke	570- 650
Concrete, Asphalt	2243
Concrete, Gravel	2403
Concrete, Limestone with Portland	2371
Copper ore	1940-2590
Copper sulfate, ground	3604
Copra, medium size	529
Copra, meal, ground	641
Copra, expeller cake ground	513
Copra, expeller cake chopped	465
Cork, solid	240
Cork, ground	160
Corn, on the cob	721
Corn, shelled	721
Corn, grits	673
Cottonseed, dry, de-linted	561
Cottonseed, dry, not de-linted	320
Cottonseed, cake, lumpy	673
Cottonseed, hulls	192
Cottonseed, meal	593
Cottonseed, meats	641
Cottonwood	416
Cryolite	1602

Magnesite, solid	3011
Magnesium oxide	1940
Magnesium sulphate, crystal	1121
Magnetite, solid (iron ore)	5046
Magnetite, broken	3284
Malachite (copper ore)	3750 - 3960
Malt	336
Manganese, solid	7609
Manganese oxide	1922
Manure	400
Marble, solid	2563
Marble, broken	1570
Marl, wet, excavated	2243
Mica, solid	2883
Mica, broken	1602
Mica - flake	520
Mica - powder	986
Milk, powdered	449
Molybdenum ore	1600
Mortar, wet	2403
Mud, packed	1906
Mud, fluid	1730
Nickel ore	1600
Nickel, rolled	8666
Nickel silver	8442
Nitric acid, 91%	1506
Nitrogen	1.26
Oak, red	705
Oats	432
Oats, rolled	304
Oil cake	785
Oil, linseed	942
Oil, petroleum	881
Oxygen	1.43
Oyster shells, ground	849
Paper, standard	1201
Peanuts, shelled	641
Peanuts, not shelled	272
Peat, dry	400
Peat, moist	801
Peat, wet	1121
Pecan wood	753
Phosphate rock, broken	1762
Phosphorus	2339

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specific gravity of metals

Density of Metals.

Unit Conversion Tool - download here for your server, PC or laptop?

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The mass of over 30 different metals and alloys are listed below. While the data is useful for design, individual samples will differ. Impurities will often have an influence.

A 1000kg of pure water = 1 cubic metre. Pure water was chosen as the 'base line' for specific gravity and given the value of 1. The specific gravity of all other materials are compared to water as a fraction heavier or lighter density. For example, beryllium has a specific gravity (sg) of 1.84 (1840 kg/cu. m) (see table below)
As specific gravity is just a comparison, it can be applied across any units. The density of pure water is also 62.4 lbs/cu.ft (pounds per cubic foot) and if we know that a sample of alumimium has a sg of 2.5 then we can calculate that its density is 2.5 x 62.4 = 156 lbs/cu.ft.
Note, kg/cu.m divided by 16.02 = lbs/cu.ft

[go back to density of materials home page] [density of wood] [density of liquids] [density of water]

Metal or alloy	kg/cu.m
aluminium - melted	2560 - 2640
aluminium bronze (3-10% Al)	7700 - 8700
aluminium foil	2700 -2750
antifriction metal	9130 -10600
beryllium	1840
beryllium copper	8100 - 8250
brass - casting	8400 - 8700
brass - rolled and drawn	8430 - 8730
bronze - lead	7700 - 8700
bronze - phosphorous	8780 - 8920
bronze (8-14% Sn)	7400 - 8900
cast iron	6800 - 7800
cobolt	8746
copper	8930
delta metal	8600
electrum	8400 - 8900
gold	19320
iron	7850
lead	11340
light alloy based on Al	2560 - 2800
light alloy based on Mg	1760 - 1870
magnesium	1738
mercury	13593
molybdenum	10188
monel	8360 - 8840

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Waste Stream OR-NFS-CH-HOM-A

Waste Material Parameter Weight Calculations

CONTAINER ID	Gross (lbs)	Tare (lbs)	Net (lbs)	Bottle #	Heat-Sealed Bag Wt (lbs)	2-L Bottle Wt (lbs)	Grout Fill %	RADSORB Fill %	Metal Fill %	Grout Vol (in3)	RADSORB Vol (in3)	Metal Vol (in3)	Grout Wt (lbs)	RADSORB Wt (lbs)	Metal Wt (lbs)	Plastic Wt (lbs)	Total Wt (lbs)	Inorganic Matrix Wt%	Organic Matrix Wt%	Iron-based Metal Wt%	Plastic Wt%	Actual Plastic Wt%	Plastic Wt% Diff	Net Wt Diff
NFS0107	100	84	16	1	0.44	0.44	0.40	0.10	0.00	48.8	12.2	0	4.207	0.273	0.000	0.88	5.360							
NFS0107				2	0.44	0.44	0.60	0.00	0.00	73.2	0	0	6.310	0.000	0.000	0.88	7.190							
NFS0107				3	0.44	0.44	0.60	0.10	0.00	73.2	12.2	0	6.310	0.273	0.000	0.88	7.463							
NFS0107 Total			**16**		**1.32**	**1.32**							**16.826**	**0.547**	**0.000**	**2.64**	**20.013**	**84.08%**	**2.73%**	**0.00%**	**13.19%**	**16.5%**	**3.3%**	**25%**
NFS0148	121	100	21	1	0.44	0.44	0.00	0.90	0.10	0	109.8	12.2	0.000	2.460	3.416	0.88	6.756							
NFS0148				2	0.44	0.44	0.75	0.25	0.00	91.5	30.5	0	7.887	0.683	0.000	0.88	9.451							
NFS0148				3	0.44	0.44	0.00	0.90	0.10	0	109.8	12.2	0.000	2.460	3.416	0.88	6.756							
NFS0148 Total			**21**		**1.32**	**1.32**							**7.887**	**5.602**	**6.832**	**2.64**	**22.962**	**34.35%**	**24.40%**	**29.75%**	**11.50%**	**12.6%**	**1.1%**	**9%**
NFS0149	122	100	22	1	0.44	0.44	0.80	0.20	0.00	97.6	24.4	0	8.413	0.547	0.000	0.88	9.840							
NFS0149				2	0.44	0.44	0.70	0.30	0.00	85.4	36.6	0	7.361	0.820	0.000	0.88	9.061							
NFS0149				3	0.44	0.44	0.00	0.95	0.05	0	115.9	6.1	0.000	2.596	1.708	0.88	5.184							
NFS0149 Total			**22**		**1.32**	**1.32**							**15.775**	**3.963**	**1.708**	**2.64**	**24.085**	**65.50%**	**16.45%**	**7.09%**	**10.96%**	**12.0%**	**1.0%**	**9%**
NFS0150	119	100	19	1	0.44	0.44	0.00	0.90	0.10	0	109.8	12.2	0.000	2.460	3.416	0.88	6.756							
NFS0150				2	0.44	0.44	0.70	0.20	0.00	85.4	24.4	0	7.361	0.547	0.000	0.88	8.788							
NFS0150				3	0.44	0.44	0.00	0.75	0.05	0	91.5	6.1	0.000	2.050	1.708	0.88	4.638							
NFS0150 Total			**19**		**1.32**	**1.32**							**7.361**	**5.056**	**5.124**	**2.64**	**20.181**	**36.48%**	**25.05%**	**25.39%**	**13.08%**	**13.9%**	**0.8%**	**6%**
NFS0151	121	100	21	1	0.44	0.44	0.75	0.25	0.00	91.5	30.5	0	7.887	0.683	0.000	0.88	9.451							
NFS0151				2	0.44	0.44	0.00	0.95	0.05	0	115.9	6.1	0.000	2.596	1.708	0.88	5.184							
NFS0151				3	0.44	0.44	0.60	0.40	0.00	73.2	48.8	0	6.310	1.093	0.000	0.88	8.283							
NFS0151 Total			**21**		**1.32**	**1.32**							**14.197**	**4.372**	**1.708**	**2.64**	**22.918**	**61.95%**	**19.08%**	**7.45%**	**11.52%**	**12.6%**	**1.1%**	**9%**
NFS0478	121	100	21	1	0.44	0.44	0.70	0.20	0.00	85.4	24.4	0	7.361	0.547	0.000	0.88	8.788							
NFS0478				2	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0478				3	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0478 Total			**21**		**1.32**	**1.32**							**19.981**	**1.366**	**0.000**	**2.64**	**23.988**	**83.30%**	**5.70%**	**0.00%**	**11.01%**	**12.6%**	**1.6%**	**14%**
NFS0479	123	100	23	1	0.44	0.44	0.55	0.15	0.00	67.1	18.3	0	5.784	0.410	0.000	0.88	7.074							
NFS0479				2	0.44	0.44	0.70	0.20	0.00	85.4	24.4	0	7.361	0.547	0.000	0.88	8.788							
NFS0479				3	0.44	0.44	0.60	0.40	0.00	73.2	48.8	0	6.310	1.093	0.000	0.88	8.283							
NFS0479 Total			**23**		**1.32**	**1.32**							**19.455**	**2.050**	**0.000**	**2.64**	**24.145**	**80.58%**	**8.49%**	**0.00%**	**10.93%**	**11.5%**	**0.5%**	**5%**
NFS0481	122	100	22	1	0.44	0.44	0.60	0.10	0.00	73.2	12.2	0	6.310	0.273	0.000	0.88	7.463							
NFS0481				2	0.44	0.44	0.60	0.30	0.00	73.2	36.6	0	6.310	0.820	0.000	0.88	8.010							
NFS0481				3	0.44	0.44	0.60	0.20	0.00	73.2	24.4	0	6.310	0.547	0.000	0.88	7.736							
NFS0481 Total			**22**		**1.32**	**1.32**							**18.930**	**1.640**	**0.000**	**2.64**	**23.209**	**81.56%**	**7.06%**	**0.00%**	**11.37%**	**12.0%**	**0.6%**	**5%**
NFS0506	270	85	185	1	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				2	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				3	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				4	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				5	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				6	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				7	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				8	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				9	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				10	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				11	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				12	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				13	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				14	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				15	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				16	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				17	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							

Waste Stream OR-NFS-CH-HOM-A
Waste Material Parameter Weight Calculations

CONTAINER ID	Gross (lbs)	Tare (lbs)	Net (lbs)	Bottle #	Heat-Sealed Bag Wt (lbs)	2-L Bottle Wt (lbs)	Grout Fill %	RADSORB Fill %	Metal Fill %	Grout Vol (in3)	RADSORB Vol (in3)	Metal Vol (in3)	Grout Wt (lbs)	RADSORB Wt (lbs)	Metal Wt (lbs)	Plastic Wt (lbs)	Total Wt (lbs)	Inorganic Matrix Wt%	Organic Matrix Wt%	Iron-based Metal Wt%	Plastic Wt%	Actual Plastic Wt%	Plastic Wt% Diff	Net Wt Diff
NFS0506				18	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				19	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				20	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				21	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				22	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				23	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				24	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				25	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				26	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				27	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506				28	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0506 Total			**185**		**12.32**	**12.32**																		
NFS0507	274	85	189	1	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				2	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				3	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				4	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				5	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				6	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				7	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				8	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				9	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				10	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				11	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				12	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				13	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				14	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				15	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				16	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				17	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				18	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				19	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				20	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				21	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				22	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				23	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				24	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				25	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				26	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				27	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507				28	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0507 Total			**189**		**12.32**	**12.32**							**176.676**	**11.478**	**0.000**	**24.64**	**212.793**	**83.03%**	**5.39%**	**0.00%**	**11.58%**	**13.3%**	**1.7%**	**15%**
NFS0508	187	85	102	1	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508				2	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508				3	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508				4	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508				5	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508				6	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508				7	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508				8	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							

Waste Stream OR-NFS-CH-HOM-A

Waste Material Parameter Weight Calculations

CONTAINER ID	Gross (lbs)	Tare (lbs)	Net (lbs)	Bottle #	Heat-Sealed Bag Wt (lbs)	2-L Bottle Wt (lbs)	Grout Fill %	RADSORB Fill %	Metal Fill %	Grout Vol (in3)	RADSORB Vol (in3)	Metal Vol (in3)	Grout Wt (lbs)	RADSORB Wt (lbs)	Metal Wt (lbs)	Plastic Wt (lbs)	Total Wt (lbs)	Inorganic Matrix Wt%	Organic Matrix Wt%	Iron-based Metal Wt%	Plastic Wt%	Actual Plastic Wt%	Plastic Wt% Diff	Net Wt Diff
NFS0508				9	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508				10	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508				11	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508				12	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508				13	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0508 Total			**102**		**5.72**	**5.72**							**82.028**	**5.329**	**0.000**	**11.44**	**98.797**	**83.03%**	**5.39%**	**0.00%**	**11.58%**	**11.2%**	**-0.4%**	**-3%**
NFS0591	251	85	166	1	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				2	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				3	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				4	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				5	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				6	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				7	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				8	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				9	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				10	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				11	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				12	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				13	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				14	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				15	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				16	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				17	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				18	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				19	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				20	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				21	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				22	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				23	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				24	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				25	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				26	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				27	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591				28	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0591 Total			**166**		**12.32**	**12.32**							**176.676**	**11.478**	**0.000**	**24.64**	**212.793**	**83.03%**	**5.39%**	**0.00%**	**11.58%**	**14.8%**	**3.3%**	**28%**
NFS0592	178	85	93	1	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				2	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				3	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				4	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				5	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				6	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				7	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				8	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				9	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				10	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				11	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				12	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				13	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0592				14	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							

Waste Stream OR-NFS-CH-HOM-A

Waste Material Parameter Weight Calculations

CONTAINER ID	Gross (lbs)	Tare (lbs)	Net (lbs)	Bottle #	Heat-Sealed Bag Wt (lbs)	2-L Bottle Wt (lbs)	Grout Fill %	RADSORB Fill %	Metal Fill %	Grout Vol (in3)	RADSORB Vol (in3)	Metal Vol (in3)	Grout Wt (lbs)	RADSORB Wt (lbs)	Metal Wt (lbs)	Plastic Wt (lbs)	Total Wt (lbs)	Inorganic Matrix Wt%	Organic Matrix Wt%	Iron-based Metal Wt%	Plastic Wt%	Actual Plastic Wt%	Plastic Wt% Diff	Net Wt Diff
NFS0592 Total			93		6.16	6.16							88.338	5.739	0.000	12.32	106.397	83.03%	5.39%	0.00%	11.58%	13.2%	1.7%	14%
NFS0593	110	103	7	1	0.44	0.44	0.00	0.00	0.05	0	0	6.1	0.000	0.000	1.708	0.88	2.588							
NFS0593				2	0.44	0.44	0.00	0.95	0.05	0	115.9	6.1	0.000	2.596	1.708	0.88	5.184							
NFS0593 Total			7		0.88	0.88							0.000	2.596	3.416	1.76	7.772	0.00%	33.40%	43.95%	22.64%	25.1%	2.5%	11%
NFS0594	114	103	11	1	0.44	0.44	0.00	0.95	0.05	0	115.9	6.1	0.000	2.596	1.708	0.88	5.184							
NFS0594				2	0.44	0.44	0.00	0.90	0.10	0	109.8	12.2	0.000	2.460	3.416	0.88	6.756							
NFS0594 Total			11		0.88	0.88							0.000	5.056	5.124	1.76	11.940	0.00%	42.34%	42.92%	14.74%	16.0%	1.3%	9%
NFS0673	113	103	10	1	0.44	0.44	0.00	0.95	0.05	0	115.9	6.1	0.000	2.596	1.708	0.88	5.184							
NFS0673				2	0.44	0.44	0.00	0.95	0.05	0	115.9	6.1	0.000	2.596	1.708	0.88	5.184							
NFS0673 Total			10		0.88	0.88							0.000	5.192	3.416	1.76	10.368	0.00%	50.08%	32.95%	16.97%	17.6%	0.6%	4%
NFS0674	108	103	5	1	0.44	0.44	0.00	0.07	0.03	0	8.54	3.66	0.000	0.191	1.025	0.88	2.096							
NFS0674				2	0.44	0.44	0.00	0.25	0.05	0	30.5	6.1	0.000	0.683	1.708	0.88	3.271							
NFS0674 Total			5		0.88	0.88							0.000	0.874	2.733	1.76	5.367	0.00%	16.29%	50.92%	32.79%	35.2%	2.4%	7%
NFS0753	102	85	17	1	0.44	0.44	0.00	0.95	0.05	0	115.9	6.1	0.000	2.596	1.708	0.88	5.184							
NFS0753				2	0.44	0.44	0.50	0.10	0.00	61	12.2	0	5.258	0.273	0.000	0.88	6.411							
NFS0753				3	0.44	0.44	0.00	0.90	0.10	0	109.8	12.2	0.000	2.460	3.416	0.88	6.756							
NFS0753 Total			17		1.32	1.32							5.258	5.329	5.124	2.64	18.351	28.65%	29.04%	27.92%	14.39%	15.5%	1.1%	8%
NFS0754	94	85	9	1	0.44	0.44	0.00	0.07	0.03	0	8.54	3.66	0.000	0.191	1.025	0.88	2.096							
NFS0754				2	0.44	0.44	0.00	0.07	0.03	0	8.54	3.66	0.000	0.191	1.025	0.88	2.096							
NFS0754				3	0.44	0.44	0.40	0.10	0.00	48.8	12.2	0	4.207	0.273	0.000	0.88	5.360							
NFS0754 Total			9		1.32	1.32							4.207	0.656	2.050	2.64	9.552	44.04%	6.87%	21.46%	27.64%	29.3%	1.7%	6%
NFS0755	104	85	19	1	0.44	0.44	0.50	0.10	0.00	61	12.2	0	5.258	0.273	0.000	0.88	6.411							
NFS0755				2	0.44	0.44	0.60	0.00	0.00	73.2	0	0	6.310	0.000	0.000	0.88	7.190							
NFS0755				3	0.44	0.44	0.70	0.10	0.00	85.4	12.2	0	7.361	0.273	0.000	0.88	8.515							
NFS0755 Total			19		1.32	1.32							18.930	0.547	0.000	2.64	22.116	85.59%	2.47%	0.00%	11.94%	13.9%	2.0%	16%
NFS0757	102	83	19	1	0.44	0.44	0.00	0.80	0.10	0	97.6	12.2	0.000	2.186	3.416	0.88	6.482							
NFS0757				2	0.44	0.44	0.00	0.90	0.10	0	109.8	12.2	0.000	2.460	3.416	0.88	6.756							
NFS0757				3	0.44	0.44	0.00	0.90	0.10	0	109.8	12.2	0.000	2.460	3.416	0.88	6.756							
NFS0757 Total			19		1.32	1.32							0.000	7.105	10.248	2.64	19.993	0.00%	35.54%	51.26%	13.20%	13.9%	0.7%	5%
NFS0758	104	83	21	1	0.44	0.44	0.00	0.85	0.05	0	103.7	6.1	0.000	2.323	1.708	0.88	4.911							
NFS0758				2	0.44	0.44	0.00	0.80	0.20	0	97.6	24.4	0.000	2.186	6.832	0.88	9.898							
NFS0758				3	0.44	0.44	0.70	0.10	0.00	85.4	12.2	0	7.361	0.273	0.000	0.88	8.515							
NFS0758 Total			21		1.32	1.32							7.361	4.782	8.540	2.64	23.324	31.56%	20.50%	36.61%	11.32%	12.6%	1.3%	11%
NFS0759	99	85	14	1	0.44	0.44	0.40	0.10	0.00	48.8	12.2	0	4.207	0.273	0.000	0.88	5.360							
NFS0759				2	0.44	0.44	0.00	0.85	0.05	0	103.7	6.1	0.000	2.323	1.708	0.88	4.911							
NFS0759				3	0.44	0.44	0.00	0.95	0.05	0	115.9	6.1	0.000	2.596	1.708	0.88	5.184							
NFS0759 Total			14		1.32	1.32							4.207	5.192	3.416	2.64	15.455	27.22%	33.60%	22.10%	17.08%	18.9%	1.8%	10%
NFS0776	102	84	18	1	0.44	0.44	0.75	0.15	0.00	91.5	18.3	0	7.887	0.410	0.000	0.88	9.177							
NFS0776				2	0.44	0.44	0.00	0.50	0.10	0	61	12.2	0.000	1.366	3.416	0.88	5.662							
NFS0776				3	0.44	0.44	0.00	0.40	0.10	0	48.8	12.2	0.000	1.093	3.416	0.88	5.389							
NFS0776 Total			18		1.32	1.32							7.887	2.869	6.832	2.64	20.229	38.99%	14.18%	33.77%	13.05%	14.7%	1.6%	12%
NFS0777	101	84	17	1	0.44	0.44	0.00	0.95	0.05	0	115.9	6.1	0.000	2.596	1.708	0.88	5.184							
NFS0777				2	0.44	0.44	0.70	0.10	0.00	85.4	12.2	0	7.361	0.273	0.000	0.88	8.515							
NFS0777				3	0.44	0.44	0.00	0.75	0.05	0	91.5	6.1	0.000	2.050	1.708	0.88	4.638							
NFS0777 Total			17		1.32	1.32							7.361	4.919	3.416	2.64	18.337	40.15%	26.83%	18.63%	14.40%	15.5%	1.1%	8%
NFS0786	95	83	12	1	0.44	0.44	0.00	0.58	0.02	0	70.76	2.44	0.000	1.585	0.683	0.88	3.148							
NFS0786				2	0.44	0.44	0.50	0.10	0.00	61	12.2	0	5.258	0.273	0.000	0.88	6.411							
NFS0786				3	0.44	0.44	0.25	0.05	0.00	30.5	6.1	0	2.629	0.137	0.000	0.88	3.646							
NFS0786 Total			12		1.32	1.32							7.887	1.995	0.683	2.64	13.205	59.73%	15.11%	5.17%	19.99%	22.0%	2.0%	10%

Waste Stream OR-NFS-CH-HOM-A

Waste Material Parameter Weight Calculations

CONTAINER ID	Gross (lbs)	Tare (lbs)	Net (lbs)	Bottle #	Heat-Sealed Bag Wt (lbs)	2-L Bottle Wt (lbs)	Grout Fill %	RADSORB Fill %	Metal Fill %	Grout Vol (in3)	RADSORB Vol (in3)	Metal Vol (in3)	Grout Wt (lbs)	RADSORB Wt (lbs)	Metal Wt (lbs)	Plastic Wt (lbs)	Total Wt (lbs)	Inorganic Matrix Wt%	Organic Matrix Wt%	Iron-based Metal Wt%	Plastic Wt%	Actual Plastic Wt%	Plastic Wt% Diff	Net Wt Diff
NFS0787	100	83	17	1	0.44	0.44	0.50	0.10	0.00	61	12.2	0	5.258	0.273	0.000	0.88	6.411							
NFS0787				2	0.44	0.44	0.00	0.95	0.05	0	115.9	6.1	0.000	2.596	1.708	0.88	5.184							
NFS0787				3	0.44	0.44	0.60	0.10	0.00	73.2	12.2	0	6.310	0.273	0.000	0.88	7.463							
NFS0787 Total			**17**		**1.32**	**1.32**							**11.568**	**3.143**	**1.708**	**2.64**	**19.059**	**60.70%**	**16.49%**	**8.96%**	**13.85%**	**15.5%**	**1.7%**	**12%**
NFS0788	167	87	80	1	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				2	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				3	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				4	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				5	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				6	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				7	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				8	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				9	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				10	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				11	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				12	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				13	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788				14	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0788 Total			**80**		**6.16**	**6.16**							**88.338**	**5.739**	**0.000**	**12.32**	**106.397**	**83.03%**	**5.39%**	**0.00%**	**11.58%**	**15.4%**	**3.8%**	**33%**
NFS0789	178	87	91	1	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				2	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				3	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				4	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				5	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				6	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				7	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				8	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				9	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				10	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				11	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				12	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				13	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789				14	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0789 Total			**91**		**6.16**	**6.16**							**88.338**	**5.739**	**0.000**	**12.32**	**106.397**	**83.03%**	**5.39%**	**0.00%**	**11.58%**	**13.5%**	**2.0%**	**17%**
NFS0804	102	83	19	1	0.44	0.44	0.00	0.80	0.10	0	97.6	12.2	0.000	2.186	3.416	0.88	6.482							
NFS0804				2	0.44	0.44	0.00	0.70	0.15	0	85.4	18.3	0.000	1.913	5.124	0.88	7.917							
NFS0804				3	0.44	0.44	0.00	0.80	0.10	0	97.6	12.2	0.000	2.186	3.416	0.88	6.482							
NFS0804 Total			**19**		**1.32**	**1.32**							**0.000**	**6.285**	**11.956**	**2.64**	**20.881**	**0.00%**	**30.10%**	**57.26%**	**12.64%**	**13.9%**	**1.3%**	**10%**
NFS0805	102	83	19	1	0.44	0.44	0.00	0.75	0.05	0	91.5	6.1	0.000	2.050	1.708	0.88	4.638							
NFS0805				2	0.44	0.44	0.00	0.80	0.10	0	97.6	12.2	0.000	2.186	3.416	0.88	6.482							
NFS0805				3	0.44	0.44	0.00	0.75	0.05	0	91.5	6.1	0.000	2.050	1.708	0.88	4.638							
NFS0805 Total			**19**		**1.32**	**1.32**							**0.000**	**6.285**	**6.832**	**2.64**	**15.757**	**0.00%**	**39.89%**	**43.36%**	**16.75%**	**13.9%**	**-2.9%**	**-17%**
NFS0806	97	83	14	1	0.44	0.44	0.00	0.00	0.03	0	0	3.66	0.000	0.000	1.025	0.88	1.905							
NFS0806				2	0.44	0.44	0.55	0.15	0.00	67.1	18.3	0	5.784	0.410	0.000	0.88	7.074							
NFS0806				3	0.44	0.44	0.55	0.15	0.00	67.1	18.3	0	5.784	0.410	0.000	0.88	7.074							
NFS0806 Total			**14**		**1.32**	**1.32**							**11.568**	**0.820**	**1.025**	**2.64**	**16.053**	**72.06%**	**5.11%**	**6.38%**	**16.45%**	**18.9%**	**2.4%**	**15%**
NFS0808	98	83	15	1	0.44	0.44	0.00	0.99	0.01	0	120.78	1.22	0.000	2.705	0.342	0.88	3.927							
NFS0808				2	0.44	0.44	0.30	0.10	0.00	36.6	12.2	0	3.155	0.273	0.000	0.88	4.308							
NFS0808				3	0.44	0.44	0.65	0.15	0.00	79.3	18.3	0	6.836	0.410	0.000	0.88	8.126							

Waste Stream OR-NFS-CH-HOM-A

Waste Material Parameter Weight Calculations

CONTAINER ID	Gross (lbs)	Tare (lbs)	Net (lbs)	Bottle #	Heat-Sealed Bag Wt (lbs)	2-L Bottle Wt (lbs)	Grout Fill %	RADSORB Fill %	Metal Fill %	Grout Vol (in3)	RADSORB Vol (in3)	Metal Vol (in3)	Grout Wt (lbs)	RADSORB Wt (lbs)	Metal Wt (lbs)	Plastic Wt (lbs)	Total Wt (lbs)	Inorganic Matrix Wt%	Organic Matrix Wt%	Iron-based Metal Wt%	Plastic Wt%	Actual Plastic Wt%	Plastic Wt% Diff	Net Wt Diff
NFS0808 Total			15		1.32	1.32							9.991	3.389	0.342	2.64	16.361	61.06%	20.71%	2.09%	16.14%	17.6%	1.5%	9%
NFS0865	123	100	23	1	0.44	0.44	0.00	0.85	0.15	0	103.7	18.3	0.000	2.323	5.124	0.88	8.327							
NFS0865				2	0.44	0.44	0.75	0.25	0.00	91.5	30.5	0	7.887	0.683	0.000	0.88	9.451							
NFS0865				3	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0865 Total			23		1.32	1.32							14.197	3.416	5.124	2.64	25.377	55.94%	13.46%	20.19%	10.40%	11.5%	1.1%	10%
NFS0879	128	105	23	1	0.44	0.44	0.00	0.85	0.15	0	103.7	18.3	0.000	2.323	5.124	0.88	8.327							
NFS0879				2	0.44	0.44	0.00	0.85	0.15	0	103.7	18.3	0.000	2.323	5.124	0.88	8.327							
NFS0879				3	0.44	0.44	0.70	0.15	0.00	85.4	18.3	0	7.361	0.410	0.000	0.88	8.651							
NFS0879 Total			23		1.32	1.32							7.361	5.056	10.248	2.64	25.305	29.09%	19.98%	40.50%	10.43%	11.5%	1.0%	10%
NFS0880	200	87	113	1	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				2	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				3	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				4	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				5	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				6	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				7	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				8	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				9	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				10	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				11	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				12	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				13	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880				14	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0880 Total			113		6.16	6.16							88.338	5.739	0.000	12.32	106.397	83.03%	5.39%	0.00%	11.58%	10.9%	-0.7%	-6%
NFS0926	145	91	54	1	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0926				2	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0926				3	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0926				4	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0926				5	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0926				6	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0926				7	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0926				8	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0926				9	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0926				10	0.44	0.44	0.60	0.15	0.00	73.2	18.3	0	6.310	0.410	0.000	0.88	7.600							
NFS0926 Total			54		4.40	4.40							63.098	4.099	0.000	8.80	75.998	83.03%	5.39%	0.00%	11.58%	16.3%	4.7%	41%
NFS0929	144	107	37	1	0.44	0.44	0.90	0.10	0.00	109.8	12.2	0	9.465	0.273	0.000	0.88	10.618							
NFS0929				2	0.44	0.44	0.00	0.99	0.01	0	120.78	1.22	0.000	2.705	0.342	0.88	3.927							
NFS0929				3	0.44	0.44	0.90	0.10	0.00	109.8	12.2	0	9.465	0.273	0.000	0.88	10.618							
NFS0929				4	0.44	0.44	0.90	0.10	0.00	109.8	12.2	0	9.465	0.273	0.000	0.88	10.618							
NFS0929				5	0.44	0.44	0.00	0.00	0.00	0	0	0	0.000	0.000	0.000	0.88	0.880							
NFS0929				6	0.44	0.44	0.00	0.95	0.05	0	115.9	6.1	0.000	2.596	1.708	0.88	5.184							
NFS0929				7	0.44	0.44	0.00	0.99	0.01	0	120.78	1.22	0.000	2.705	0.342	0.88	3.927							
NFS0929				8	0.44	0.44	0.00	0.99	0.01	0	120.78	1.22	0.000	2.705	0.342	0.88	3.927							
NFS0929				9	0.44	0.44	0.90	0.10	0.00	109.8	12.2	0	9.465	0.273	0.000	0.88	10.618							
NFS0929 Total			37		3.96	3.96							37.859	11.806	2.733	7.920	60.318	62.77%	19.57%	4.53%	13.13%	21.4%	8.3%	63%
Grand Total			1584		110.88	110.88							1304.6	178.7	110.3	221.8	1815.4	71.86%	9.845%	6.08%	12.22%			
																		Min -	0.00%	2.47%	0.00%	10.40%			
																		Max -	85.59%	50.08%	57.26%	32.79%			

Average of GF bottles in centering sleeve = 59.3% 15.8%
Use for GF bottles in direct-loaded drums = 60% 15%

Information from NFS Container Paperwork and WEAF RTR Observations

CONTAINER ID	WEAF RTR Tape	Package Date (M003)	# of Bottles	Screened	Immobilized	Vermiculite	Gross (lbs)	Tare (lbs)	Net (lbs)	Rigid Liner	Centering Sleeve	Sleeve Bracing	False Lid	Liquids Observed	Comp Gases Observed	Vent Hole Observed
NFS0107	NFS-101A	9/21/1993	3	Y	Y	N/A	100	84	16	N	Y	N	N	N	N	Y
NFS0148	NFS-035A	8/13/1993	3	Y	Y	Y	121	100	21	Y	Y	Y	N	N	N	Y
NFS0149	NFS-038A	8/13/1993	3	Y	Y	Y	122	100	22	Y	Y	Y	N	N	N	Y
NFS0150	NFS-041A	8/13/1993	3	Y	Y	N/A	119	100	19	Y	Y	Y	N	N	N	Y
NFS0151	NFS-036A	8/13/1993	3	Y	Y	Y	121	100	21	Y	Y	Y	N	N	N	Y
NFS0478	NFS-075A	7/9/1993	3	Y	Y	N/A	121	100	21	Y	Y	Y	N	N	N	Y
NFS0479	NFS-087A	7/9/1993	3	Y	Y	N/A	123	100	23	Y	Y	Y	N	N	N	Y
NFS0481	NFS-086A	7/9/1993	3	Y	Y	N/A	122	100	22	Y	Y	Y	N	N	N	Y
NFS0506	NFS-040A	8/15/1993	28	Y	Y	Y	270	85	185	Y	N	N	Y	N	N	Y
NFS0507	NFS-039A	8/15/1993	28	Y	Y	N/A	274	85	189	Y	N	N	Y	N	N	Y
NFS0508	NFS-035A	8/15/1993	13	Y	Y	Y	187	85	102	Y	N	N	Y	N	N	Y
NFS0591	NFS-043A	8/31/1993	28	Y	Y	Y (Radsorb)	251	85	166	Y	N	N	Y	N	N	Y
NFS0592	NFS-042A	8/31/1993	14	Y	Y	Y (Radsorb)	178	85	93	Y	N	N	Y	N	N	Y
NFS0593	NFS-045A	8/31/1993	2	Y	Y	N/A	110	103	7	Y	Y	Y	N	N	N	Y
NFS0594	NFS-045A	8/31/1993	2	Y	Y	N/A	114	103	11	Y	Y	Y	N	N	N	Y
NFS0673	NFS-055A	9/3/1993	2	Y	Y	Y	113	103	10	Y	Y	Y	N	N	N	Y
NFS0674	NFS-050A	9/3/1993	2	Y	Y	N/A	108	103	5	Y	Y	Y	N	N	N	Y
NFS0753	NFS-065A	9/17/1993	3	Y	Y	N/A	102	85	17	N	Y	N	N	N	N	Y
NFS0754	NFS-065A	9/17/1993	3	Y	Y	N/A	94	85	9	N	Y	N	N	N	N	Y
NFS0755	NFS-058A	9/17/1993	3	Y	Y	N/A	104	85	19	N	Y	N	N	N	N	Y
NFS0757	NFS-069A	9/17/1993	3	Y	Y	N/A	102	83	19	N	Y	N	N	N	N	Y
NFS0758	NFS-061A	9/17/1993	3	Y	Y	N/A	104	83	21	N	Y	N	N	N	N	Y
NFS0759	NFS-070A	9/17/1993	3	Y	Y	N/A	99	85	14	N	Y	N	N	N	N	Y
NFS0776	NFS-110A	9/18/1993	3	Y	Y	Y	102	84	18	N	Y	N	N	N	N	Y
NFS0777	NFS-085A	9/18/1993	3	Y	Y	N/A	101	84	17	N	Y	N	N	N	N	Y
NFS0786	NFS-103A	9/19/1993	3	Y	Y	Y	95	83	12	N	Y	N	N	N	N	Y
NFS0787	NFS-103A	9/19/1993	3	Y	Y	Y	100	83	17	N	Y	N	N	N	N	Y
NFS0788	NFS-105A	9/30/1993	14	Y	Y	Y	167	87	80	Y	N	N	Y	N	N	Y
NFS0789	NFS-148A	9/20/1993	14	Y	Y	N/A	178	87	91	Y	N	N	Y	N	N	Y
NFS0804	NFS-086A	9/18/1993	3	Y	Y	N/A	102	83	19	N	Y	N	N	N	N	Y
NFS0805	NFS-084A	9/18/1993	3	Y	Y	N/A	102	83	19	N	Y	N	N	N	N	Y
NFS0806	NFS-110A	9/18/1993	3	Y	Y	Y	97	83	14	N	Y	N	N	N	N	Y
NFS0808	NFS-099A	9/24/1993	3	Y	Y	N/A	98	83	15	N	Y	N	N	N	N	Y
NFS0865	NFS-126A	7/9/1993	3	Y	Y	N/A	123	100	23	Y	Y	Y	N	N	N	Y
NFS0879	NFS-134A	3/10/1994	3	Y	Y	N/A	128	105	23	Y	Y	Y	N	–	–	–
NFS0880	NFS-135A	3/21/1994	14	N/A	Y	N/A	200	87	113	Y	N	N	Y	–	–	–
NFS0926	NFS-169A	9/24/1993	10	Waste Certification Checklist missing			145	91	54	Y	N	N	Y	Y	N	Y
NFS0929	NFS-176A	3/10/1994	3	N/A	Y	N/A	144	107	37	Y	Y	Y	N	N	N	Y

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Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging

Site(s): Oak Ridge National Laboratory

Waste Stream Description: Contaminated soil from Nuclear Fuel Services, Inc.

Container ID Numbers: See CCP-TP-005, Attachment 8 for containers in this waste stream

Waste Stream Number: OR-NFS-CH-SOIL	
Physical Waste Form (e.g., debris, solidified waste)	Soil
Summary Category Group [a]	S4000
Waste Matrix Code Group [a]	Soils
Waste Matrix Code [b]	S4100
Waste Material Parameter Weights [c]	Estimated Waste Stream Weight Percent Average (attach evaluation justifying percentages)
Iron-based metals/alloys	0%
Aluminum-based metals/alloys	<0.1%
Other metals	0%
Other inorganic materials	0.1%
Cellulosics	<0.1%
Rubber	0.2%
Plastics (waste materials)	0%
Organic matrix	2.0%
Inorganic matrix	0.4%
Soils/Gravels	97.3%
Packaging Materials	Present (Y/N)?
Steel	Y
Plastics	Y
Prohibited Wastes [d,e,f,g]	Present (Y/N)?
Observable liquid shall be no more than 1 percent by volume of the outermost container at the time of RTR or VE. Observable liquid shall be no more than 60 milliliters or 3 percent by volume, whichever is greater, in an internal container. Observable liquid shall not be present in a container with EPA HWN U134 assigned.	Y
Non-radionuclide pyrophoric materials	N
Sealed containers > 4 liters	N
Hazardous waste not occurring as co-contaminants with TRU mixed waste (non-mixed hazardous waste)	N

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Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging (continued)

Waste Stream Number: OR-NFS-CH-SOIL

Explosives	N
Compressed gases	N
Residual hydrofluoric acid (if U134 assigned to stream)	N
Residual PCB liquids [j]	N
Ignitables (EPA Hazardous Waste Number D001)	N
Corrosives (EPA Hazardous Waste Number D002)	N
Reactives (EPA Hazardous Waste Number D003)	N
Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes [h]	N
Spent Nuclear fuel or high-level waste [i]	N
Any un-vented plastic bags > 4 liters that have been heat-sealed	N
Additional Information (if available)	N
Packaging	
Waste container type?	55-gallon drums
Liner type?	90-mil high-density polyethylene liners with or without liner lids and/or polyethylene drum liner bags
Is liner punctured?	Y (3/8-in. vent hole)
Is filter vent installed?	Y
Maximum number of confinement layers	2

a. Source: *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (CCP-PO-001) Introduction.
b. Source: *Transuranic Waste Baseline Inventory Report* (DOE/CAO-95-1121) or DOE Waste Treatability Group Guidance (DOE/LLW-217). Note: the waste matrix code should not be assigned at the summary category group level.
c. Source: CCP-PO-001 – Table C3-1. Attach the Waste Material Parameter Evaluation Memorandum used to estimate values include in this Table (see Section 4.4.27).
d. Source: CCP-PO-001 – Section C-1c
e. Source: *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WAC)(DOE/WIPP-02-3122), Section 3
f. Source: *TRUPACT-II Content Codes* (TRUCON) (DOE/WIPP 89-004)
g. Source: *TRUPACT-II Authorized Methods for Payload Control (TRAMPAC), Nuclear Waste Partnership*, LLC
h. This waste has been approved for disposal at the WIPP by the Permittee as documented by Appendix C1 of the WIPP RCRA Part B Permit Application and the Permittee's approval and assignment of the applicable TRUCON Codes for this waste stream.
i. Source: *Nuclear Waste Policy Act of 1982* (42 U.S.C. 10101)
j. Source: Polychlorinated Biphenyls (PCBs) manufacturing, Processing, Distribution and Commerce, and Use Prohibitions (40 CFR 761)

Acceptable Knowledge Expert: Jeff Harrison / [signature] Date: 1/16/2014
Print Sign

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Memorandum

To: CCP Records

From: Jeff Harrison, CCP AKE

Date: January 16, 2014

RE: Waste Material Parameter Analysis for Waste Stream OR-NFS-CH-SOIL, Nuclear Fuel Services Contact-Handled Transuranic Soil Stored at Oak Ridge National Laboratory, Revision 3

In accordance to *CCP Acceptable Knowledge Documentation*, CCP-TP-005, Revision 26, Section 4.4.26, Waste Material Parameters (WMP) shall be estimated on a weight percent basis for the waste stream, documenting the assumptions and justification for deriving the estimated WMP.

Waste stream OR-NFS-CH-SOIL is comprised of soil, rock, and gravel mixed with absorbent. Building 234 was underlain by sandy clay ranging in thickness from a few feet up to approximately 30 feet and clay mixed with gravel and rock (Reference P248). The soil was mixed with RADSORB absorbent powder which is a cross-linked homopolymer. Each drum contains 10 pounds of RADSORB (References M011, P315). A RADPAD absorbent pad (cellulosic laminate containing an organic polymer) was placed on top of the soil (References M011, U058). During the mixing process, the texture of the soils was changed to a semi-course to fine sand consistency (Reference U055).

Most of the soil (512 drums) was generated in the early-1990s. The waste disposal forms completed by NFS for these drums include a "TRU Waste Data Package" that has the gross weight and tare weight of each drum. The tare weight for these drums is 81 lbs. It is assumed that this tare weight includes the weight of the steel drum and 90-mil rigid liner which are not figured into the waste material parameter weights. The remaining soil (17 drums) was generated in 2001. The waste disposal forms completed by NFS for these drums include a "Radwaste Package Certification Record" that has the gross weight and tare weight of each drum (Reference M003). The tare weight for these drums is 58 lbs. It is assumed that this tare weight includes the weight of the steel drum (these drums do not contain 90-mil rigid liners). The net weight (gross minus tare) is assumed to be the plastic drum liner bag, RADSORB powder, RADPAD, and soil. A weight of 1.1 lbs (0.5 kg) is assigned to the plastic drum liner bag based on CCP-TP-053, CCP Standard Real-Time Radiography (RTR) Inspection Procedure. The weight of the RADSORB powder in each drum is assumed to be 10 lbs. (see previous paragraph). The weight of the RADPAD is 0.08 lbs. based on product information (Reference M011). The remaining weight is assumed to be soil.

Because the RADSORB absorbent powder is an organic polymer, it will be considered "organic matrix." RADPADS are cellulosic laminate containing an organic polymer and will be considered "cellulosics." The soil/absorbent mixture is contained in a plastic drum liner bag that is considered part of the waste and will be assigned to "plastic (waste materials)." This information combined with the weight of the waste from the waste disposal forms was used to

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estimate waste material parameter weight percentages as shown in the table below. Drum-specific data are included in Attachment 1.

Waste Stream OR-NFS-CH-SOIL Waste Material Parameters

Waste Material Parameter	Weight Percent	Weight Percent Range
Al based Metals/Alloys	0%	0%
Fe Based Metals/Alloys	0%	0%
Other Metals/Alloys	0%	0%
Other Inorganic Materials	0%	0%
Cellulosics	0.02%	0.01% – 0.11%
Plastics (waste materials)	0.2%	0.1 – 1.5%
Rubber	0%	0%
Organic Matrix	2.0%	1.5 – 13.6% [1,2]
Inorganic Matrix	0%	0%
Soils/Gravel	97.7%	84.9 – 98.3%

Notes:

1. Since RTR cannot distinguish the soil from the absorbent, and soil is the predominant waste material parameter, RTR will assign "Soils/Gravel" to the soil/absorbent mixture.
2. The 13.6% organic matrix is due to a single drum (X10C0506047) that has a reported net weight of only 74 pounds which is much lighter than most of the drums in this waste stream. It is assumed that each of the soil drums, including this one, contain 10 pounds of absorbent.

The waste description on the TWPC repackaging forms also includes concrete, but these forms have no estimated weight of the concrete (M075, M128). CCP has certified 517 drums of soil in 11 shipping lots, including several drums that are identified as containing concrete. In addition to concrete, a review of the RTR data for these 517 drums also identified small amounts of iron-based metal, including reinforcement wire, nuts, bolts, pipe, fittings, and scrap metal. Based on the RTR data, the waste material parameter weight estimates will be revised as shown below. The RTR data and calculations are provided in Attachment 2.

The soil packaged in boxes was removed from the original box and packaged into new drums in the TWPC BBA with layers of Solid-A-Sorb (diatomaceous earth) absorbent. A half bag of absorbent (12.5 pounds) was added to the bottom of the empty drum. Soil was shoveled into a 5-gallon bucket and then dumped into the drum. Another half bag of absorbent was added and these steps were repeated until the drum was about 90 percent full. This equates to approximately 75 pounds of absorbent in each drum (Reference M210). The Soli-A-Sorb will absorb water from the soil and is considered "inorganic matrix;" however, RTR may not be able to distinguish between the soil and the absorbent. Fifteen boxes were identified on the AKTSS that were packaged in this manner. Attachment 1 and the table below have been revised to include data for these 15 boxes.

These percentages do not take into account the projected volume of soil to be generated during the final phase of decommissioning which began in 2011 and will continue through Fiscal Year 2018. The soil generated during the final phase of decommissioning is excavated in batches of 154 ft^3 and mixed with 700 to 800 pounds of an organic polymer absorbent (750 pounds equals 20 ft^3). Assuming 50 gallons of waste is placed into the rigid liner, the mixture of

soil and absorbent comprises 40 gallons with 11.5 percent by volume being absorbent (equivalent to about 23 lbs) plus an additional 10 gallons (about 50 pounds) of absorbent on top of the soil. Therefore, the total weight of absorbent per drum is approximately 73 pounds (References C321, P1400, P1402). Based on the average net weight (491.61 lbs) of the soil from the initial decommissioning phase (see Attachment 1), the absorbent would be 12.93 Wt% (73/[73+491.61]x100=12.93%). Therefore it is assumed that the absorbent will be between 10 and 15 Wt% per drum.

Waste Stream OR-NFS-CH-SOIL Waste Material Parameters - Revised

Waste Material Parameter	Weight Percent	Weight Percent Range
Aluminum-based Metal/Alloy	0%	0%
Iron-based Metal/Alloy	<0.1%	0% – 1.3%
Other Metals/Alloy	0%	0%
Other Inorganic Materials	0.1%	0% – 23.2%
Cellulosics	<0.1%	0% – 0.3%
Plastics (waste materials)	0.2%	0% – 9.2% [2]
Rubber	0%	0%
Organic Matrix	2.0%	1.5% – 15.0% [3]
Inorganic Matrix	0.4% [4]	0% – 26.4%
Soils/Gravel	97.3%	73.7% – 100% [1]

1. Since RTR cannot distinguish the soil from the absorbent, and soil is the predominant waste material parameter, RTR will assign "Soils/Gravel" to the soil/absorbent mixture.
2. The 9.2% plastic is due to a single drum (X10C0506047) that has a reported net weight of only 74 pounds which is much lighter than most of the drums in this waste stream.
3. The Wt% range was expanded based on the amount of absorbent expected in soil from the final phase of decommissioning.
4. The Solid-A-Sorb used for repackaging of soil boxes is a minor component of the overall waste stream and is expected to be <0.1% once the additional 4,300 drums are included.

Attachment 1

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL
Based on Original Generator Container Paperwork

Container ID	Gross Wt (lbs)	Tare Wt (lbs)	Net Wt (lbs)	Drum Liner Bag Wt (lbs)	RADPAD Wt (lbs)	Solid-A-Sorb Wt (lbs)	RADSORB Wt (lbs)	Soil Wt (lbs)	Plastic Wt%	Cellulosic Wt%	Inorganic Matrix Wt%	Organic Matrix Wt%	Soil Wt%
NFS-0103	519	81	438	1.1	0.08	0.00	10	426.80	0.25%	0.02%	0.00%	2.28%	97.45%
NFS-0104	599	81	518	1.1	0.08	0.00	10	506.81	0.21%	0.02%	0.00%	1.93%	97.84%
NFS-0105	556	81	475	1.1	0.08	0.00	10	463.82	0.23%	0.02%	0.00%	2.11%	97.65%
NFS-0106	563	81	482	1.1	0.08	0.00	10	470.81	0.23%	0.02%	0.00%	2.07%	97.68%
NFS-0108	608	81	527	1.1	0.08	0.00	10	515.80	0.21%	0.02%	0.00%	1.90%	97.88%
NFS-0109	573	81	492	1.1	0.08	0.00	10	480.82	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0110	593	81	512	1.1	0.08	0.00	10	500.81	0.21%	0.02%	0.00%	1.95%	97.82%
NFS-0111	610	81	529	1.1	0.08	0.00	10	517.81	0.21%	0.02%	0.00%	1.89%	97.89%
NFS-0112	591	81	510	1.1	0.08	0.00	10	498.81	0.22%	0.02%	0.00%	1.96%	97.81%
NFS-0118	609	81	528	1.1	0.08	0.00	10	516.82	0.21%	0.02%	0.00%	1.89%	97.88%
NFS-0119	590	81	509	1.1	0.08	0.00	10	497.82	0.22%	0.02%	0.00%	1.96%	97.80%
NFS-0120	599	81	518	1.1	0.08	0.00	10	506.81	0.21%	0.02%	0.00%	1.93%	97.84%
NFS-0121	653	81	572	1.1	0.08	0.00	10	560.82	0.19%	0.01%	0.00%	1.75%	98.05%
NFS-0122	614	81	533	1.1	0.08	0.00	10	521.82	0.21%	0.02%	0.00%	1.88%	97.90%
NFS-0123	679	81	598	1.1	0.08	0.00	10	586.81	0.18%	0.01%	0.00%	1.67%	98.13%
NFS-0124	589	81	508	1.1	0.08	0.00	10	496.82	0.22%	0.02%	0.00%	1.97%	97.80%
NFS-0125	617	81	536	1.1	0.08	0.00	10	524.82	0.21%	0.01%	0.00%	1.87%	97.91%
NFS-0126	642	81	561	1.1	0.08	0.00	10	549.82	0.20%	0.01%	0.00%	1.78%	98.01%
NFS-0127	558	81	477	1.1	0.08	0.00	10	465.80	0.23%	0.02%	0.00%	2.10%	97.66%
NFS-0128	587	81	506	1.1	0.08	0.00	10	494.82	0.22%	0.02%	0.00%	1.98%	97.79%
NFS-0129	638	81	557	1.1	0.08	0.00	10	545.81	0.20%	0.01%	0.00%	1.80%	97.99%
NFS-0130	605	81	524	1.1	0.08	0.00	10	512.81	0.21%	0.02%	0.00%	1.91%	97.87%
NFS-0131	544	81	463	1.1	0.08	0.00	10	451.81	0.24%	0.02%	0.00%	2.16%	97.59%
NFS-0132	619	81	538	1.1	0.08	0.00	10	526.81	0.20%	0.01%	0.00%	1.86%	97.92%
NFS-0133	598	81	517	1.1	0.08	0.00	10	505.82	0.21%	0.02%	0.00%	1.93%	97.84%
NFS-0134	621	81	540	1.1	0.08	0.00	10	528.81	0.20%	0.01%	0.00%	1.85%	97.93%
NFS-0135	590	81	509	1.1	0.08	0.00	10	497.82	0.22%	0.02%	0.00%	1.96%	97.80%
NFS-0136	638	81	557	1.1	0.08	0.00	10	545.81	0.20%	0.01%	0.00%	1.80%	97.99%
NFS-0137	628	81	547	1.1	0.08	0.00	10	535.82	0.20%	0.01%	0.00%	1.83%	97.96%
NFS-0138	635	81	554	1.1	0.08	0.00	10	542.81	0.20%	0.01%	0.00%	1.81%	97.98%
NFS-0139	612	81	531	1.1	0.08	0.00	10	519.82	0.21%	0.02%	0.00%	1.88%	97.89%
NFS-0140	565	81	484	1.1	0.08	0.00	10	472.81	0.23%	0.02%	0.00%	2.07%	97.69%
NFS-0141	615	81	534	1.1	0.08	0.00	10	522.82	0.21%	0.01%	0.00%	1.87%	97.91%
NFS-0142	613	81	532	1.1	0.08	0.00	10	520.81	0.21%	0.02%	0.00%	1.88%	97.90%
NFS-0143	610	81	529	1.1	0.08	0.00	10	517.81	0.21%	0.02%	0.00%	1.89%	97.89%
NFS-0144	605	81	524	1.1	0.08	0.00	10	512.81	0.21%	0.02%	0.00%	1.91%	97.87%
NFS-0145	618	81	537	1.1	0.08	0.00	10	525.81	0.20%	0.01%	0.00%	1.86%	97.92%
NFS-0146	643	81	562	1.1	0.08	0.00	10	550.81	0.20%	0.01%	0.00%	1.78%	98.01%
NFS-0147	608	81	527	1.1	0.08	0.00	10	515.80	0.21%	0.02%	0.00%	1.90%	97.88%
NFS-0152	620	81	539	1.1	0.08	0.00	10	527.82	0.20%	0.01%	0.00%	1.86%	97.93%
NFS-0153	627	81	546	1.1	0.08	0.00	10	534.81	0.20%	0.01%	0.00%	1.83%	97.95%
NFS-0154	615	81	534	1.1	0.08	0.00	10	522.82	0.21%	0.01%	0.00%	1.87%	97.91%
NFS-0155	626	81	545	1.1	0.08	0.00	10	533.82	0.20%	0.01%	0.00%	1.83%	97.95%
NFS-0156	604	81	523	1.1	0.08	0.00	10	511.81	0.21%	0.02%	0.00%	1.91%	97.86%
NFS-0157	586	81	505	1.1	0.08	0.00	10	493.82	0.22%	0.02%	0.00%	1.98%	97.79%
NFS-0158	603	81	522	1.1	0.08	0.00	10	510.82	0.21%	0.02%	0.00%	1.92%	97.86%
NFS-0159	569	81	488	1.1	0.08	0.00	10	476.81	0.23%	0.02%	0.00%	2.05%	97.71%
NFS-0160	597	81	516	1.1	0.08	0.00	10	504.80	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0161	586	81	505	1.1	0.08	0.00	10	493.82	0.22%	0.02%	0.00%	1.98%	97.79%
NFS-0162	614	81	533	1.1	0.08	0.00	10	521.82	0.21%	0.02%	0.00%	1.88%	97.90%
NFS-0163	631	81	550	1.1	0.08	0.00	10	538.82	0.20%	0.01%	0.00%	1.82%	97.97%

Attachment 1

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Original Generator Container Paperwork

Container ID	Gross Wt (lbs)	Tare Wt (lbs)	Net Wt (lbs)	Drum Liner Bag Wt (lbs)	RADPAD Wt (lbs)	Solid-A-Sorb Wt (lbs)	RADSORB Wt (lbs)	Soil Wt (lbs)	Plastic Wt%	Cellulosic Wt%	Inorganic Matrix Wt%	Organic Matrix Wt%	Soil Wt%
NFS-0164	583	81	502	1.1	0.08	0.00	10	490.80	0.22%	0.02%	0.00%	1.99%	97.77%
NFS-0165	545	81	464	1.1	0.08	0.00	10	452.82	0.24%	0.02%	0.00%	2.16%	97.59%
NFS-0166	601	81	520	1.1	0.08	0.00	10	508.82	0.21%	0.02%	0.00%	1.92%	97.85%
NFS-0167	608	81	527	1.1	0.08	0.00	10	515.80	0.21%	0.02%	0.00%	1.90%	97.88%
NFS-0168	564	81	483	1.1	0.08	0.00	10	471.82	0.23%	0.02%	0.00%	2.07%	97.69%
NFS-0169	591	81	510	1.1	0.08	0.00	10	498.81	0.22%	0.02%	0.00%	1.96%	97.81%
NFS-0170	561	81	480	1.1	0.08	0.00	10	468.82	0.23%	0.02%	0.00%	2.08%	97.67%
NFS-0171	555	81	474	1.1	0.08	0.00	10	462.81	0.23%	0.02%	0.00%	2.11%	97.64%
NFS-0172	556	81	475	1.1	0.08	0.00	10	463.82	0.23%	0.02%	0.00%	2.11%	97.65%
NFS-0173	541	81	460	1.1	0.08	0.00	10	448.81	0.24%	0.02%	0.00%	2.17%	97.57%
NFS-0174	554	81	473	1.1	0.08	0.00	10	461.81	0.23%	0.02%	0.00%	2.11%	97.64%
NFS-0175	584	81	503	1.1	0.08	0.00	10	491.82	0.22%	0.02%	0.00%	1.99%	97.78%
NFS-0176	573	81	492	1.1	0.08	0.00	10	480.82	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0177	559	81	478	1.1	0.08	0.00	10	466.82	0.23%	0.02%	0.00%	2.09%	97.66%
NFS-0178	593	81	512	1.1	0.08	0.00	10	500.81	0.21%	0.02%	0.00%	1.95%	97.82%
NFS-0179	533	81	452	1.1	0.08	0.00	10	440.80	0.24%	0.02%	0.00%	2.21%	97.53%
NFS-0180	624	81	543	1.1	0.08	0.00	10	531.81	0.20%	0.01%	0.00%	1.84%	97.94%
NFS-0181	608	81	527	1.1	0.08	0.00	10	515.80	0.21%	0.02%	0.00%	1.90%	97.88%
NFS-0183	562	81	481	1.1	0.08	0.00	10	469.82	0.23%	0.02%	0.00%	2.08%	97.68%
NFS-0184	613	81	532	1.1	0.08	0.00	10	520.81	0.21%	0.02%	0.00%	1.88%	97.90%
NFS-0185	560	81	479	1.1	0.08	0.00	10	467.81	0.23%	0.02%	0.00%	2.09%	97.67%
NFS-0186	623	81	542	1.1	0.08	0.00	10	530.82	0.20%	0.01%	0.00%	1.85%	97.94%
NFS-0187	557	81	476	1.1	0.08	0.00	10	464.81	0.23%	0.02%	0.00%	2.10%	97.65%
NFS-0188	620	81	539	1.1	0.08	0.00	10	527.82	0.20%	0.01%	0.00%	1.86%	97.93%
NFS-0189	565	81	484	1.1	0.08	0.00	10	472.81	0.23%	0.02%	0.00%	2.07%	97.69%
NFS-0190	602	81	521	1.1	0.08	0.00	10	509.81	0.21%	0.02%	0.00%	1.92%	97.85%
NFS-0191	590	81	509	1.1	0.08	0.00	10	497.82	0.22%	0.02%	0.00%	1.96%	97.80%
NFS-0192	538	81	457	1.1	0.08	0.00	10	445.81	0.24%	0.02%	0.00%	2.19%	97.55%
NFS-0193	572	81	491	1.1	0.08	0.00	10	479.80	0.22%	0.02%	0.00%	2.04%	97.72%
NFS-0194	585	81	504	1.1	0.08	0.00	10	492.81	0.22%	0.02%	0.00%	1.98%	97.78%
NFS-0195	647	81	566	1.1	0.08	0.00	10	554.80	0.19%	0.01%	0.00%	1.77%	98.02%
NFS-0196	557	81	476	1.1	0.08	0.00	10	464.81	0.23%	0.02%	0.00%	2.10%	97.65%
NFS-0197	528	81	447	1.1	0.08	0.00	10	435.82	0.25%	0.02%	0.00%	2.24%	97.50%
NFS-0198	547	81	466	1.1	0.08	0.00	10	454.83	0.24%	0.02%	0.00%	2.15%	97.60%
NFS-0199	552	81	471	1.1	0.08	0.00	10	459.81	0.23%	0.02%	0.00%	2.12%	97.63%
NFS-0200	592	81	511	1.1	0.08	0.00	10	499.82	0.22%	0.02%	0.00%	1.96%	97.81%
NFS-0201	586	81	505	1.1	0.08	0.00	10	493.82	0.22%	0.02%	0.00%	1.98%	97.79%
NFS-0202	603	81	522	1.1	0.08	0.00	10	510.82	0.21%	0.02%	0.00%	1.92%	97.86%
NFS-0203	575	81	494	1.1	0.08	0.00	10	482.82	0.22%	0.02%	0.00%	2.02%	97.74%
NFS-0204	562	81	481	1.1	0.08	0.00	10	469.82	0.23%	0.02%	0.00%	2.08%	97.68%
NFS-0205	570	81	489	1.1	0.08	0.00	10	477.82	0.22%	0.02%	0.00%	2.04%	97.71%
NFS-0206	627	81	546	1.1	0.08	0.00	10	534.81	0.20%	0.01%	0.00%	1.83%	97.95%
NFS-0207	622	81	541	1.1	0.08	0.00	10	529.80	0.20%	0.01%	0.00%	1.85%	97.93%
NFS-0208	575	81	494	1.1	0.08	0.00	10	482.82	0.22%	0.02%	0.00%	2.02%	97.74%
NFS-0209	603	81	522	1.1	0.08	0.00	10	510.82	0.21%	0.02%	0.00%	1.92%	97.86%
NFS-0210	600	81	519	1.1	0.08	0.00	10	507.82	0.21%	0.02%	0.00%	1.93%	97.85%
NFS-0211	549	81	468	1.1	0.08	0.00	10	456.81	0.24%	0.02%	0.00%	2.14%	97.61%
NFS-0212	619	81	538	1.1	0.08	0.00	10	526.81	0.20%	0.01%	0.00%	1.86%	97.92%
NFS-0213	555	81	474	1.1	0.08	0.00	10	462.81	0.23%	0.02%	0.00%	2.11%	97.64%
NFS-0214	634	81	553	1.1	0.08	0.00	10	541.82	0.20%	0.01%	0.00%	1.81%	97.98%
NFS-0215	644	81	563	1.1	0.08	0.00	10	551.81	0.20%	0.01%	0.00%	1.78%	98.01%

Attachment 1

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Original Generator Container Paperwork

Container ID	Gross Wt (lbs)	Tare Wt (lbs)	Net Wt (lbs)	Drum Liner Bag Wt (lbs)	RADPAD Wt (lbs)	Solid-A-Sorb Wt (lbs)	RADSORB Wt (lbs)	Soil Wt (lbs)	Plastic Wt%	Cellulosic Wt%	Inorganic Matrix Wt%	Organic Matrix Wt%	Soil Wt%
NFS-0216	608	81	527	1.1	0.08	0.00	10	515.80	0.21%	0.02%	0.00%	1.90%	97.88%
NFS-0217	640	81	559	1.1	0.08	0.00	10	547.82	0.20%	0.01%	0.00%	1.79%	98.00%
NFS-0218	605	81	524	1.1	0.08	0.00	10	512.81	0.21%	0.02%	0.00%	1.91%	97.87%
NFS-0219	630	81	549	1.1	0.08	0.00	10	537.81	0.20%	0.01%	0.00%	1.82%	97.96%
NFS-0220	579	81	498	1.1	0.08	0.00	10	486.81	0.22%	0.02%	0.00%	2.01%	97.75%
NFS-0221	625	81	544	1.1	0.08	0.00	10	532.82	0.20%	0.01%	0.00%	1.84%	97.94%
NFS-0222	621	81	540	1.1	0.08	0.00	10	528.81	0.20%	0.01%	0.00%	1.85%	97.93%
NFS-0223	598	81	517	1.1	0.08	0.00	10	505.82	0.21%	0.02%	0.00%	1.93%	97.84%
NFS-0224	639	81	558	1.1	0.08	0.00	10	546.82	0.20%	0.01%	0.00%	1.79%	98.00%
NFS-0225	634	81	553	1.1	0.08	0.00	10	541.82	0.20%	0.01%	0.00%	1.81%	97.98%
NFS-0226	613	81	532	1.1	0.08	0.00	10	520.81	0.21%	0.02%	0.00%	1.88%	97.90%
NFS-0227	615	81	534	1.1	0.08	0.00	10	522.82	0.21%	0.01%	0.00%	1.87%	97.91%
NFS-0228	630	81	549	1.1	0.08	0.00	10	537.81	0.20%	0.01%	0.00%	1.82%	97.96%
NFS-0229	619	81	538	1.1	0.08	0.00	10	526.81	0.20%	0.01%	0.00%	1.86%	97.92%
NFS-0230	590	81	509	1.1	0.08	0.00	10	497.82	0.22%	0.02%	0.00%	1.96%	97.80%
NFS-0231	667	81	586	1.1	0.08	0.00	10	574.82	0.19%	0.01%	0.00%	1.71%	98.09%
NFS-0232	664	81	583	1.1	0.08	0.00	10	571.82	0.19%	0.01%	0.00%	1.72%	98.08%
NFS-0233	573	81	492	1.1	0.08	0.00	10	480.82	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0234	623	81	542	1.1	0.08	0.00	10	530.82	0.20%	0.01%	0.00%	1.85%	97.94%
NFS-0235	612	81	531	1.1	0.08	0.00	10	519.82	0.21%	0.02%	0.00%	1.88%	97.89%
NFS-0236	613	81	532	1.1	0.08	0.00	10	520.81	0.21%	0.02%	0.00%	1.88%	97.90%
NFS-0237	625	81	544	1.1	0.08	0.00	10	532.82	0.20%	0.01%	0.00%	1.84%	97.94%
NFS-0238	584	81	503	1.1	0.08	0.00	10	491.82	0.22%	0.02%	0.00%	1.99%	97.78%
NFS-0239	625	81	544	1.1	0.08	0.00	10	532.82	0.20%	0.01%	0.00%	1.84%	97.94%
NFS-0240	628	81	547	1.1	0.08	0.00	10	535.82	0.20%	0.01%	0.00%	1.83%	97.96%
NFS-0241	570	81	489	1.1	0.08	0.00	10	477.82	0.22%	0.02%	0.00%	2.04%	97.71%
NFS-0242	676	81	595	1.1	0.08	0.00	10	583.82	0.18%	0.01%	0.00%	1.68%	98.12%
NFS-0243	641	81	560	1.1	0.08	0.00	10	548.81	0.20%	0.01%	0.00%	1.79%	98.00%
NFS-0244	599	81	518	1.1	0.08	0.00	10	506.81	0.21%	0.02%	0.00%	1.93%	97.84%
NFS-0245	594	81	513	1.1	0.08	0.00	10	501.81	0.21%	0.02%	0.00%	1.95%	97.82%
NFS-0246	611	81	530	1.1	0.08	0.00	10	518.82	0.21%	0.02%	0.00%	1.89%	97.89%
NFS-0247	571	81	490	1.1	0.08	0.00	10	478.81	0.22%	0.02%	0.00%	2.04%	97.72%
NFS-0248	567	81	486	1.1	0.08	0.00	10	474.82	0.23%	0.02%	0.00%	2.06%	97.70%
NFS-0249	558	81	477	1.1	0.08	0.00	10	465.80	0.23%	0.02%	0.00%	2.10%	97.66%
NFS-0250	558	81	477	1.1	0.08	0.00	10	465.80	0.23%	0.02%	0.00%	2.10%	97.66%
NFS-0251	588	81	507	1.1	0.08	0.00	10	495.81	0.22%	0.02%	0.00%	1.97%	97.79%
NFS-0252	606	81	525	1.1	0.08	0.00	10	513.82	0.21%	0.02%	0.00%	1.90%	97.87%
NFS-0253	612	81	531	1.1	0.08	0.00	10	519.82	0.21%	0.02%	0.00%	1.88%	97.89%
NFS-0254	549	81	468	1.1	0.08	0.00	10	456.81	0.24%	0.02%	0.00%	2.14%	97.61%
NFS-0255	660	81	579	1.1	0.08	0.00	10	567.81	0.19%	0.01%	0.00%	1.73%	98.07%
NFS-0256	559	81	478	1.1	0.08	0.00	10	466.82	0.23%	0.02%	0.00%	2.09%	97.66%
NFS-0257	575	81	494	1.1	0.08	0.00	10	482.82	0.22%	0.02%	0.00%	2.02%	97.74%
NFS-0258	562	81	481	1.1	0.08	0.00	10	469.82	0.23%	0.02%	0.00%	2.08%	97.68%
NFS-0260	650	81	569	1.1	0.08	0.00	10	557.82	0.19%	0.01%	0.00%	1.76%	98.04%
NFS-0262	591	81	510	1.1	0.08	0.00	10	498.81	0.22%	0.02%	0.00%	1.96%	97.81%
NFS-0263	646	81	565	1.1	0.08	0.00	10	553.81	0.19%	0.01%	0.00%	1.77%	98.02%
NFS-0264	643	81	562	1.1	0.08	0.00	10	550.81	0.20%	0.01%	0.00%	1.78%	98.01%
NFS-0265	647	81	566	1.1	0.08	0.00	10	554.80	0.19%	0.01%	0.00%	1.77%	98.02%
NFS-0266	618	81	537	1.1	0.08	0.00	10	525.81	0.20%	0.01%	0.00%	1.86%	97.92%
NFS-0267	576	81	495	1.1	0.08	0.00	10	483.82	0.22%	0.02%	0.00%	2.02%	97.74%
NFS-0268	658	81	577	1.1	0.08	0.00	10	565.80	0.19%	0.01%	0.00%	1.73%	98.06%

Attachment 1

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Original Generator Container Paperwork

Container ID	Gross Wt (lbs)	Tare Wt (lbs)	Net Wt (lbs)	Drum Liner Bag Wt (lbs)	RADPAD Wt (lbs)	Solid-A-Sorb Wt (lbs)	RADSORB Wt (lbs)	Soil Wt (lbs)	Plastic Wt%	Cellulosic Wt%	Inorganic Matrix Wt%	Organic Matrix Wt%	Soil Wt%
NFS-0269	588	81	507	1.1	0.08	0.00	10	495.81	0.22%	0.02%	0.00%	1.97%	97.79%
NFS-0270	621	81	540	1.1	0.08	0.00	10	528.81	0.20%	0.01%	0.00%	1.85%	97.93%
NFS-0271	619	81	538	1.1	0.08	0.00	10	526.81	0.20%	0.01%	0.00%	1.86%	97.92%
NFS-0272	591	81	510	1.1	0.08	0.00	10	498.81	0.22%	0.02%	0.00%	1.96%	97.81%
NFS-0273	609	81	528	1.1	0.08	0.00	10	516.82	0.21%	0.02%	0.00%	1.89%	97.88%
NFS-0274	582	81	501	1.1	0.08	0.00	10	489.81	0.22%	0.02%	0.00%	2.00%	97.77%
NFS-0275	604	81	523	1.1	0.08	0.00	10	511.81	0.21%	0.02%	0.00%	1.91%	97.86%
NFS-0276	596	81	515	1.1	0.08	0.00	10	503.81	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0277	616	81	535	1.1	0.08	0.00	10	523.81	0.21%	0.01%	0.00%	1.87%	97.91%
NFS-0278	609	81	528	1.1	0.08	0.00	10	516.82	0.21%	0.02%	0.00%	1.89%	97.88%
NFS-0279	611	81	530	1.1	0.08	0.00	10	518.82	0.21%	0.02%	0.00%	1.89%	97.89%
NFS-0280	613	81	532	1.1	0.08	0.00	10	520.81	0.21%	0.02%	0.00%	1.88%	97.90%
NFS-0281	652	81	571	1.1	0.08	0.00	10	559.81	0.19%	0.01%	0.00%	1.75%	98.04%
NFS-0282	654	81	573	1.1	0.08	0.00	10	561.81	0.19%	0.01%	0.00%	1.75%	98.05%
NFS-0283	635	81	554	1.1	0.08	0.00	10	542.81	0.20%	0.01%	0.00%	1.81%	97.98%
NFS-0284	579	81	498	1.1	0.08	0.00	10	486.81	0.22%	0.02%	0.00%	2.01%	97.75%
NFS-0285	555	81	474	1.1	0.08	0.00	10	462.81	0.23%	0.02%	0.00%	2.11%	97.64%
NFS-0286	549	81	468	1.1	0.08	0.00	10	456.81	0.24%	0.02%	0.00%	2.14%	97.61%
NFS-0287	562	81	481	1.1	0.08	0.00	10	469.82	0.23%	0.02%	0.00%	2.08%	97.68%
NFS-0288	590	81	509	1.1	0.08	0.00	10	497.82	0.22%	0.02%	0.00%	1.96%	97.80%
NFS-0289	594	81	513	1.1	0.08	0.00	10	501.81	0.21%	0.02%	0.00%	1.95%	97.82%
NFS-0290	556	81	475	1.1	0.08	0.00	10	463.82	0.23%	0.02%	0.00%	2.11%	97.65%
NFS-0291	548	81	467	1.1	0.08	0.00	10	455.82	0.24%	0.02%	0.00%	2.14%	97.61%
NFS-0292	547	81	466	1.1	0.08	0.00	10	454.83	0.24%	0.02%	0.00%	2.15%	97.60%
NFS-0293	531	81	450	1.1	0.08	0.00	10	438.82	0.24%	0.02%	0.00%	2.22%	97.52%
NFS-0294	576	81	495	1.1	0.08	0.00	10	483.82	0.22%	0.02%	0.00%	2.02%	97.74%
NFS-0295	574	81	493	1.1	0.08	0.00	10	481.81	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0296	555	81	474	1.1	0.08	0.00	10	462.81	0.23%	0.02%	0.00%	2.11%	97.64%
NFS-0297	647	81	566	1.1	0.08	0.00	10	554.80	0.19%	0.01%	0.00%	1.77%	98.02%
NFS-0298	573	81	492	1.1	0.08	0.00	10	480.82	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0299	561	81	480	1.1	0.08	0.00	10	468.82	0.23%	0.02%	0.00%	2.08%	97.67%
NFS-0300	510	81	429	1.1	0.08	0.00	10	417.81	0.26%	0.02%	0.00%	2.33%	97.39%
NFS-0301	623	81	542	1.1	0.08	0.00	10	530.82	0.20%	0.01%	0.00%	1.85%	97.94%
NFS-0302	548	81	467	1.1	0.08	0.00	10	455.82	0.24%	0.02%	0.00%	2.14%	97.61%
NFS-0303	571	81	490	1.1	0.08	0.00	10	478.81	0.22%	0.02%	0.00%	2.04%	97.72%
NFS-0304	597	81	516	1.1	0.08	0.00	10	504.80	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0305	588	81	507	1.1	0.08	0.00	10	495.81	0.22%	0.02%	0.00%	1.97%	97.79%
NFS-0306	523	81	442	1.1	0.08	0.00	10	430.82	0.25%	0.02%	0.00%	2.26%	97.47%
NFS-0307	595	81	514	1.1	0.08	0.00	10	502.82	0.21%	0.02%	0.00%	1.95%	97.82%
NFS-0308	568	81	487	1.1	0.08	0.00	10	475.81	0.23%	0.02%	0.00%	2.05%	97.70%
NFS-0309	586	81	505	1.1	0.08	0.00	10	493.82	0.22%	0.02%	0.00%	1.98%	97.79%
NFS-0310	648	81	567	1.1	0.08	0.00	10	555.82	0.19%	0.01%	0.00%	1.76%	98.03%
NFS-0311	645	81	564	1.1	0.08	0.00	10	552.82	0.20%	0.01%	0.00%	1.77%	98.02%
NFS-0312	559	81	478	1.1	0.08	0.00	10	466.82	0.23%	0.02%	0.00%	2.09%	97.66%
NFS-0313	573	81	492	1.1	0.08	0.00	10	480.82	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0314	627	81	546	1.1	0.08	0.00	10	534.81	0.20%	0.01%	0.00%	1.83%	97.95%
NFS-0315	596	81	515	1.1	0.08	0.00	10	503.81	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0316	619	81	538	1.1	0.08	0.00	10	526.81	0.20%	0.01%	0.00%	1.86%	97.92%
NFS-0317	540	81	459	1.1	0.08	0.00	10	447.81	0.24%	0.02%	0.00%	2.18%	97.56%
NFS-0318	620	81	539	1.1	0.08	0.00	10	527.82	0.20%	0.01%	0.00%	1.86%	97.93%
NFS-0319	627	81	546	1.1	0.08	0.00	10	534.81	0.20%	0.01%	0.00%	1.83%	97.95%

Attachment 1

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Original Generator Container Paperwork

Container ID	Gross Wt (lbs)	Tare Wt (lbs)	Net Wt (lbs)	Drum Liner Bag Wt (lbs)	RADPAD Wt (lbs)	Solid-A-Sorb Wt (lbs)	RADSORB Wt (lbs)	Soil Wt (lbs)	Plastic Wt%	Cellulosic Wt%	Inorganic Matrix Wt%	Organic Matrix Wt%	Soil Wt%
NFS-0320	593	81	512	1.1	0.08	0.00	10	500.81	0.21%	0.02%	0.00%	1.95%	97.82%
NFS-0321	548	81	467	1.1	0.08	0.00	10	455.82	0.24%	0.02%	0.00%	2.14%	97.61%
NFS-0322	565	81	484	1.1	0.08	0.00	10	472.81	0.23%	0.02%	0.00%	2.07%	97.69%
NFS-0323	645	81	564	1.1	0.08	0.00	10	552.82	0.20%	0.01%	0.00%	1.77%	98.02%
NFS-0324	572	81	491	1.1	0.08	0.00	10	479.80	0.22%	0.02%	0.00%	2.04%	97.72%
NFS-0325	595	81	514	1.1	0.08	0.00	10	502.82	0.21%	0.02%	0.00%	1.95%	97.82%
NFS-0326	618	81	537	1.1	0.08	0.00	10	525.81	0.20%	0.01%	0.00%	1.86%	97.92%
NFS-0327	560	81	479	1.1	0.08	0.00	10	467.81	0.23%	0.02%	0.00%	2.09%	97.67%
NFS-0329	510	81	429	1.1	0.08	0.00	10	417.81	0.26%	0.02%	0.00%	2.33%	97.39%
NFS-0330	652	81	571	1.1	0.08	0.00	10	559.81	0.19%	0.01%	0.00%	1.75%	98.04%
NFS-0331	524	81	443	1.1	0.08	0.00	10	431.81	0.25%	0.02%	0.00%	2.26%	97.48%
NFS-0332	649	81	568	1.1	0.08	0.00	10	556.81	0.19%	0.01%	0.00%	1.76%	98.03%
NFS-0333	604	81	523	1.1	0.08	0.00	10	511.81	0.21%	0.02%	0.00%	1.91%	97.86%
NFS-0334	562	81	481	1.1	0.08	0.00	10	469.82	0.23%	0.02%	0.00%	2.08%	97.68%
NFS-0335	659	81	578	1.1	0.08	0.00	10	566.82	0.19%	0.01%	0.00%	1.73%	98.07%
NFS-0336	640	81	559	1.1	0.08	0.00	10	547.82	0.20%	0.01%	0.00%	1.79%	98.00%
NFS-0337	646	81	565	1.1	0.08	0.00	10	553.81	0.19%	0.01%	0.00%	1.77%	98.02%
NFS-0338	661	81	580	1.1	0.08	0.00	10	568.80	0.19%	0.01%	0.00%	1.72%	98.07%
NFS-0339	625	81	544	1.1	0.08	0.00	10	532.82	0.20%	0.01%	0.00%	1.84%	97.94%
NFS-0340	572	81	491	1.1	0.08	0.00	10	479.80	0.22%	0.02%	0.00%	2.04%	97.72%
NFS-0341	604	81	523	1.1	0.08	0.00	10	511.81	0.21%	0.02%	0.00%	1.91%	97.86%
NFS-0342	645	81	564	1.1	0.08	0.00	10	552.82	0.20%	0.01%	0.00%	1.77%	98.02%
NFS-0343	660	81	579	1.1	0.08	0.00	10	567.81	0.19%	0.01%	0.00%	1.73%	98.07%
NFS-0344	558	81	477	1.1	0.08	0.00	10	465.80	0.23%	0.02%	0.00%	2.10%	97.66%
NFS-0345	538	81	457	1.1	0.08	0.00	10	445.81	0.24%	0.02%	0.00%	2.19%	97.55%
NFS-0346	583	81	502	1.1	0.08	0.00	10	490.80	0.22%	0.02%	0.00%	1.99%	97.77%
NFS-0347	596	81	515	1.1	0.08	0.00	10	503.81	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0348	530	81	449	1.1	0.08	0.00	10	437.81	0.24%	0.02%	0.00%	2.23%	97.51%
NFS-0349	575	81	494	1.1	0.08	0.00	10	482.82	0.22%	0.02%	0.00%	2.02%	97.74%
NFS-0350	620	81	539	1.1	0.08	0.00	10	527.82	0.20%	0.01%	0.00%	1.86%	97.93%
NFS-0438	610	81	529	1.1	0.08	0.00	10	517.81	0.21%	0.02%	0.00%	1.89%	97.89%
NFS-0439	620	81	539	1.1	0.08	0.00	10	527.82	0.20%	0.01%	0.00%	1.86%	97.93%
NFS-0440	580	81	499	1.1	0.08	0.00	10	487.81	0.22%	0.02%	0.00%	2.00%	97.76%
NFS-0441	619	81	538	1.1	0.08	0.00	10	526.81	0.20%	0.01%	0.00%	1.86%	97.92%
NFS-0442	590	81	509	1.1	0.08	0.00	10	497.82	0.22%	0.02%	0.00%	1.96%	97.80%
NFS-0443	602	81	521	1.1	0.08	0.00	10	509.81	0.21%	0.02%	0.00%	1.92%	97.85%
NFS-0444	588	81	507	1.1	0.08	0.00	10	495.81	0.22%	0.02%	0.00%	1.97%	97.79%
NFS-0445	630	81	549	1.1	0.08	0.00	10	537.81	0.20%	0.01%	0.00%	1.82%	97.96%
NFS-0446	608	81	527	1.1	0.08	0.00	10	515.80	0.21%	0.02%	0.00%	1.90%	97.88%
NFS-0447	576	81	495	1.1	0.08	0.00	10	483.82	0.22%	0.02%	0.00%	2.02%	97.74%
NFS-0449	614	81	533	1.1	0.08	0.00	10	521.82	0.21%	0.02%	0.00%	1.88%	97.90%
NFS-0451	602	81	521	1.1	0.08	0.00	10	509.81	0.21%	0.02%	0.00%	1.92%	97.85%
NFS-0452	598	81	517	1.1	0.08	0.00	10	505.82	0.21%	0.02%	0.00%	1.93%	97.84%
NFS-0453	582	81	501	1.1	0.08	0.00	10	489.81	0.22%	0.02%	0.00%	2.00%	97.77%
NFS-0454	634	81	553	1.1	0.08	0.00	10	541.82	0.20%	0.01%	0.00%	1.81%	97.98%
NFS-0455	528	81	447	1.1	0.08	0.00	10	435.82	0.25%	0.02%	0.00%	2.24%	97.50%
NFS-0456	569	81	488	1.1	0.08	0.00	10	476.81	0.23%	0.02%	0.00%	2.05%	97.71%
NFS-0457	574	81	493	1.1	0.08	0.00	10	481.81	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0458	539	81	458	1.1	0.08	0.00	10	446.82	0.24%	0.02%	0.00%	2.18%	97.56%
NFS-0459	531	81	450	1.1	0.08	0.00	10	438.82	0.24%	0.02%	0.00%	2.22%	97.52%
NFS-0460	548	81	467	1.1	0.08	0.00	10	455.82	0.24%	0.02%	0.00%	2.14%	97.61%

Attachment 1

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Original Generator Container Paperwork

Container ID	Gross Wt (lbs)	Tare Wt (lbs)	Net Wt (lbs)	Drum Liner Bag Wt (lbs)	RADPAD Wt (lbs)	Solid-A-Sorb Wt (lbs)	RADSORB Wt (lbs)	Soil Wt (lbs)	Plastic Wt%	Cellulosic Wt%	Inorganic Matrix Wt%	Organic Matrix Wt%	Soil Wt%
NFS-0461	557	81	476	1.1	0.08	0.00	10	464.81	0.23%	0.02%	0.00%	2.10%	97.65%
NFS-0463	601	81	520	1.1	0.08	0.00	10	508.82	0.21%	0.02%	0.00%	1.92%	97.85%
NFS-0464	598	81	517	1.1	0.08	0.00	10	505.82	0.21%	0.02%	0.00%	1.93%	97.84%
NFS-0465	620	81	539	1.1	0.08	0.00	10	527.82	0.20%	0.01%	0.00%	1.86%	97.93%
NFS-0466	597	81	516	1.1	0.08	0.00	10	504.80	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0467	558	81	477	1.1	0.08	0.00	10	465.80	0.23%	0.02%	0.00%	2.10%	97.66%
NFS-0468	555	81	474	1.1	0.08	0.00	10	462.81	0.23%	0.02%	0.00%	2.11%	97.64%
NFS-0469	539	81	458	1.1	0.08	0.00	10	446.82	0.24%	0.02%	0.00%	2.18%	97.56%
NFS-0471	555	81	474	1.1	0.08	0.00	10	462.81	0.23%	0.02%	0.00%	2.11%	97.64%
NFS-0472	565	81	484	1.1	0.08	0.00	10	472.81	0.23%	0.02%	0.00%	2.07%	97.69%
NFS-0473	617	81	536	1.1	0.08	0.00	10	524.82	0.21%	0.01%	0.00%	1.87%	97.91%
NFS-0474	624	81	543	1.1	0.08	0.00	10	531.81	0.20%	0.01%	0.00%	1.84%	97.94%
NFS-0475	615	81	534	1.1	0.08	0.00	10	522.82	0.21%	0.01%	0.00%	1.87%	97.91%
NFS-0476	611	81	530	1.1	0.08	0.00	10	518.82	0.21%	0.02%	0.00%	1.89%	97.89%
NFS-0477	585	81	504	1.1	0.08	0.00	10	492.81	0.22%	0.02%	0.00%	1.98%	97.78%
NFS-0483	734	81	653	1.1	0.08	0.00	10	641.82	0.17%	0.01%	0.00%	1.53%	98.29%
NFS-0484	698	81	617	1.1	0.08	0.00	10	605.82	0.18%	0.01%	0.00%	1.62%	98.19%
NFS-0485	714	81	633	1.1	0.08	0.00	10	621.82	0.17%	0.01%	0.00%	1.58%	98.23%
NFS-0486	663	81	582	1.1	0.08	0.00	10	570.81	0.19%	0.01%	0.00%	1.72%	98.08%
NFS-0487	605	81	524	1.1	0.08	0.00	10	512.81	0.21%	0.02%	0.00%	1.91%	97.87%
NFS-0488	598	81	517	1.1	0.08	0.00	10	505.82	0.21%	0.02%	0.00%	1.93%	97.84%
NFS-0489	583	81	502	1.1	0.08	0.00	10	490.80	0.22%	0.02%	0.00%	1.99%	97.77%
NFS-0490	581	81	500	1.1	0.08	0.00	10	488.82	0.22%	0.02%	0.00%	2.00%	97.76%
NFS-0491	597	81	516	1.1	0.08	0.00	10	504.80	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0492	565	81	484	1.1	0.08	0.00	10	472.81	0.23%	0.02%	0.00%	2.07%	97.69%
NFS-0493	591	81	510	1.1	0.08	0.00	10	498.81	0.22%	0.02%	0.00%	1.96%	97.81%
NFS-0494	567	81	486	1.1	0.08	0.00	10	474.82	0.23%	0.02%	0.00%	2.06%	97.70%
NFS-0495	608	81	527	1.1	0.08	0.00	10	515.80	0.21%	0.02%	0.00%	1.90%	97.88%
NFS-0496	630	81	549	1.1	0.08	0.00	10	537.81	0.20%	0.01%	0.00%	1.82%	97.96%
NFS-0497	622	81	541	1.1	0.08	0.00	10	529.80	0.20%	0.01%	0.00%	1.85%	97.93%
NFS-0498	570	81	489	1.1	0.08	0.00	10	477.82	0.22%	0.02%	0.00%	2.04%	97.71%
NFS-0499	600	81	519	1.1	0.08	0.00	10	507.82	0.21%	0.02%	0.00%	1.93%	97.85%
NFS-0500	631	81	550	1.1	0.08	0.00	10	538.82	0.20%	0.01%	0.00%	1.82%	97.97%
NFS-0517	638	81	557	1.1	0.08	0.00	10	545.81	0.20%	0.01%	0.00%	1.80%	97.99%
NFS-0518	673	81	592	1.1	0.08	0.00	10	580.82	0.19%	0.01%	0.00%	1.69%	98.11%
NFS-0519	644	81	563	1.1	0.08	0.00	10	551.81	0.20%	0.01%	0.00%	1.78%	98.01%
NFS-0520	627	81	546	1.1	0.08	0.00	10	534.81	0.20%	0.01%	0.00%	1.83%	97.95%
NFS-0521	648	81	567	1.1	0.08	0.00	10	555.82	0.19%	0.01%	0.00%	1.76%	98.03%
NFS-0522	678	81	597	1.1	0.08	0.00	10	585.82	0.18%	0.01%	0.00%	1.68%	98.13%
NFS-0523	626	81	545	1.1	0.08	0.00	10	533.82	0.20%	0.01%	0.00%	1.83%	97.95%
NFS-0530	656	81	575	1.1	0.08	0.00	10	563.82	0.19%	0.01%	0.00%	1.74%	98.06%
NFS-0531	605	81	524	1.1	0.08	0.00	10	512.81	0.21%	0.02%	0.00%	1.91%	97.87%
NFS-0532	634	81	553	1.1	0.08	0.00	10	541.82	0.20%	0.01%	0.00%	1.81%	97.98%
NFS-0533	623	81	542	1.1	0.08	0.00	10	530.82	0.20%	0.01%	0.00%	1.85%	97.94%
NFS-0534	656	81	575	1.1	0.08	0.00	10	563.82	0.19%	0.01%	0.00%	1.74%	98.06%
NFS-0535	623	81	542	1.1	0.08	0.00	10	530.82	0.20%	0.01%	0.00%	1.85%	97.94%
NFS-0536	611	81	530	1.1	0.08	0.00	10	518.82	0.21%	0.02%	0.00%	1.89%	97.89%
NFS-0537	596	81	515	1.1	0.08	0.00	10	503.81	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0544	607	81	526	1.1	0.08	0.00	10	514.81	0.21%	0.02%	0.00%	1.90%	97.87%
NFS-0545	572	81	491	1.1	0.08	0.00	10	479.80	0.22%	0.02%	0.00%	2.04%	97.72%
NFS-0546	561	81	480	1.1	0.08	0.00	10	468.82	0.23%	0.02%	0.00%	2.08%	97.67%

Attachment 1

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Original Generator Container Paperwork

Container ID	Gross Wt (lbs)	Tare Wt (lbs)	Net Wt (lbs)	Drum Liner Bag Wt (lbs)	RADPAD Wt (lbs)	Solid-A-Sorb Wt (lbs)	RADSORB Wt (lbs)	Soil Wt (lbs)	Plastic Wt%	Cellulosic Wt%	Inorganic Matrix Wt%	Organic Matrix Wt%	Soil Wt%
NFS-0547	675	81	594	1.1	0.08	0.00	10	582.80	0.19%	0.01%	0.00%	1.68%	98.12%
NFS-0548	617	81	536	1.1	0.08	0.00	10	524.82	0.21%	0.01%	0.00%	1.87%	97.91%
NFS-0549	628	81	547	1.1	0.08	0.00	10	535.82	0.20%	0.01%	0.00%	1.83%	97.96%
NFS-0550	654	81	573	1.1	0.08	0.00	10	561.81	0.19%	0.01%	0.00%	1.75%	98.05%
NFS-0551	634	81	553	1.1	0.08	0.00	10	541.82	0.20%	0.01%	0.00%	1.81%	97.98%
NFS-0552	684	81	603	1.1	0.08	0.00	10	591.82	0.18%	0.01%	0.00%	1.66%	98.15%
NFS-0553	665	81	584	1.1	0.08	0.00	10	572.82	0.19%	0.01%	0.00%	1.71%	98.09%
NFS-0554	623	81	542	1.1	0.08	0.00	10	530.82	0.20%	0.01%	0.00%	1.85%	97.94%
NFS-0555	541	81	460	1.1	0.08	0.00	10	448.81	0.24%	0.02%	0.00%	2.17%	97.57%
NFS-0556	652	81	571	1.1	0.08	0.00	10	559.81	0.19%	0.01%	0.00%	1.75%	98.04%
NFS-0557	626	81	545	1.1	0.08	0.00	10	533.82	0.20%	0.01%	0.00%	1.83%	97.95%
NFS-0558	559	81	478	1.1	0.08	0.00	10	466.82	0.23%	0.02%	0.00%	2.09%	97.66%
NFS-0559	622	81	541	1.1	0.08	0.00	10	529.80	0.20%	0.01%	0.00%	1.85%	97.93%
NFS-0560	596	81	515	1.1	0.08	0.00	10	503.81	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0561	627	81	546	1.1	0.08	0.00	10	534.81	0.20%	0.01%	0.00%	1.83%	97.95%
NFS-0562	566	81	485	1.1	0.08	0.00	10	473.81	0.23%	0.02%	0.00%	2.06%	97.69%
NFS-0563	658	81	577	1.1	0.08	0.00	10	565.80	0.19%	0.01%	0.00%	1.73%	98.06%
NFS-0564	572	81	491	1.1	0.08	0.00	10	479.80	0.22%	0.02%	0.00%	2.04%	97.72%
NFS-0565	587	81	506	1.1	0.08	0.00	10	494.82	0.22%	0.02%	0.00%	1.98%	97.79%
NFS-0566	591	81	510	1.1	0.08	0.00	10	498.81	0.22%	0.02%	0.00%	1.96%	97.81%
NFS-0567	651	81	570	1.1	0.08	0.00	10	558.82	0.19%	0.01%	0.00%	1.75%	98.04%
NFS-0568	590	81	509	1.1	0.08	0.00	10	497.82	0.22%	0.02%	0.00%	1.96%	97.80%
NFS-0569	655	81	574	1.1	0.08	0.00	10	562.81	0.19%	0.01%	0.00%	1.74%	98.05%
NFS-0570	624	81	543	1.1	0.08	0.00	10	531.81	0.20%	0.01%	0.00%	1.84%	97.94%
NFS-0584	601	81	520	1.1	0.08	0.00	10	508.82	0.21%	0.02%	0.00%	1.92%	97.85%
NFS-0585	596	81	515	1.1	0.08	0.00	10	503.81	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0586	631	81	550	1.1	0.08	0.00	10	538.82	0.20%	0.01%	0.00%	1.82%	97.97%
NFS-0587	592	81	511	1.1	0.08	0.00	10	499.82	0.22%	0.02%	0.00%	1.96%	97.81%
NFS-0588	588	81	507	1.1	0.08	0.00	10	495.81	0.22%	0.02%	0.00%	1.97%	97.79%
NFS-0589	600	81	519	1.1	0.08	0.00	10	507.82	0.21%	0.02%	0.00%	1.93%	97.85%
NFS-0590	699	81	618	1.1	0.08	0.00	10	606.81	0.18%	0.01%	0.00%	1.62%	98.19%
NFS-0595	589	81	508	1.1	0.08	0.00	10	496.82	0.22%	0.02%	0.00%	1.97%	97.80%
NFS-0596	578	81	497	1.1	0.08	0.00	10	485.82	0.22%	0.02%	0.00%	2.01%	97.75%
NFS-0655	594	81	513	1.1	0.08	0.00	10	501.81	0.21%	0.02%	0.00%	1.95%	97.82%
NFS-0656	604	81	523	1.1	0.08	0.00	10	511.81	0.21%	0.02%	0.00%	1.91%	97.86%
NFS-0657	622	81	541	1.1	0.08	0.00	10	529.80	0.20%	0.01%	0.00%	1.85%	97.93%
NFS-0658	555	81	474	1.1	0.08	0.00	10	462.81	0.23%	0.02%	0.00%	2.11%	97.64%
NFS-0659	573	81	492	1.1	0.08	0.00	10	480.82	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0660	580	81	499	1.1	0.08	0.00	10	487.81	0.22%	0.02%	0.00%	2.00%	97.76%
NFS-0661	563	81	482	1.1	0.08	0.00	10	470.81	0.23%	0.02%	0.00%	2.07%	97.68%
NFS-0662	646	81	565	1.1	0.08	0.00	10	553.81	0.19%	0.01%	0.00%	1.77%	98.02%
NFS-0663	585	81	504	1.1	0.08	0.00	10	492.81	0.22%	0.02%	0.00%	1.98%	97.78%
NFS-0664	573	81	492	1.1	0.08	0.00	10	480.82	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0665	575	81	494	1.1	0.08	0.00	10	482.82	0.22%	0.02%	0.00%	2.02%	97.74%
NFS-0666	581	81	500	1.1	0.08	0.00	10	488.82	0.22%	0.02%	0.00%	2.00%	97.76%
NFS-0667	590	81	509	1.1	0.08	0.00	10	497.82	0.22%	0.02%	0.00%	1.96%	97.80%
NFS-0668	561	81	480	1.1	0.08	0.00	10	468.82	0.23%	0.02%	0.00%	2.08%	97.67%
NFS-0669	570	81	489	1.1	0.08	0.00	10	477.82	0.22%	0.02%	0.00%	2.04%	97.71%
NFS-0670	587	81	506	1.1	0.08	0.00	10	494.82	0.22%	0.02%	0.00%	1.98%	97.79%
NFS-0671	598	81	517	1.1	0.08	0.00	10	505.82	0.21%	0.02%	0.00%	1.93%	97.84%
NFS-0672	597	81	516	1.1	0.08	0.00	10	504.80	0.21%	0.02%	0.00%	1.94%	97.83%

Attachment 1

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Original Generator Container Paperwork

Container ID	Gross Wt (lbs)	Tare Wt (lbs)	Net Wt (lbs)	Drum Liner Bag Wt (lbs)	RADPAD Wt (lbs)	Solid-A-Sorb Wt (lbs)	RADSORB Wt (lbs)	Soil Wt (lbs)	Plastic Wt%	Cellulosic Wt%	Inorganic Matrix Wt%	Organic Matrix Wt%	Soil Wt%
NFS-0675	600	81	519	1.1	0.08	0.00	10	507.82	0.21%	0.02%	0.00%	1.93%	97.85%
NFS-0676	572	81	491	1.1	0.08	0.00	10	479.80	0.22%	0.02%	0.00%	2.04%	97.72%
NFS-0677	616	81	535	1.1	0.08	0.00	10	523.81	0.21%	0.01%	0.00%	1.87%	97.91%
NFS-0678	559	81	478	1.1	0.08	0.00	10	466.82	0.23%	0.02%	0.00%	2.09%	97.66%
NFS-0679	573	81	492	1.1	0.08	0.00	10	480.82	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0680	577	81	496	1.1	0.08	0.00	10	484.81	0.22%	0.02%	0.00%	2.02%	97.75%
NFS-0681	569	81	488	1.1	0.08	0.00	10	476.81	0.23%	0.02%	0.00%	2.05%	97.71%
NFS-0682	534	81	453	1.1	0.08	0.00	10	441.82	0.24%	0.02%	0.00%	2.21%	97.53%
NFS-0683	590	81	509	1.1	0.08	0.00	10	497.82	0.22%	0.02%	0.00%	1.96%	97.80%
NFS-0684	566	81	485	1.1	0.08	0.00	10	473.81	0.23%	0.02%	0.00%	2.06%	97.69%
NFS-0685	540	81	459	1.1	0.08	0.00	10	447.81	0.24%	0.02%	0.00%	2.18%	97.56%
NFS-0686	528	81	447	1.1	0.08	0.00	10	435.82	0.25%	0.02%	0.00%	2.24%	97.50%
NFS-0687	552	81	471	1.1	0.08	0.00	10	459.81	0.23%	0.02%	0.00%	2.12%	97.63%
NFS-0688	610	81	529	1.1	0.08	0.00	10	517.81	0.21%	0.02%	0.00%	1.89%	97.89%
NFS-0689	575	81	494	1.1	0.08	0.00	10	482.82	0.22%	0.02%	0.00%	2.02%	97.74%
NFS-0690	548	81	467	1.1	0.08	0.00	10	455.82	0.24%	0.02%	0.00%	2.14%	97.61%
NFS-0691	551	81	470	1.1	0.08	0.00	10	458.82	0.23%	0.02%	0.00%	2.13%	97.62%
NFS-0692	608	81	527	1.1	0.08	0.00	10	515.80	0.21%	0.02%	0.00%	1.90%	97.88%
NFS-0693	536	81	455	1.1	0.08	0.00	10	443.82	0.24%	0.02%	0.00%	2.20%	97.54%
NFS-0694	496	81	415	1.1	0.08	0.00	10	403.81	0.27%	0.02%	0.00%	2.41%	97.31%
NFS-0695	572	81	491	1.1	0.08	0.00	10	479.80	0.22%	0.02%	0.00%	2.04%	97.72%
NFS-0696	565	81	484	1.1	0.08	0.00	10	472.81	0.23%	0.02%	0.00%	2.07%	97.69%
NFS-0697	609	81	528	1.1	0.08	0.00	10	516.82	0.21%	0.02%	0.00%	1.89%	97.88%
NFS-0698	585	81	504	1.1	0.08	0.00	10	492.81	0.22%	0.02%	0.00%	1.98%	97.78%
NFS-0699	553	81	472	1.1	0.08	0.00	10	460.82	0.23%	0.02%	0.00%	2.12%	97.63%
NFS-0700	583	81	502	1.1	0.08	0.00	10	490.80	0.22%	0.02%	0.00%	1.99%	97.77%
NFS-0701	599	81	518	1.1	0.08	0.00	10	506.81	0.21%	0.02%	0.00%	1.93%	97.84%
NFS-0702	577	81	496	1.1	0.08	0.00	10	484.81	0.22%	0.02%	0.00%	2.02%	97.75%
NFS-0703	532	81	451	1.1	0.08	0.00	10	439.81	0.24%	0.02%	0.00%	2.22%	97.52%
NFS-0704	557	81	476	1.1	0.08	0.00	10	464.81	0.23%	0.02%	0.00%	2.10%	97.65%
NFS-0705	570	81	489	1.1	0.08	0.00	10	477.82	0.22%	0.02%	0.00%	2.04%	97.71%
NFS-0706	623	81	542	1.1	0.08	0.00	10	530.82	0.20%	0.01%	0.00%	1.85%	97.94%
NFS-0707	578	81	497	1.1	0.08	0.00	10	485.82	0.22%	0.02%	0.00%	2.01%	97.75%
NFS-0708	563	81	482	1.1	0.08	0.00	10	470.81	0.23%	0.02%	0.00%	2.07%	97.68%
NFS-0709	564	81	483	1.1	0.08	0.00	10	471.82	0.23%	0.02%	0.00%	2.07%	97.69%
NFS-0710	593	81	512	1.1	0.08	0.00	10	500.81	0.21%	0.02%	0.00%	1.95%	97.82%
NFS-0711	540	81	459	1.1	0.08	0.00	10	447.81	0.24%	0.02%	0.00%	2.18%	97.56%
NFS-0712	573	81	492	1.1	0.08	0.00	10	480.82	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0713	574	81	493	1.1	0.08	0.00	10	481.81	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0714	586	81	505	1.1	0.08	0.00	10	493.82	0.22%	0.02%	0.00%	1.98%	97.79%
NFS-0715	597	81	516	1.1	0.08	0.00	10	504.80	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0716	590	81	509	1.1	0.08	0.00	10	497.82	0.22%	0.02%	0.00%	1.96%	97.80%
NFS-0717	567	81	486	1.1	0.08	0.00	10	474.82	0.23%	0.02%	0.00%	2.06%	97.70%
NFS-0718	573	81	492	1.1	0.08	0.00	10	480.82	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0719	578	81	497	1.1	0.08	0.00	10	485.82	0.22%	0.02%	0.00%	2.01%	97.75%
NFS-0720	570	81	489	1.1	0.08	0.00	10	477.82	0.22%	0.02%	0.00%	2.04%	97.71%
NFS-0721	546	81	465	1.1	0.08	0.00	10	453.81	0.24%	0.02%	0.00%	2.15%	97.60%
NFS-0722	582	81	501	1.1	0.08	0.00	10	489.81	0.22%	0.02%	0.00%	2.00%	97.77%
NFS-0723	577	81	496	1.1	0.08	0.00	10	484.81	0.22%	0.02%	0.00%	2.02%	97.75%
NFS-0724	574	81	493	1.1	0.08	0.00	10	481.81	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0725	521	81	440	1.1	0.08	0.00	10	428.81	0.25%	0.02%	0.00%	2.27%	97.46%

Attachment 1

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Original Generator Container Paperwork

Container ID	Gross Wt (lbs)	Tare Wt (lbs)	Net Wt (lbs)	Drum Liner Bag Wt (lbs)	RADPAD Wt (lbs)	Solid-A-Sorb Wt (lbs)	RADSORB Wt (lbs)	Soil Wt (lbs)	Plastic Wt%	Cellulosic Wt%	Inorganic Matrix Wt%	Organic Matrix Wt%	Soil Wt%
NFS-0726	518	81	437	1.1	0.08	0.00	10	425.81	0.25%	0.02%	0.00%	2.29%	97.44%
NFS-0727	506	81	425	1.1	0.08	0.00	10	413.82	0.26%	0.02%	0.00%	2.35%	97.37%
NFS-0728	563	81	482	1.1	0.08	0.00	10	470.81	0.23%	0.02%	0.00%	2.07%	97.68%
NFS-0729	495	81	414	1.1	0.08	0.00	10	402.82	0.27%	0.02%	0.00%	2.42%	97.30%
NFS-0730	534	81	453	1.1	0.08	0.00	10	441.82	0.24%	0.02%	0.00%	2.21%	97.53%
NFS-0731	591	81	510	1.1	0.08	0.00	10	498.81	0.22%	0.02%	0.00%	1.96%	97.81%
NFS-0732	638	81	557	1.1	0.08	0.00	10	545.81	0.20%	0.01%	0.00%	1.80%	97.99%
NFS-0733	576	81	495	1.1	0.08	0.00	10	483.82	0.22%	0.02%	0.00%	2.02%	97.74%
NFS-0734	528	81	447	1.1	0.08	0.00	10	435.82	0.25%	0.02%	0.00%	2.24%	97.50%
NFS-0735	533	81	452	1.1	0.08	0.00	10	440.80	0.24%	0.02%	0.00%	2.21%	97.53%
NFS-0736	558	81	477	1.1	0.08	0.00	10	465.80	0.23%	0.02%	0.00%	2.10%	97.66%
NFS-0737	562	81	481	1.1	0.08	0.00	10	469.82	0.23%	0.02%	0.00%	2.08%	97.68%
NFS-0738	515	81	434	1.1	0.08	0.00	10	422.81	0.25%	0.02%	0.00%	2.30%	97.42%
NFS-0739	548	81	467	1.1	0.08	0.00	10	455.82	0.24%	0.02%	0.00%	2.14%	97.61%
NFS-0741	555	81	474	1.1	0.08	0.00	10	462.81	0.23%	0.02%	0.00%	2.11%	97.64%
NFS-0742	562	81	481	1.1	0.08	0.00	10	469.82	0.23%	0.02%	0.00%	2.08%	97.68%
NFS-0743	554	81	473	1.1	0.08	0.00	10	461.81	0.23%	0.02%	0.00%	2.11%	97.64%
NFS-0744	534	81	453	1.1	0.08	0.00	10	441.82	0.24%	0.02%	0.00%	2.21%	97.53%
NFS-0745	503	81	422	1.1	0.08	0.00	10	410.82	0.26%	0.02%	0.00%	2.37%	97.35%
NFS-0746	489	81	408	1.1	0.08	0.00	10	396.82	0.27%	0.02%	0.00%	2.45%	97.26%
NFS-0747	526	81	445	1.1	0.08	0.00	10	433.82	0.25%	0.02%	0.00%	2.25%	97.49%
NFS-0748	537	81	456	1.1	0.08	0.00	10	444.82	0.24%	0.02%	0.00%	2.19%	97.55%
NFS-0749	525	81	444	1.1	0.08	0.00	10	432.82	0.25%	0.02%	0.00%	2.25%	97.48%
NFS-0750	542	81	461	1.1	0.08	0.00	10	449.82	0.24%	0.02%	0.00%	2.17%	97.57%
NFS-0751	549	81	468	1.1	0.08	0.00	10	456.81	0.24%	0.02%	0.00%	2.14%	97.61%
NFS-0760	660	81	579	1.1	0.08	0.00	10	567.81	0.19%	0.01%	0.00%	1.73%	98.07%
NFS-0761	606	81	525	1.1	0.08	0.00	10	513.82	0.21%	0.02%	0.00%	1.90%	97.87%
NFS-0762	662	81	581	1.1	0.08	0.00	10	569.82	0.19%	0.01%	0.00%	1.72%	98.08%
NFS-0763	551	81	470	1.1	0.08	0.00	10	458.82	0.23%	0.02%	0.00%	2.13%	97.62%
NFS-0764	610	81	529	1.1	0.08	0.00	10	517.81	0.21%	0.02%	0.00%	1.89%	97.89%
NFS-0765	588	81	507	1.1	0.08	0.00	10	495.81	0.22%	0.02%	0.00%	1.97%	97.79%
NFS-0767	566	81	485	1.1	0.08	0.00	10	473.81	0.23%	0.02%	0.00%	2.06%	97.69%
NFS-0768	544	81	463	1.1	0.08	0.00	10	451.81	0.24%	0.02%	0.00%	2.16%	97.59%
NFS-0769	597	81	516	1.1	0.08	0.00	10	504.80	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0770	570	81	489	1.1	0.08	0.00	10	477.82	0.22%	0.02%	0.00%	2.04%	97.71%
NFS-0771	596	81	515	1.1	0.08	0.00	10	503.81	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0772	565	81	484	1.1	0.08	0.00	10	472.81	0.23%	0.02%	0.00%	2.07%	97.69%
NFS-0773	598	81	517	1.1	0.08	0.00	10	505.82	0.21%	0.02%	0.00%	1.93%	97.84%
NFS-0774	612	81	531	1.1	0.08	0.00	10	519.82	0.21%	0.02%	0.00%	1.88%	97.89%
NFS-0775	529	81	448	1.1	0.08	0.00	10	436.81	0.25%	0.02%	0.00%	2.23%	97.50%
NFS-0778	555	81	474	1.1	0.08	0.00	10	462.81	0.23%	0.02%	0.00%	2.11%	97.64%
NFS-0779	546	81	465	1.1	0.08	0.00	10	453.81	0.24%	0.02%	0.00%	2.15%	97.60%
NFS-0780	561	81	480	1.1	0.08	0.00	10	468.82	0.23%	0.02%	0.00%	2.08%	97.67%
NFS-0781	577	81	496	1.1	0.08	0.00	10	484.81	0.22%	0.02%	0.00%	2.02%	97.75%
NFS-0782	545	81	464	1.1	0.08	0.00	10	452.82	0.24%	0.02%	0.00%	2.16%	97.59%
NFS-0790	602	81	521	1.1	0.08	0.00	10	509.81	0.21%	0.02%	0.00%	1.92%	97.85%
NFS-0791	566	81	485	1.1	0.08	0.00	10	473.81	0.23%	0.02%	0.00%	2.06%	97.69%
NFS-0792	609	81	528	1.1	0.08	0.00	10	516.82	0.21%	0.02%	0.00%	1.89%	97.88%
NFS-0794	544	81	463	1.1	0.08	0.00	10	451.81	0.24%	0.02%	0.00%	2.16%	97.59%
NFS-0795	565	81	484	1.1	0.08	0.00	10	472.81	0.23%	0.02%	0.00%	2.07%	97.69%
NFS-0796	552	81	471	1.1	0.08	0.00	10	459.81	0.23%	0.02%	0.00%	2.12%	97.63%

Attachment 1

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL
Based on Original Generator Container Paperwork

Container ID	Gross Wt (lbs)	Tare Wt (lbs)	Net Wt (lbs)	Drum Liner Bag Wt (lbs)	RADPAD Wt (lbs)	Solid-A-Sorb Wt (lbs)	RADSORB Wt (lbs)	Soil Wt (lbs)	Plastic Wt%	Cellulosic Wt%	Inorganic Matrix Wt%	Organic Matrix Wt%	Soil Wt%
NFS-0797	565	81	484	1.1	0.08	0.00	10	472.81	0.23%	0.02%	0.00%	2.07%	97.69%
NFS-0798	518	81	437	1.1	0.08	0.00	10	425.81	0.25%	0.02%	0.00%	2.29%	97.44%
NFS-0799	524	81	443	1.1	0.08	0.00	10	431.81	0.25%	0.02%	0.00%	2.26%	97.48%
NFS-0800	505	81	424	1.1	0.08	0.00	10	412.81	0.26%	0.02%	0.00%	2.36%	97.36%
NFS-0801	571	81	490	1.1	0.08	0.00	10	478.81	0.22%	0.02%	0.00%	2.04%	97.72%
NFS-0802	616	81	535	1.1	0.08	0.00	10	523.81	0.21%	0.01%	0.00%	1.87%	97.91%
NFS-0803	471	81	390	1.1	0.08	0.00	10	378.81	0.28%	0.02%	0.00%	2.56%	97.13%
NFS-0809	608	81	527	1.1	0.08	0.00	10	515.80	0.21%	0.02%	0.00%	1.90%	97.88%
NFS-0810	456	81	375	1.1	0.08	0.00	10	363.82	0.29%	0.02%	0.00%	2.67%	97.02%
NFS-0811	513	81	432	1.1	0.08	0.00	10	420.81	0.25%	0.02%	0.00%	2.31%	97.41%
NFS-0812	568	81	487	1.1	0.08	0.00	10	475.81	0.23%	0.02%	0.00%	2.05%	97.70%
NFS-0813	574	81	493	1.1	0.08	0.00	10	481.81	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0815	403	81	322	1.1	0.08	0.00	10	310.82	0.34%	0.02%	0.00%	3.11%	96.53%
NFS-0816	317	81	236	1.1	0.08	0.00	10	224.82	0.47%	0.03%	0.00%	4.24%	95.26%
NFS-0817	353	81	272	1.1	0.08	0.00	10	260.82	0.40%	0.03%	0.00%	3.68%	95.89%
NFS-0818	469	81	388	1.1	0.08	0.00	10	376.80	0.28%	0.02%	0.00%	2.58%	97.12%
NFS-0819	533	81	452	1.1	0.08	0.00	10	440.80	0.24%	0.02%	0.00%	2.21%	97.53%
NFS-0820	497	81	416	1.1	0.08	0.00	10	404.83	0.26%	0.02%	0.00%	2.40%	97.31%
NFS-0821	494	81	413	1.1	0.08	0.00	10	401.80	0.27%	0.02%	0.00%	2.42%	97.29%
NFS-0822	517	81	436	1.1	0.08	0.00	10	424.82	0.25%	0.02%	0.00%	2.29%	97.44%
NFS-0823	467	81	386	1.1	0.08	0.00	10	374.82	0.28%	0.02%	0.00%	2.59%	97.10%
NFS-0824	539	81	458	1.1	0.08	0.00	10	446.82	0.24%	0.02%	0.00%	2.18%	97.56%
NFS-0825	536	81	455	1.1	0.08	0.00	10	443.82	0.24%	0.02%	0.00%	2.20%	97.54%
NFS-0826	532	81	451	1.1	0.08	0.00	10	439.81	0.24%	0.02%	0.00%	2.22%	97.52%
NFS-0827	424	81	343	1.1	0.08	0.00	10	331.81	0.32%	0.02%	0.00%	2.92%	96.74%
NFS-0828	497	81	416	1.1	0.08	0.00	10	404.83	0.26%	0.02%	0.00%	2.40%	97.31%
NFS-0829	523	81	442	1.1	0.08	0.00	10	430.82	0.25%	0.02%	0.00%	2.26%	97.47%
NFS-0830	394	81	313	1.1	0.08	0.00	10	301.82	0.35%	0.03%	0.00%	3.19%	96.43%
NFS-0836	610	81	529	1.1	0.08	0.00	10	517.81	0.21%	0.02%	0.00%	1.89%	97.89%
NFS-0837	653	81	572	1.1	0.08	0.00	10	560.82	0.19%	0.01%	0.00%	1.75%	98.05%
NFS-0838	624	81	543	1.1	0.08	0.00	10	531.81	0.20%	0.01%	0.00%	1.84%	97.94%
NFS-0839	619	81	538	1.1	0.08	0.00	10	526.81	0.20%	0.01%	0.00%	1.86%	97.92%
NFS-0840	552	81	471	1.1	0.08	0.00	10	459.81	0.23%	0.02%	0.00%	2.12%	97.63%
NFS-0841	549	81	468	1.1	0.08	0.00	10	456.81	0.24%	0.02%	0.00%	2.14%	97.61%
NFS-0842	571	81	490	1.1	0.08	0.00	10	478.81	0.22%	0.02%	0.00%	2.04%	97.72%
NFS-0844	584	81	503	1.1	0.08	0.00	10	491.82	0.22%	0.02%	0.00%	1.99%	97.78%
NFS-0845	511	81	430	1.1	0.08	0.00	10	418.82	0.26%	0.02%	0.00%	2.33%	97.40%
NFS-0846	631	81	550	1.1	0.08	0.00	10	538.82	0.20%	0.01%	0.00%	1.82%	97.97%
NFS-0847	530	81	449	1.1	0.08	0.00	10	437.81	0.24%	0.02%	0.00%	2.23%	97.51%
NFS-0848	542	81	461	1.1	0.08	0.00	10	449.82	0.24%	0.02%	0.00%	2.17%	97.57%
NFS-0849	602	81	521	1.1	0.08	0.00	10	509.81	0.21%	0.02%	0.00%	1.92%	97.85%
NFS-0850	607	81	526	1.1	0.08	0.00	10	514.81	0.21%	0.02%	0.00%	1.90%	97.87%
NFS-0851	654	81	573	1.1	0.08	0.00	10	561.81	0.19%	0.01%	0.00%	1.75%	98.05%
NFS-0852	557	81	476	1.1	0.08	0.00	10	464.81	0.23%	0.02%	0.00%	2.10%	97.65%
NFS-0862	550	81	469	1.1	0.08	0.00	10	457.82	0.23%	0.02%	0.00%	2.13%	97.62%
NFS-0866	501	81	420	1.1	0.08	0.00	10	408.82	0.26%	0.02%	0.00%	2.38%	97.34%
NFS-0867	531	81	450	1.1	0.08	0.00	10	438.82	0.24%	0.02%	0.00%	2.22%	97.52%
NFS-0923	597	81	516	1.1	0.08	0.00	10	504.80	0.21%	0.02%	0.00%	1.94%	97.83%
NFS-0924	640	81	559	1.1	0.08	0.00	10	547.82	0.20%	0.01%	0.00%	1.79%	98.00%
NFS-0925	574	81	493	1.1	0.08	0.00	10	481.81	0.22%	0.02%	0.00%	2.03%	97.73%
NFS-0927	505	81	424	1.1	0.08	0.00	10	412.81	0.26%	0.02%	0.00%	2.36%	97.36%

Attachment 1

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Original Generator Container Paperwork

Container ID	Gross Wt (lbs)	Tare Wt (lbs)	Net Wt (lbs)	Drum Liner Bag Wt (lbs)	RADPAD Wt (lbs)	Solid-A-Sorb Wt (lbs)	RADSORB Wt (lbs)	Soil Wt (lbs)	Plastic Wt%	Cellulosic Wt%	Inorganic Matrix Wt%	Organic Matrix Wt%	Soil Wt%
NFS-0930	589	81	508	1.1	0.08	0.00	10	496.82	0.22%	0.02%	0.00%	1.97%	97.80%
NFS-0931	598	81	517	1.1	0.08	0.00	10	505.82	0.21%	0.02%	0.00%	1.93%	97.84%
X10C0506042	550	58	492	1.1	0.08	0.00	10	480.82	0.22%	0.02%	0.00%	2.03%	97.73%
X10C0506043	537	58	479	1.1	0.08	0.00	10	467.82	0.23%	0.02%	0.00%	2.09%	97.67%
X10C0506044	281	58	223	1.1	0.08	0.00	10	211.82	0.49%	0.04%	0.00%	4.48%	94.99%
X10C0506045	555	58	497	1.1	0.08	0.00	10	485.82	0.22%	0.02%	0.00%	2.01%	97.75%
X10C0506047	132	58	74	1.1	0.08	0.00	10	62.82	1.49%	0.11%	0.00%	13.51%	84.89%
X10C0506054	368	58	310	1.1	0.08	0.00	10	298.82	0.35%	0.03%	0.00%	3.23%	96.39%
X10C0506055	661	58	603	1.1	0.08	0.00	10	591.82	0.18%	0.01%	0.00%	1.66%	98.15%
X10C0506056	643	58	585	1.1	0.08	0.00	10	573.82	0.19%	0.01%	0.00%	1.71%	98.09%
X10C0506057	600	58	542	1.1	0.08	0.00	10	530.82	0.20%	0.01%	0.00%	1.85%	97.94%
X10C0506062	566	58	508	1.1	0.08	0.00	10	496.82	0.22%	0.02%	0.00%	1.97%	97.80%
X10C0506063	485	58	427	1.1	0.08	0.00	10	415.82	0.26%	0.02%	0.00%	2.34%	97.38%
X10C0506064	582	58	524	1.1	0.08	0.00	10	512.82	0.21%	0.02%	0.00%	1.91%	97.87%
X10C0506065	501	58	443	1.1	0.08	0.00	10	431.82	0.25%	0.02%	0.00%	2.26%	97.48%
X10C0506066	508	58	450	1.1	0.08	0.00	10	438.82	0.24%	0.02%	0.00%	2.22%	97.52%
X10C0506069	296	58	238	1.1	0.08	0.00	10	226.82	0.46%	0.03%	0.00%	4.20%	95.30%
X10C0506070	538	58	480	1.1	0.08	0.00	10	468.82	0.23%	0.02%	0.00%	2.08%	97.67%
X10C0506071	371	58	313	1.1	0.08	0.00	10	301.82	0.35%	0.03%	0.00%	3.19%	96.43%
X10C0506148A	--	--	461.56	1.1	0.00	75	0	386.76	0.24%	0.00%	16.25%	0.00%	83.79%
X10C0506150C	--	--	536.8	1.1	0.00	75	0	462.00	0.20%	0.00%	13.97%	0.00%	86.07%
X10C0506151C	--	--	459.36	1.1	0.00	75	0	384.56	0.24%	0.00%	16.33%	0.00%	83.72%
X10C0506151E	--	--	497.64	1.1	0.00	75	0	422.84	0.22%	0.00%	15.07%	0.00%	84.97%
X10C0506149B	--	--	536.8	1.1	0.00	75	0	462.00	0.20%	0.00%	13.97%	0.00%	86.07%
X10C0506149D	--	--	525.8	1.1	0.00	75	0	451.00	0.21%	0.00%	14.26%	0.00%	85.77%
X10C0506149E	--	--	493.24	1.1	0.00	75	0	418.44	0.22%	0.00%	15.21%	0.00%	84.83%
X10C0506150B	--	--	498.96	1.1	0.00	75	0	424.16	0.22%	0.00%	15.03%	0.00%	85.01%
X10C0506151B	--	--	511.28	1.1	0.00	75	0	436.48	0.22%	0.00%	14.67%	0.00%	85.37%
X10C0506152A	--	--	474.32	1.1	0.00	75	0	399.52	0.23%	0.00%	15.81%	0.00%	84.23%
X10C0506152B	--	--	512.16	1.1	0.00	75	0	437.36	0.21%	0.00%	14.64%	0.00%	85.40%
X10C0506150A	--	--	490.6	1.1	0.00	75	0	415.80	0.22%	0.00%	15.29%	0.00%	84.75%
X10C0506154G	--	--	364.98	1.1	0.00	75	0	290.18	0.30%	0.00%	20.55%	0.00%	79.51%
X10C0506148C	--	--	520.96	1.1	0.00	75	0	446.16	0.21%	0.00%	14.40%	0.00%	85.64%
X10C0506154A	--	--	284.24	1.1	0.00	75	0	209.44	0.39%	0.00%	26.39%	0.00%	73.68%
							MIN	**62.82**	**0.168%**	**0.000%**	**0.000%**	**0.000%**	**73.684%**
							MAX	**641.82**	**1.486%**	**0.108%**	**26.386%**	**13.514%**	**98.288%**
							AVERAGE	**489.17**	**0.224%**	**0.016%**	**0.4446%**	**1.977%**	**97.346%**

1. Grosss and tare weights reported on waste diposal forms (Reference M003).
2. Drum liner bag weight from CCP-TP-053 (converted from kg to lbs).
3. RADSORB weight from soil mixing procedure (Reference P315).
4. RADPAD weight from product information (Reference M011).
5. Soil weight is net weight minus liner bag and absorbent weights.

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0118	OR-RTR6-0070	1		1.0								237.7	**238.7**
NFS0347	OR-RTR6-0070	1		1.0								230.5	**231.5**
NFS0476	OR-RTR6-0070	1		1.0								238.3	**239.3**
NFS0486	OR-RTR6-0070	1		1.0								260.5	**261.5**
X10C0506055	OR-RTR6-0070	1		1.0								262.1	**263.1**
NFS0103	OR-RTR6-0080	2		1								232.5	**233.5**
NFS0104	OR-RTR6-0074	2		1								232.5	**233.5**
NFS0105	OR-RTR6-0071	2		1								212.9	**213.9**
NFS0106	OR-RTR6-0093	2		1								215.3	**216.3**
NFS0108	OR-RTR6-0075	2		1								236.7	**237.7**
NFS0109	OR-RTR6-0094	2		1								221.9	**222.9**
NFS0111	OR-RTR6-0076	2		1								236.9	**237.9**
NFS0112	OR-RTR6-0096	2		1								228.1	**229.1**
NFS0119	OR-RTR6-0096	2		1								228.1	**229.1**
NFS0120	OR-RTR6-0079	2		1								232.5	**233.5**
NFS0121	OR-RTR6-0096	2		1								257.1	**258.1**
NFS0122	OR-RTR6-0099	2		1								241.6	**242.6**
NFS0123	OR-RTR6-0098	2		1								270.1	**271.1**
NFS0124	OR-RTR6-0096	2		1								228.6	**229.6**
NFS0125	OR-RTR6-0078	2		1								242.7	**243.7**
NFS0126	OR-RTR6-0099	2		1								254.3	**255.3**
NFS0127	OR-RTR6-0079	2		1								215.7	**216.7**
NFS0131	OR-RTR6-0094	2		1								207.5	**208.5**
NFS0132	OR-RTR6-0081	2		1								241.7	**242.7**
NFS0134	OR-RTR6-0072	2		1								242.7	**243.7**
NFS0135	OR-RTR6-0075	2		1								228.5	**229.5**
NFS0136	OR-RTR6-0079	2		1								250.7	**251.7**
NFS0137	OR-RTR6-0098	2		1								246.8	**247.8**
NFS0138	OR-RTR6-0073	2		1								249.7	**250.7**
NFS0139	OR-RTR6-0073	2		1								238.3	**239.3**
NFS0140	OR-RTR6-0073	2		1								216.9	**217.9**
NFS0143	OR-RTR6-0101	2		1								237.7	**238.7**
NFS0144	OR-RTR6-0073	2		1								235.5	**236.5**
NFS0145	OR-RTR6-0073	2		1								241.5	**242.5**
NFS0152	OR-RTR6-0077	2		1								242.3	**243.3**
NFS0153	OR-RTR6-0101	2		1								245.3	**246.3**
NFS0155	OR-RTR6-0075	2		1								244.7	**245.7**
NFS0156	OR-RTR6-0098	2		1								239.1	**240.1**
NFS0157	OR-RTR6-0084	2		1								226.7	**227.7**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0159	OR-RTR6-0096	2		1								219.6	**220.6**
NFS0160	OR-RTR6-0082	2		1								230.7	**231.7**
NFS0161	OR-RTR6-0098	2		1								227.1	**228.1**
NFS0162	OR-RTR6-0076	2		1								239.1	**240.1**
NFS0163	OR-RTR6-0084	2		1								246.7	**247.7**
NFS0164	OR-RTR6-0100	2		1								225.3	**226.3**
NFS0165	OR-RTR6-0092	2		1								208.3	**209.3**
NFS0167	OR-RTR6-0077	2		1								236.5	**237.5**
NFS0168	OR-RTR6-0096	2		1								216.6	**217.6**
NFS0171	OR-RTR6-0104	2		1								212.5	**213.5**
NFS0172	OR-RTR6-0090	2		1								212.5	**213.5**
NFS0179	OR-RTR6-0090	2		1								201.9	**202.9**
NFS0186	OR-RTR6-0075	2		1								243.1	**244.1**
NFS0194	OR-RTR6-0074	2		1								225.9	**226.9**
NFS0195	OR-RTR6-0080	2		1								254.5	**255.5**
NFS0201	OR-RTR6-0085	2		1								225.5	**226.5**
NFS0202	OR-RTR6-0095	2		1								234.7	**235.7**
NFS0203	OR-RTR6-0080	2		1								221.7	**222.7**
NFS0205	OR-RTR6-0099	2		1								219.6	**220.6**
NFS0206	OR-RTR6-0095	2		1								246.5	**247.5**
NFS0207	OR-RTR6-0096	2		1								242.7	**243.7**
NFS0208	OR-RTR6-0096	2		1								221.6	**222.6**
NFS0209	OR-RTR6-0095	2		1								235.3	**236.3**
NFS0210	OR-RTR6-0081	2		1								232.5	**233.5**
NFS0211	OR-RTR6-0093	2		1								209.9	**210.9**
NFS0212	OR-RTR6-0100	2		1								242.3	**243.3**
NFS0214	OR-RTR6-0081	2		1								248.7	**249.7**
NFS0215	OR-RTR6-0094	2		1								252.9	**253.9**
NFS0218	OR-RTR6-0100	2		1								235.6	**236.6**
NFS0219	OR-RTR6-0094	2		1								246.1	**247.1**
NFS0220	OR-RTR6-0106	2		1								223.7	**224.7**
NFS0221	OR-RTR6-0096	2		1								244.6	**245.6**
NFS0223	OR-RTR6-0093	2		1								231.7	**232.7**
NFS0225	OR-RTR6-0093	2		1								249.7	**250.7**
NFS0226	OR-RTR6-0082	2	0.5	1								238.2	**239.7**
NFS0228	OR-RTR6-0093	2		1								246.9	**247.9**
NFS0231	OR-RTR6-0071	2		1								262.9	**263.9**
NFS0233	OR-RTR6-0094	2		1								220.1	**221.1**
NFS0234	OR-RTR6-0080	2		1								243.1	**244.1**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0235	OR-RTR6-0101	2		1								238.5	**239.5**
NFS0237	OR-RTR6-0081	2		1								244.1	**245.1**
NFS0587	OR-RTR6-0070	2		1								228.7	**229.7**
NFS0239	OR-RTR6-0071	3		1.0								244.3	**245.3**
NFS0240	OR-RTR6-0094	3		1.0								245.3	**246.3**
NFS0245	OR-RTR6-0093	3		1.0								230.3	**231.3**
NFS0247	OR-RTR6-0082	3		1.0								218.9	**219.9**
NFS0250	OR-RTR6-0100	3		1.0								213.8	**214.8**
NFS0251	OR-RTR6-0093	3		1.0								226.5	**227.5**
NFS0252	OR-RTR6-0094	3		1.0								234.7	**235.7**
NFS0253	OR-RTR6-0094	3		1.0								237.9	**238.9**
NFS0255	OR-RTR6-0071	3		1.0								234.9	**235.9**
NFS0256	OR-RTR6-0079	3		1.0								213.7	**214.7**
NFS0257	OR-RTR6-0100	3		1.0								221.3	**222.3**
NFS0258	OR-RTR6-0092	3		1.0								214.7	**215.7**
NFS0263	OR-RTR6-0096	3		1.0								253.6	**254.6**
NFS0265	OR-RTR6-0098	3		1.0								253.9	**254.9**
NFS0267	OR-RTR6-0073	3		1.0								221.5	**222.5**
NFS0268	OR-RTR6-0101	3		1.0								258.7	**259.7**
NFS0269	OR-RTR6-0073	3		1.0					0.2			227.3	**228.5**
NFS0271	OR-RTR6-0077	3		1.0								241.1	**242.1**
NFS0274	OR-RTR6-0106	3		1.0								223.6	**224.6**
NFS0276	OR-RTR6-0100	3		1.0								231	**232.0**
NFS0277	OR-RTR6-0094	3		1.0								239.7	**240.7**
NFS0280	OR-RTR6-0094	3		1.0								238.7	**239.7**
NFS0281	OR-RTR6-0098	3		1.0								256.7	**257.7**
NFS0283	OR-RTR6-0100	3		1.0								248.9	**249.9**
NFS0284	OR-RTR6-0072	3		1.0								222.9	**223.9**
NFS0286	OR-RTR6-0071	3		1.0								209.5	**210.5**
NFS0287	OR-RTR6-0080	3		1.0								214.5	**215.5**
NFS0290	OR-RTR6-0098	3		1.0								212.7	**213.7**
NFS0292	OR-RTR6-0098	3		1.0								209.2	**210.2**
NFS0296	OR-RTR6-0093	3		1.0								211.1	**212.1**
NFS0299	OR-RTR6-0072	3		1.0								215.1	**216.1**
NFS0301	OR-RTR6-0104	3		1.0								244.3	**245.3**
NFS0305	OR-RTR6-0073	3		1.0								227.1	**228.1**
NFS0306	OR-RTR6-0101	3		1.0								198.3	**199.3**
NFS0307	OR-RTR6-0084	3		1.0								230.7	**231.7**
NFS0311	OR-RTR6-0082	3		1.0								252.7	**253.7**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0313	OR-RTR6-0081	3		1.0								220.5	**221.5**
NFS0315	OR-RTR6-0078	3		1.0								270	**271.0**
NFS0316	OR-RTR6-0071	3		1.0								241.7	**242.7**
NFS0319	OR-RTR6-0093	3		1.0								244.7	**245.7**
NFS0320	OR-RTR6-0082	3		1.0								229.4	**230.4**
NFS0321	OR-RTR6-0092	3		1.0								207.7	**208.7**
NFS0322	OR-RTR6-0071	3		1.0								215.9	**216.9**
NFS0323	OR-RTR6-0078	3		1.0								252.1	**253.1**
NFS0326	OR-RTR6-0074	3		1.0								240.7	**241.7**
NFS0327	OR-RTR6-0082	3		1.0								214.5	**215.5**
NFS0329	OR-RTR6-0101	3		1.0								191.7	**192.7**
NFS0330	OR-RTR6-0074	3		1.0								256.1	**257.1**
NFS0332	OR-RTR6-0084	3		1.0								254.7	**255.7**
NFS0334	OR-RTR6-0093	3		1.0								215.5	**216.5**
NFS0335	OR-RTR6-0072	3		1.0								259.3	**260.3**
NFS0336	OR-RTR6-0072	3		1.0								250.7	**251.7**
NFS0340	OR-RTR6-0092	3		1.0								220.1	**221.1**
NFS0341	OR-RTR6-0074	3		1.0								273	**274.0**
NFS0342	OR-RTR6-0072	3		1.0								253.1	**254.1**
NFS0344	OR-RTR6-0098	3		1.0								216	**217.0**
NFS0345	OR-RTR6-0092	3		1.0								204.3	**205.3**
NFS0348	OR-RTR6-0098	3		1.0								201	**202.0**
NFS0349	OR-RTR6-0075	3		1.0								259.8	**260.8**
NFS0350	OR-RTR6-0093	3		1.0								241.1	**242.1**
NFS0440	OR-RTR6-0092	3		1.0								224.3	**225.3**
NFS0443	OR-RTR6-0104	3		1.0								233.3	**234.3**
NFS0444	OR-RTR6-0077	3		1.0								228.5	**229.5**
NFS0445	OR-RTR6-0100	3		1.0								247.2	**248.2**
NFS0446	OR-RTR6-0078	3		1.0								236.7	**237.7**
NFS0447	OR-RTR6-0104	3		1.0								222.3	**223.3**
NFS0451	OR-RTR6-0098	3		1.0								234.9	**235.9**
NFS0454	OR-RTR6-0100	3		1.0								249.4	**250.4**
NFS0458	OR-RTR6-0093	3		1.0							0.1	205	**206.1**
NFS0461	OR-RTR6-0072	3		1.0								213.7	**214.7**
NFS0463	OR-RTR6-0093	3		1.0								232.5	**233.5**
NFS0464	OR-RTR6-0081	3		1.0								231.9	**232.9**
NFS0465	OR-RTR6-0084	3		1.0								241.7	**242.7**
NFS0467	OR-RTR6-0096	3		1.0								214.1	**215.1**
NFS0471	OR-RTR6-0071	3		1.0								212.1	**213.1**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0146	OR-RTR6-0103	4		1.0								252.9	**253.9**
NFS0472	OR-RTR6-0095	4		1.0								217.3	**218.3**
NFS0473	OR-RTR6-0076	4		1.0								239.7	**240.7**
NFS0474	OR-RTR6-0078	4		1.0								243.4	**244.4**
NFS0475	OR-RTR6-0093	4		1.0								238.9	**239.9**
NFS0477	OR-RTR6-0094	4		1.0								225.7	**226.7**
NFS0488	OR-RTR6-0074	4		1.0								231.1	**232.1**
NFS0490	OR-RTR6-0100	4		1.0								223.5	**224.5**
NFS0492	OR-RTR6-0104	4		1.0								216.5	**217.5**
NFS0493	OR-RTR6-0098	4		1.0								229.3	**230.3**
NFS0495	OR-RTR6-0098	4		1.0								237.1	**238.1**
NFS0497	OR-RTR6-0072	4		1.0								242.3	**243.3**
NFS0498	OR-RTR6-0104	4		1.0								219.1	**220.1**
NFS0499	OR-RTR6-0075	4		1.0								232.7	**233.7**
NFS0518	OR-RTR6-0092	4		1.0								265.1	**266.1**
NFS0519	OR-RTR6-0072	4		1.0								251.7	**252.7**
NFS0520	OR-RTR6-0072	4		1.0								244.1	**245.1**
NFS0522	OR-RTR6-0096	4		1.0								268.6	**269.6**
NFS0523	OR-RTR6-0104	4		1.0								243.1	**244.1**
NFS0530	OR-RTR6-0075	4		1.0								249.5	**250.5**
NFS0531	OR-RTR6-0071	4		1.0								234.9	**235.9**
NFS0532	OR-RTR6-0072	4		1.0								248.1	**249.1**
NFS0533	OR-RTR6-0105	4		1.0								243.3	**244.3**
NFS0535	OR-RTR6-0104	4		1.0								242.9	**243.9**
NFS0544	OR-RTR6-0080	4		1.0								236.1	**237.1**
NFS0545	OR-RTR6-0094	4		1.0								221.3	**222.3**
NFS0546	OR-RTR6-0090	4		1.0								214.9	**215.9**
NFS0547	OR-RTR6-0104	4		1.0								266.3	**267.3**
NFS0548	OR-RTR6-0096	4		1.0								239.9	**240.9**
NFS0550	OR-RTR6-0096	4		1.0								257.3	**258.3**
NFS0552	OR-RTR6-0099	4		1.0								271.1	**272.1**
NFS0553	OR-RTR6-0081	4		1.0								261.7	**262.7**
NFS0556	OR-RTR6-0102	4		1.0								260.9	**261.9**
NFS0558	OR-RTR6-0081	4		1.0								221.5	**222.5**
NFS0559	OR-RTR6-0071	4		1.0								248.7	**249.7**
NFS0561	OR-RTR6-0090	4		1.0								250.3	**251.3**
NFS0562	OR-RTR6-0099	4		1.0								226.1	**227.1**
NFS0563	OR-RTR6-0077	4		1.0								266.5	**267.5**
NFS0564	OR-RTR6-0081	4		1.0								225.9	**226.9**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0566	OR-RTR6-0081	4		1.0								224.3	**225.3**
NFS0567	OR-RTR6-0082	4		1.0								251.7	**252.7**
NFS0585	OR-RTR6-0098	4		1.0								231.1	**232.1**
NFS0586	OR-RTR6-0081	4		1.0								246.3	**247.3**
NFS0589	OR-RTR6-0077	4		1.0								232.7	**233.7**
NFS0590	OR-RTR6-0098	4		1.0								232.6	**233.6**
NFS0595	OR-RTR6-0082	4		1.0								228.3	**229.3**
NFS0596	OR-RTR6-0077	4		1.0								222.7	**223.7**
NFS0655	OR-RTR6-0082	4		1.0								230.3	**231.3**
NFS0656	OR-RTR6-0096	4		1.0								233.7	**234.7**
NFS0657	OR-RTR6-0073	4		1.0								242.9	**243.9**
NFS0658	OR-RTR6-0073	4		1.0								213.9	**214.9**
NFS0659	OR-RTR6-0094	4		1.0								221.1	**222.1**
NFS0661	OR-RTR6-0075	4		1.0								225.3	**226.3**
NFS0675	OR-RTR6-0096	4		1.0								232.9	**233.9**
NFS0677	OR-RTR6-0094	4		1.0								239.9	**240.9**
NFS0683	OR-RTR6-0094	4		1.0								237.1	**238.1**
NFS0685	OR-RTR6-0095	4		1.0								205.3	**206.3**
NFS0686	OR-RTR6-0098	4		1.0								200.3	**201.3**
NFS0692	OR-RTR6-0104	4		1.0								235.7	**236.7**
NFS0693	OR-RTR6-0095	4		1.0								204.9	**205.9**
NFS0694	OR-RTR6-0104	4		1.0								185.9	**186.9**
NFS0700	OR-RTR6-0100	4		1.0								224.3	**225.3**
NFS0701	OR-RTR6-0098	4		1.0								232.3	**233.3**
NFS0702	OR-RTR6-0104	4		1.0								222.3	**223.3**
NFS0703	OR-RTR6-0105	4		1.0								201.7	**202.7**
NFS0704	OR-RTR6-0085	4		1.0								213.9	**214.9**
NFS0706	OR-RTR6-0085	4		1.0								242.9	**243.9**
NFS0707	OR-RTR6-0105	4		1.0								222.1	**223.1**
NFS0708	OR-RTR6-0100	4		1.0								215.7	**216.7**
NFS0709	OR-RTR6-0104	4		1.0								215.7	**216.7**
NFS0710	OR-RTR6-0095	4		1.0								228.7	**229.7**
NFS0712	OR-RTR6-0096	4		1.0								220.1	**221.1**
NFS0713	OR-RTR6-0094	4		1.0								220.7	**221.7**
NFS0715	OR-RTR6-0100	4		1.0								231.1	**232.1**
NFS0154	OR-RTR6-0103	5		1.0								239.9	**240.9**
NFS0198	OR-RTR6-0103	5		1.0								208.3	**209.3**
NFS0438	OR-RTR6-0103	5		1.0								237.5	**238.5**
NFS0537	OR-RTR6-0103	5		1.0								230.3	**231.3**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0716	OR-RTR6-0076	5		1.0								227.7	**228.7**
NFS0717	OR-RTR6-0098	5		1.0								237.6	**238.6**
NFS0718	OR-RTR6-0092	5		1.0								220.5	**221.5**
NFS0719	OR-RTR6-0094	5		1.0								222.7	**223.7**
NFS0720	OR-RTR6-0094	5		1.0								218.9	**219.9**
NFS0721	OR-RTR6-0100	5		1.0								208.7	**209.7**
NFS0722	OR-RTR6-0092	5	0.5	1.0								229.4	**230.9**
NFS0723	OR-RTR6-0101	5		1.0								222.1	**223.1**
NFS0726	OR-RTR6-0096	5		1.0								195.5	**196.5**
NFS0729	OR-RTR6-0099	5		1.0								184.6	**185.6**
NFS0730	OR-RTR6-0104	5		1.0								202.3	**203.3**
NFS0731	OR-RTR6-0099	5		1.0								229.1	**230.1**
NFS0735	OR-RTR6-0094	5		1.0								202.3	**203.3**
NFS0736	OR-RTR6-0100	5		1.0								214.2	**215.2**
NFS0738	OR-RTR6-0103	5		1.0								194.7	**195.7**
NFS0742	OR-RTR6-0077	5		1.0								214.9	**215.9**
NFS0743	OR-RTR6-0090	5		1.0								212.5	**213.5**
NFS0744	OR-RTR6-0092	5		1.0								207.1	**208.1**
NFS0745	OR-RTR6-0093	5		1.0								189.1	**190.1**
NFS0748	OR-RTR6-0077	5		1.0								204.1	**205.1**
NFS0750	OR-RTR6-0080	5		1.0								206.5	**207.5**
NFS0751	OR-RTR6-0100	5		1.0								209.9	**210.9**
NFS0760	OR-RTR6-0104	5		1.0							1.0	258.5	**260.5**
NFS0761	OR-RTR6-0081	5		1.0								235.1	**236.1**
NFS0762	OR-RTR6-0078	5		1.0								260.5	**261.5**
NFS0764	OR-RTR6-0099	5		1.0								237.6	**238.6**
NFS0768	OR-RTR6-0101	5		1.0								206.9	**207.9**
NFS0769	OR-RTR6-0100	5		1.0								219.1	**220.1**
NFS0770	OR-RTR6-0100	5		1.0								231.5	**232.5**
NFS0771	OR-RTR6-0096	5		1.0								230.1	**231.1**
NFS0773	OR-RTR6-0092	5		1.0								231.5	**232.5**
NFS0774	OR-RTR6-0073	5		1.0								238.3	**239.3**
NFS0778	OR-RTR6-0099	5		1.0								213.6	**214.6**
NFS0780	OR-RTR6-0093	5		1.0								214.9	**215.9**
NFS0781	OR-RTR6-0080	5		1.0								222.1	**223.1**
NFS0791	OR-RTR6-0071	5		1.0								218.1	**219.1**
NFS0795	OR-RTR6-0100	5		1.0								217.3	**218.3**
NFS0797	OR-RTR6-0093	5		1.0								216.5	**217.5**
NFS0801	OR-RTR6-0099	5		1.0								220.6	**221.6**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0803	OR-RTR6-0077	5		1.0								174.7	**175.7**
NFS0810	OR-RTR6-0101	5						0.1				168.2	**168.3**
NFS0812	OR-RTR6-0101	5						0.2				219.1	**219.3**
NFS0818	OR-RTR6-0104	5						1.0				173.5	**174.5**
NFS0820	OR-RTR6-0075	5		1.0								186.5	**187.5**
NFS0825	OR-RTR6-0100	5						0.6			18.0	186.5	**205.1**
NFS0828	OR-RTR6-0093	5		1.0								185.8	**186.8**
NFS0829	OR-RTR6-0092	5		1.0								197.9	**198.9**
NFS0836	OR-RTR6-0092	5		1.0								238.1	**239.1**
NFS0837	OR-RTR6-0092	5		1.0								257.7	**258.7**
NFS0841	OR-RTR6-0078	5		1.0								210.1	**211.1**
NFS0842	OR-RTR6-0071	5		1.0								219.7	**220.7**
NFS0846	OR-RTR6-0080	5		1.0								247.1	**248.1**
NFS0848	OR-RTR6-0105	5		1.0								206.7	**207.7**
NFS0851	OR-RTR6-0104	5		1.0								257.1	**258.1**
NFS0852	OR-RTR6-0093	5		1.0								213.9	**214.9**
NFS0867	OR-RTR6-0074	5		1.0								201.5	**202.5**
NFS0923	OR-RTR6-0071	5		1.0								230.3	**231.3**
NFS0924	OR-RTR6-0098	5		1.0								250.3	**251.3**
NFS0925	OR-RTR6-0103	5		1.0								220.3	**221.3**
NFS0930	OR-RTR6-0076	5		1.0								227.3	**228.3**
X10C0506042	OR-RTR6-0111	5		1.0								208.5	**209.5**
X10C0506044	OR-RTR6-0111	5		1.0								93.7	**94.7**
X10C0506057	OR-RTR6-0111	5		1.0								232.9	**233.9**
X10C0506066	OR-RTR6-0111	5		1.0								192.7	**193.7**
X10C0506070	OR-RTR6-0103	5		1.0							15.0	189.5	**205.5**
NFS0142	OR-RTR6-0106	6		1.0								239.1	**240.1**
NFS0147	OR-RTR6-0103	6		1.0								236.9	**237.9**
NFS0169	OR-RTR6-0101	6		1.0								227.3	**228.3**
NFS0177	OR-RTR6-0105	6		1.0								214.7	**215.7**
NFS0178	OR-RTR6-0103	6		1.0								229.1	**230.1**
NFS0191	OR-RTR6-0105	6		1.0								228.3	**229.3**
NFS0192	OR-RTR6-0105	6		1.0								204.9	**205.9**
NFS0236	OR-RTR6-0104	6		1.0								238.3	**239.3**
NFS0275	OR-RTR6-0106	6		1.0								234.1	**235.1**
NFS0294	OR-RTR6-0105	6		1.0								221.3	**222.3**
NFS0297	OR-RTR6-0105	6		1.0								253.9	**254.9**
NFS0453	OR-RTR6-0101	6		1.0								224.9	**225.9**
NFS0521	OR-RTR6-0101	6		1.0								255.1	**256.1**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0534	OR-RTR6-0101	6		1.0								257.9	**258.9**
NFS0557	OR-RTR6-0104	6		1.0								252.3	**253.3**
NFS0565	OR-RTR6-0101	6		1.0								234.5	**235.5**
NFS0698	OR-RTR6-0106	6		1.0								225.7	**226.7**
NFS0699	OR-RTR6-0105	6		1.0								211.3	**212.3**
NFS0738	OR-RTR6-0103	6		1.0								194.7	**195.7**
NFS0739	OR-RTR6-0101	6		1.0								208.7	**209.7**
NFS0749	OR-RTR6-0106	6		1.0								198.7	**199.7**
NFS0775	OR-RTR6-0101	6		1.0								200.3	**201.3**
NFS0844	OR-RTR6-0106	6		1.0				0.1				226.5	**227.6**
NFS0849	OR-RTR6-0101	6		1.0								233.9	**234.9**
X10C0506043	OR-RTR6-0103	6		1.0								203.9	**204.9**
X10C0506045	OR-RTR6-0103	6		1.0								211.9	**212.9**
X10C0506054	OR-RTR6-0103	6		3.0								126.7	**129.7**
X10C0506062	OR-RTR6-0103	6		1.0							51.0	168.1	**220.1**
X10C0506063	OR-RTR6-0103	6		1.0								181.1	**182.1**
X10C0506065	OR-RTR6-0103	6		1.0								189.3	**190.3**
X10C0506071	OR-RTR6-0103	6		1.0								130.3	**131.3**
NFS0110	OR-RTR6-0085	7		1.0								229.1	**230.1**
NFS0170	OR-RTR6-0091	7		1.0								215.3	**216.3**
NFS0174	OR-RTR6-0091	7		1.0								211.7	**212.7**
NFS0175	OR-RTR6-0091	7		1.0								225.1	**226.1**
NFS0204	OR-RTR6-0090	7		1.0								215.9	**216.9**
NFS0222	OR-RTR6-0086	7		1.0								241.7	**242.7**
NFS0232	OR-RTR6-0083	7		1.0								261.3	**262.3**
NFS0248	OR-RTR6-0085	7		1.0								217.9	**218.9**
NFS0260	OR-RTR6-0080	7		1.0								254.5	**255.5**
NFS0272	OR-RTR6-0090	7		1.0								228.3	**229.3**
NFS0282	OR-RTR6-0089	7		1.0								256.7	**257.7**
NFS0285	OR-RTR6-0086	7		1.0								212.1	**213.1**
NFS0288	OR-RTR6-0085	7		1.0								228.5	**229.5**
NFS0314	OR-RTR6-0089	7		1.0								244.7	**245.7**
NFS0324	OR-RTR6-0085	7		1.0								220.3	**221.3**
NFS0343	OR-RTR6-0085	7		1.0								258.9	**259.9**
NFS0346	OR-RTR6-0085	7		1.0								224.7	**225.7**
NFS0452	OR-RTR6-0070	7		1.0								232.5	**233.5**
NFS0457	OR-RTR6-0085	7		1.0								220.9	**221.9**
NFS0460	OR-RTR6-0086	7		1.0								208.9	**209.9**
NFS0468	OR-RTR6-0085	7		1.0								211.9	**212.9**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0484	OR-RTR6-0085	7		1.0								277.1	**278.1**
NFS0496	OR-RTR6-0085	7		1.0								246.3	**247.3**
NFS0536	OR-RTR6-0077	7		1.0								238.3	**239.3**
NFS0551	OR-RTR6-0084	7		1.0								247.5	**248.5**
NFS0588	OR-RTR6-0091	7		1.0								226.9	**227.9**
NFS0660	OR-RTR6-0091	7		1.0								224.3	**225.3**
NFS0670	OR-RTR6-0091	7		1.0								228.1	**229.1**
NFS0671	OR-RTR6-0085	7		1.0								233.1	**234.1**
NFS0676	OR-RTR6-0086	7		1.0								220.3	**221.3**
NFS0681	OR-RTR6-0083	7		1.0								218.9	**219.9**
NFS0690	OR-RTR6-0091	7		1.0								209.3	**210.3**
NFS0695	OR-RTR6-0091	7		1.0								220.1	**221.1**
NFS0705	OR-RTR6-0084	7		1.0								218.9	**219.9**
NFS0714	OR-RTR6-0091	7		1.0								212.1	**213.1**
NFS0724	OR-RTR6-0085	7		1.0								221.3	**222.3**
NFS0725	OR-RTR6-0086	7		1.0								196.7	**197.7**
NFS0734	OR-RTR6-0089	7		1.0								199.9	**200.9**
NFS0741	OR-RTR6-0091	7		1.0								217.3	**218.3**
NFS0746	OR-RTR6-0085	7		1.0								182.3	**183.3**
NFS0763	OR-RTR6-0078	7		1.0								211.3	**212.3**
NFS0765	OR-RTR6-0086	7		1.0								227.1	**228.1**
NFS0767	OR-RTR6-0084	7		1.0								216.7	**217.7**
NFS0798	OR-RTR6-0085	7		1.0								195.3	**196.3**
NFS0799	OR-RTR6-0086	7		1.0								197.7	**198.7**
NFS0802	OR-RTR6-0086	7		1.0								239.9	**240.9**
NFS0850	OR-RTR6-0085	7		1.0								236.5	**237.5**
NFS0862	OR-RTR6-0086	7		1.0								211.5	**212.5**
NFS0931	OR-RTR6-0086	7		1.0								231.3	**232.3**
NFS0129	OR-RTR6-0074	8		1.0								250.5	**251.5**
NFS0158	OR-RTR6-0074	8		1.0								234.3	**235.3**
NFS0193	OR-RTR6-0074	8		1.0								220.1	**221.1**
NFS0196	OR-RTR6-0074	8		1.0								213.5	**214.5**
NFS0199	OR-RTR6-0086	8		1.0								211.3	**212.3**
NFS0224	OR-RTR6-0077	8		1.0								250.9	**251.9**
NFS0242	OR-RTR6-0078	8		1.0								266.7	**267.7**
NFS0246	OR-RTR6-0078	8		1.0								276.4	**277.4**
NFS0254	OR-RTR6-0074	8		1.0								209.5	**210.5**
NFS0264	OR-RTR6-0081	8		1.0								251.9	**252.9**
NFS0295	OR-RTR6-0076	8		1.0								220.3	**221.3**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0298	OR-RTR6-0089	8		1.0								220.5	**221.5**
NFS0302	OR-RTR6-0081	8		1.0								209.5	**210.5**
NFS0304	OR-RTR6-0073	8		1.0								231.7	**232.7**
NFS0308	OR-RTR6-0074	8		1.0								218.3	**219.3**
NFS0309	OR-RTR6-0074	8		1.0								225.9	**226.9**
NFS0310	OR-RTR6-0089	8		1.0								254.7	**255.7**
NFS0312	OR-RTR6-0082	8		1.0								213.7	**214.7**
NFS0317	OR-RTR6-0078	8		1.0								204.9	**205.9**
NFS0331	OR-RTR6-0074	8		1.0								198.5	**199.5**
NFS0338	OR-RTR6-0080	8		1.0								259.7	**260.7**
NFS0339	OR-RTR6-0075	8		1.0								243.3	**244.3**
NFS0439	OR-RTR6-0076	8		1.0								242.1	**243.1**
NFS0442	OR-RTR6-0076	8		1.0								228.3	**229.3**
NFS0466	OR-RTR6-0083	8		1.0								231.1	**232.1**
NFS0469	OR-RTR6-0080	8		1.0								204.9	**205.9**
NFS0483	OR-RTR6-0085	8		1.0								285.3	**286.3**
NFS0485	OR-RTR6-0076	8		1.0								284.3	**285.3**
NFS0500	OR-RTR6-0076	8		1.0								246.7	**247.7**
NFS0560	OR-RTR6-0081	8		1.0								239.7	**240.7**
NFS0568	OR-RTR6-0080	8		1.0								229.1	**230.1**
NFS0569	OR-RTR6-0081	8		1.0								257.5	**258.5**
NFS0678	OR-RTR6-0080	8		1.0								214.3	**215.3**
NFS0679	OR-RTR6-0078	8		1.0								220.3	**221.3**
NFS0682	OR-RTR6-0076	8		1.0								202.5	**203.5**
NFS0696	OR-RTR6-0076	8		1.0								217.3	**218.3**
NFS0772	OR-RTR6-0078	8		1.0								216.7	**217.7**
NFS0779	OR-RTR6-0076	8		1.0								208.5	**209.5**
NFS0790	OR-RTR6-0076	8		1.0								234.3	**235.3**
NFS0796	OR-RTR6-0074	8		1.0								210.9	**211.9**
NFS0800	OR-RTR6-0076	8		1.0								189.5	**190.5**
NFS0819	OR-RTR6-0076	8		1.0								203.4	**204.4**
NFS0823	OR-RTR6-0089	8										173.3	**173.3**
NFS0826	OR-RTR6-0074	8		1.0								202.1	**203.1**
NFS0827	OR-RTR6-0076	8		1.0								150.9	**151.9**
NFS0830	OR-RTR6-0076	8		1.0								138.3	**139.3**
NFS0838	OR-RTR6-0078	8		1.0								240.9	**241.9**
NFS0845	OR-RTR6-0090	8		1.0					0.1			192.6	**193.7**
NFS0866	OR-RTR6-0076	8		1.0								187.7	**188.7**
NFS0133	OR-RTR6-0080	9										232.7	**232.7**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0141	OR-RTR6-0074	9										240.5	**240.5**
NFS0166	OR-RTR6-0078	9										233.7	**233.7**
NFS0173	OR-RTR6-0091	9										206.3	**206.3**
NFS0176	OR-RTR6-0091	9										220.7	**220.7**
NFS0185	OR-RTR6-0091	9										215.1	**215.1**
NFS0188	OR-RTR6-0080	9										241.9	**241.9**
NFS0189	OR-RTR6-0091	9										217.1	**217.1**
NFS0190	OR-RTR6-0077	9										233.9	**233.9**
NFS0197	OR-RTR6-0079	9										198.5	**198.5**
NFS0213	OR-RTR6-0074	9										212.9	**212.9**
NFS0216	OR-RTR6-0080	9										236.5	**236.5**
NFS0217	OR-RTR6-0080	9										250.7	**250.7**
NFS0238	OR-RTR6-0080	9										225.7	**225.7**
NFS0249	OR-RTR6-0079	9										213.1	**213.1**
NFS0262	OR-RTR6-0079	9										228.3	**228.3**
NFS0266	OR-RTR6-0073	9		1.0								240.1	**241.1**
NFS0270	OR-RTR6-0089	9										242.1	**242.1**
NFS0278	OR-RTR6-0084	9										236.5	**236.5**
NFS0293	OR-RTR6-0079	9										201.5	**201.5**
NFS0325	OR-RTR6-0079	9										230.1	**230.1**
NFS0337	OR-RTR6-0073	9		1.0								253.1	**254.1**
NFS0441	OR-RTR6-0077	9										241.3	**241.3**
NFS0449	OR-RTR6-0079	9										239.9	**239.9**
NFS0455	OR-RTR6-0078	9										199.5	**199.5**
NFS0456	OR-RTR6-0079	9										217.9	**217.9**
NFS0491	OR-RTR6-0084	9										230.9	**230.9**
NFS0494	OR-RTR6-0084	9										217.9	**217.9**
NFS0517	OR-RTR6-0091	9										250.8	**250.8**
NFS0570	OR-RTR6-0079	9										243.3	**243.3**
NFS0584	OR-RTR6-0091	9										228.3	**228.3**
NFS0662	OR-RTR6-0073	9		1.0								260.5	**261.5**
NFS0664	OR-RTR6-0077	9										225.1	**225.1**
NFS0665	OR-RTR6-0090	9										223.5	**223.5**
NFS0666	OR-RTR6-0078	9										224.3	**224.3**
NFS0669	OR-RTR6-0089	9										222.3	**222.3**
NFS0672	OR-RTR6-0077	9										231.5	**231.5**
NFS0680	OR-RTR6-0090	9										221.9	**221.9**
NFS0684	OR-RTR6-0081	9										216.7	**216.7**
NFS0687	OR-RTR6-0090	9										210.7	**210.7**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
NFS0697	OR-RTR6-0079	9		1.0								237.1	**238.1**
NFS0711	OR-RTR6-0089	9										205.3	**205.3**
NFS0727	OR-RTR6-0090	9										189.3	**189.3**
NFS0732	OR-RTR6-0091	9										250.1	**250.1**
NFS0733	OR-RTR6-0091	9										221.9	**221.9**
NFS0737	OR-RTR6-0078	9										216.3	**216.3**
NFS0747	OR-RTR6-0077	9										198.9	**198.9**
NFS0782	OR-RTR6-0090	9										207.5	**207.5**
NFS0792	OR-RTR6-0078	9										237.7	**237.7**
NFS0128	OR-RTR6-0090	10		1.0								227.5	**228.5**
NFS0130	OR-RTR6-0084	10		1.0								235.3	**236.3**
NFS0180	OR-RTR6-0090	10		1.0								243.7	**244.7**
NFS0181	OR-RTR6-0081	10		1.0								235.1	**236.1**
NFS0184	OR-RTR6-0090	10		1.0								238.1	**239.1**
NFS0187	OR-RTR6-0090	10		1.0								213.1	**214.1**
NFS0200	OR-RTR6-0085	10		1.0								228.2	**229.2**
NFS0227	OR-RTR6-0082	10		1.0								240.1	**241.1**
NFS0241	OR-RTR6-0084	10		1.0								219.1	**220.1**
NFS0243	OR-RTR6-0083	10		1.0								250.7	**251.7**
NFS0244	OR-RTR6-0082	10		1.0								232.5	**233.5**
NFS0273	OR-RTR6-0090	10		1.0								236.9	**237.9**
NFS0279	OR-RTR6-0077	10		1.0								237.5	**238.5**
NFS0289	OR-RTR6-0084	10		1.0								229.1	**230.1**
NFS0291	OR-RTR6-0083	10		1.0								208.1	**209.1**
NFS0303	OR-RTR6-0081	10	0.5	1.0								219.2	**220.7**
NFS0333	OR-RTR6-0079	10		1.0								234.7	**235.7**
NFS0459	OR-RTR6-0082	10		1.0								201.1	**202.1**
NFS0549	OR-RTR6-0090	10		1.0								245.7	**246.7**
NFS0688	OR-RTR6-0090	10		1.0								237.1	**238.1**
NFS0544	OR-RTR6-0080	11		1.0								236.1	**237.1**
NFS0668	OR-RTR6-0094	11		1.0								220.7	**221.7**
NFS0691	OR-RTR6-0091	11		1.0								210.7	**211.7**
NFS0824	OR-RTR6-0077	11							2.6			203.3	**205.9**
NFS0847	OR-RTR6-0104	11		1.0								201.5	**202.5**
X10C0506047	OR-RTR6-0305	11		2.0								19.9	**21.9**
X10C0506064	OR-RTR6-0111	11		1.0					0.1			225.2	**226.3**
X10C0506148A	OR-RTR6-0110	11		1.0								168.8	**209.8**
X10C0506148C	OR-RTR6-0110	11		1.0							40	236.6	**237.6**
X10C0506149B	OR-RTR6-0111	11		1.0								243	**244.0**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Batch Data Report No.	Lot	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)	Total (kg)
X10C0506149D	OR-RTR6-0111	11		1.0								238	**239.0**
X10C0506149E	OR-RTR6-0111	11		1.0								223.2	**224.2**
X10C0506150A	OR-RTR6-0317	11		1.0								222	**223.0**
X10C0506150B	OR-RTR6-0111	11		1.0							0.5	225.3	**226.8**
X10C0506150C	OR-RTR6-0110	11		1.0				0.1				242.9	**244.0**
X10C0506151B	OR-RTR6-0111	11		1.0								231.4	**232.4**
X10C0506151C	OR-RTR6-0110	11		1.0								207.8	**208.8**
X10C0506151E	OR-RTR6-0110	11		1.0								225.2	**226.2**
X10C0506152A	OR-RTR6-0111	11		1.0								214.6	**215.6**
X10C0506152B	OR-RTR6-0111	11		1.0								231.8	**232.8**
		117645.1	**1.5**	**469.0**	**0.0**	**0.0**	**0.0**	**5.1**	**0.0**	**0.0**	**125.6**	**117043.9**	**Min**
		Wt%	**0.001%**	**0.399%**	**0.000%**	**0.000%**	**0.000%**	**0.004%**	**0.000%**	**0.000%**	**0.107%**	**99.489%**	**Max**

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0118	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0347	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0476	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0486	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
X10C0506055	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0103	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0104	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0105	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0106	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0108	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0109	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0111	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0112	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0119	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0120	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0121	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0122	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0123	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0124	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0125	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0126	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0127	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0131	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0132	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0134	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0135	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0136	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0137	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0138	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0139	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0140	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0143	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0144	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0145	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0152	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0153	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0155	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0156	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0157	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0159	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0160	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0161	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0162	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0163	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0164	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0165	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0167	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0168	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0171	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0172	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0179	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0186	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0194	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0195	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0201	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0202	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0203	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0205	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0206	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0207	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0208	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0209	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0210	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0211	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0212	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0214	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0215	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0218	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0219	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0220	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0221	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0223	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0225	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0226	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.4%
NFS0228	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0231	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0233	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0234	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0235	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0237	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0587	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0239	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0240	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0245	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0247	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0250	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0251	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0252	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0253	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0255	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0256	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0257	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0258	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0263	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0265	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0267	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0268	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0269	0.0%	0.4%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	99.5%
NFS0271	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0274	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0276	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0277	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0280	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0281	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0283	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0284	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0286	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0287	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0290	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0292	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0296	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0299	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0301	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0305	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0306	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0307	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0311	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0313	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0315	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0316	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0319	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0320	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0321	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0322	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0323	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0326	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0327	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0329	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0330	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0332	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0334	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0335	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0336	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0340	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0341	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0342	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0344	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0345	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0348	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0349	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0350	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0440	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0443	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0444	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0445	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0446	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0447	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0451	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0454	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0458	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0461	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0463	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0464	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0465	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0467	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0471	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0146	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0472	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0473	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0474	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0475	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0477	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0488	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0490	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0492	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0493	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0495	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0497	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0498	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0499	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0518	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0519	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0520	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0522	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0523	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0530	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0531	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0532	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0533	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0535	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0544	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0545	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0546	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0547	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0548	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0550	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0552	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0553	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0556	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0558	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0559	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0561	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0562	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0563	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0564	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0566	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0567	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0585	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0586	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0589	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0590	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0595	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0596	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0655	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0656	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0657	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0658	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0659	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0661	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0675	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0677	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0683	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0685	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0686	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0692	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0693	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0694	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0700	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0701	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0702	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0703	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0704	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0706	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0707	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0708	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0709	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0710	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0712	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0713	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0715	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0154	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0198	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0438	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0537	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0716	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0717	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0718	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0719	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0720	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0721	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0722	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.4%
NFS0723	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0726	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0729	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0730	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0731	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0735	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0736	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0738	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0742	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0743	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0744	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0745	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0748	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0750	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0751	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0760	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	99.2%
NFS0761	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0762	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0764	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0768	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0769	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0770	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0771	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0773	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0774	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0778	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0780	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0781	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0791	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0795	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0797	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0801	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0803	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.4%
NFS0810	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	99.9%
NFS0812	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	99.9%
NFS0818	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	99.4%
NFS0820	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0825	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	8.8%	90.9%
NFS0828	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0829	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0836	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0837	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0841	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0842	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0846	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0848	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0851	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0852	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0867	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0923	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0924	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0925	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0930	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
X10C0506042	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
X10C0506044	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	98.9%
X10C0506057	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
X10C0506066	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
X10C0506070	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.3%	92.2%
NFS0142	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0147	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0169	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0177	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0178	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0191	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0192	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0236	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0275	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0294	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0297	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0453	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0521	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0534	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0557	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0565	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0698	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0699	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0738	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0739	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0749	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0775	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0844	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0849	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
X10C0506043	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
X10C0506045	0.0%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	97.7%
X10C0506054	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	23.2%	76.4%
X10C0506062	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
X10C0506063	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
X10C0506065	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.2%
X10C0506071	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0110	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0170	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0174	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0175	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0204	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0222	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0232	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0248	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0260	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0272	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0282	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0285	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0288	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0314	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0324	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0343	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0346	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0452	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0457	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0460	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0468	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0484	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0496	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0536	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0551	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0588	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0660	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0670	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0671	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0676	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0681	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0690	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0695	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0705	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0714	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0724	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0725	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0734	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0741	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0746	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0763	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0765	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0767	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0798	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0799	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0802	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0850	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0862	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0931	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0129	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0158	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0193	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0196	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0199	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0224	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0242	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0246	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0254	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0264	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0295	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0298	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0302	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0304	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0308	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0309	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0310	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0312	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0317	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0331	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0338	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0339	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0439	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0442	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0466	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0469	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0483	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.7%
NFS0485	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0500	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0560	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0568	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0569	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0678	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0679	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0682	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0696	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0772	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0779	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0790	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0796	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0800	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0819	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0823	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0826	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0827	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.3%
NFS0830	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.3%
NFS0838	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0845	0.0%	0.5%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	99.4%
NFS0866	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0133	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0141	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0166	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0173	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0176	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0185	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0188	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0189	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0190	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0197	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0213	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0216	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0217	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0238	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0249	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0262	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0266	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0270	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0278	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0293	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0325	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0337	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0441	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0449	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0455	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0456	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0491	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0494	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0517	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0570	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0584	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0662	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0664	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0665	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0666	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0669	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0672	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0680	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0684	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0687	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
NFS0697	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0711	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0727	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0732	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0733	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0737	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0747	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0782	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0792	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
NFS0128	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0130	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0180	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0181	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0184	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0187	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0200	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0227	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0241	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0243	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0244	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0273	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0279	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0289	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0291	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0303	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.3%
NFS0333	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0459	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0549	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0688	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0544	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
NFS0668	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0691	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
NFS0824	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	98.7%
NFS0847	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
X10C0506047	0.0%	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	90.9%
X10C0506064	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
X10C0506148A	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.1%	80.5%
X10C0506148C	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
X10C0506149B	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%

Attachment 2

Waste Material Parameter Weight Evaluation for Waste Stream OR-NFS-CH-SOIL

Based on Certified CCP RTR Data

Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Alum.-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/ gravel (kg)
X10C0506149D	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
X10C0506149E	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
X10C0506150A	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
X10C0506150B	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	99.3%
X10C0506150C	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
X10C0506151B	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
X10C0506151C	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
X10C0506151E	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
X10C0506152A	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.5%
X10C0506152B	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%
	0.0%	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**76.37%**
	0.23%	**9.13%**	**0.00%**	**0.00%**	**0.00%**	**1.26%**	**0.00%**	**0.00%**	**23.17%**	**100.00%**

2.3% (w/o X10C0506047)

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Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging

Site(s): Oak Ridge National Laboratory (RH)

Waste Stream Description: REDC RH Transuranic Debris Waste

Container ID Numbers: See CCP-TP-005 Attachment 8 for final drum identification numbers

Waste Stream Number: OR-REDC-RH-HET	
Physical Waste Form (e.g., debris, solidified waste)	Debris
Summary Category Group [a]	S5000
Waste Matrix Code Group [a]	Heterogeneous Debris Waste
Waste Matrix Code [b]	S5400
Waste Material Parameter Weights [c] See attached Evaluation - C003	Estimated Waste Stream Weight Percent Average (attach evaluation justifying percentages)
Iron-based metals/alloys (stainless steel)	59.13%
Aluminum-based metals/alloys (Al sleeve/holder)	0.01%
Other metals (plutonium and beryllium)	5.91%
Other inorganic materials	16.78%
Cellulosics (wood bracing)	6.68%
Rubber	1.66%
Plastics (waste materials)	8.62%
Organic matrix	0.0%
Inorganic matrix	1.21%
Soils/Gravels	0.0%
Packaging Materials	Present (Y/N)?
Steel	Y
Plastics	Y
Prohibited Wastes [d,e,f,g]	Present (Y/N)?
Observable liquid shall be no more than 1 percent by volume of the outermost container at the time of RTR or VE. Observable liquid shall be no more than 60 milliliters or 3 percent by volume, whichever is greater, in an internal container. Observable liquid shall not be present in a container with EPA HWN U134 assigned.	Y
Non-radionuclide pyrophoric materials	N
Sealed containers > 4 liters	Y
Hazardous waste not occurring as co-contaminants with TRU mixed waste (non-mixed hazardous waste)	N

* Due to the nature of this waste stream and similar RH debris waste it is expected that lesser amounts of aluminum, rubber, inorganic matrix, and organic matrix may be encountered during the repackaging of the M-III bins.

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DATE RECD 1/4/14 AP

Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging (continued)

Waste Stream Number: OR-REDC-RH-HET	
Explosives	N
Compressed gases	Y – aerosol cans
Residual hydrofluoric acid (if U134 assigned to stream)	N
Residual PCB liquids[j]	N
Ignitables (EPA Hazardous Waste Number D001)	N
Corrosives (EPA Hazardous Waste Number D002)	N
Reactives (EPA Hazardous Waste Number D003)	N
Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes[h]	N
Spent Nuclear fuel or high-level waste[i]	N
Any un-vented plastic bags > 4 liters that have been heat-sealed	N
Additional Information (if available)	———
Packaging	———
Waste container type?	Filtered 55-gallon drum
Liner type?	None
Is liner punctured?	NA
Is filter vent installed?	NucFil-019DS
Maximum number of confinement layers	No layers of confinement in 55-gallon drum.

a. Source: *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (CCP-PO-001) Introduction.
b. Source: *Transuranic Waste Baseline Inventory Report* (DOE/CAO-95-1121) or DOE Waste Treatability Group Guidance (DOE/LLW-217). Note: the waste matrix code should not be assigned at the summary category group level.
c. Source: CCP-PO-001 – Table C3-1. Attach the Waste Material Parameter Evaluation Memorandum used to estimate values include in this Table (see Section 4.4.27).
d. Source: CCP-PO-001 – Section C-1c
e. Source: *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WAC)(DOE/WIPP-02-3122), Section 3
f. Source: *TRUPACT-II Content Codes* (TRUCON) (DOE/WIPP 89-004)
g. Source: *TRUPACT-II Authorized Methods for Payload Control (TRAMPAC), Nuclear Waste Partnership*, LLC
h. This waste has been approved for disposal at the WIPP by the Permittee as documented by Appendix C1 of the WIPP RCRA Part B Permit Application and the Permittee's approval and assignment of the applicable TRUCON Codes for this waste stream.
i. Source: *Nuclear Waste Policy Act of 1982* (42 U.S.C. 10101)
j. Source: Polychlorinated Biphenyls (PCBs) manufacturing, Processing, Distribution and Commerce, and Use Prohibitions (40 CFR 761)

Acceptable Knowledge Expert: Kevin J. Peters / [signature] Date: 12/30/2013
Print Sign

Memorandum

To: CCP Records

From: Steve Schafer, AKE

Date: April 24, 2008

Re: Waste Material Parameter Estimates for Waste Stream OR-REDC-RH-HET, ORNL Radiochemical Engineering Development Center, Mixed Heterogeneous Debris Waste

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In accordance to *CCP Acceptable Knowledge Documentation*, CCP-TP-005, Revision 18, Section
4.4.24, Waste Material Parameters (WMP) shall be estimated on a weight percent basis for the waste stream, documenting the assumptions and justification for deriving the estimated WMP.

To estimate the relative WMP for waste stream OR-REDC-RH-HET, data were obtained from Oak Ridge National Laboratory (ORNL) personnel in the form of electronic databases and miscellaneous site specific waste disposal, transportation, and storage forms. The ORNL RH-TRU Database Inventory was queried for containers originating from the Radiochemical Engineering Development Center (REDC) designhnated as remote-handled (RH) waste generated after November 1991. These casks were selected because they are the first casks that will be repackaging in the Transuranic Waste Processing Center (TWPC). Additionally, the container documentation generated after 1990 typically includes waste item descriptions that are sufficient to estimate the waste material parameters within the cask. A majority of the earlier container documentation contains limited information and typically only identifies the entire casks as "burnable" or "unburnable" and no estimate of WMP can be made based on the description provided. The hot cells "closed production line" operations remained relatively constant and did not change significantly with respected to anticipated types of waste materials generated; therefore, the population evaluated is representative of the entire waste stream.

The population selected consists of 45 casks, generated between 12/4/91 and 2/6/07. Based on review of waste generator documentation for each cask (e.g., 2109 forms), each cask may contain numerous inner containers, ranging from a single poly bag, to 63 metal cans nested inside 63 poly buckets. Site documentation did not quantify the contents of this waste in regards to WMPs, so estimates were made based on the content descriptions, and the recorded volume percent of combustibles. In cases where the volume percent of combustibles was not recorded on the 2109 form, an estimate was made by averaging the inner containers' percent combustibles. Once a cask was assigned WMPs by volume percent, a specific gravity was applied for each WMP to convert it to a weight percent. An average weight percent was then calculated by using the net weight of each cask as recorded in the ORNL RH-TRU Database.

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Attachments 1 and 2 present the item descriptions, estimates and calculations performed for each of the 45 casks.

The following assumptions were made during the process of estimating the WMP from the existing site documentation:

1) Where volumes were not given for inner containers within a cask, it was assumed all volumes were equal.
2) Any description with just "metal" was assumed to be iron based. This assumption will most likely under estimate the amount of aluminum based and other metals. "Electrical wire" was assumed to be copper and assigned to Other Metals. Electric motors were assumed to contain both iron based metal and copper.
3) Since waste descriptions did not contain volumes for the items described in a container, each item was generally given equal volume in the container. (For example: a cask is described as containing metal, plastic, paper, and glass, and the percent volume combustibles is estimated by the generator at 25 percent. In this case, the WMP were estimated as follows: A volume percent of 37.5% Iron Based Metal, 37.5% Other Inorganic Materials (glass) , 12.5% Cellulosics (paper), and 12.5% Plastic.)
4) The following specific gravities were used:

Iron Based Metals	Al Based Metals	Other Metals	Other Inorganic Materials	Cellulosics	Rubber	Plastic	Organic Matrix	Inorganic Matrix	Soils/ Gravel
7.8	2.6	11	2.6	1.2	1	1	2.5	2.5	1.5

Note: Specific gravities were determined using the Weight & Properties of Materials tables compiled by Thomas J. Glover in the Pocket Reference, 2nd Edition.

5) All internal packaging (e.g., bags, cans, plastic buckets) are considered waste.

6) The percent volume combustibles recorded by the generator is assumed to include internal packaging.

7) Fill factors for all WMPs are equal (i.e. The % void space in container is the same for metal, paper, plastic, or grouted material).

8) VOG filters assumed to contain paper, charcoal, and metal.

Based on the process described above the WMP for this waste stream is estimated to be the following:

WMP Description	Average Weight Percent	Weight Percentage Range		
1) Iron Base Metal Alloys	59.13%	30.23%	to	95.51%
2) Aluminum Base Metal/Alloys	0.01%	0.00%	to	0.64%
3) Other Metal/Alloys	5.91%	0.00%	to	52.38%
4) Other Inorganic Materials	16.78%	0.00%	to	47.51%
5) Cellulosics	6.68%	0.00%	to	18.03%
6) Rubber	1.66%	0.00%	to	11.90%

WMP Description	Average Weight Percent	Weight Percentage Range		
7) Plastics	8.62%	1.44%	to	30.97%
8) Organic Matrix	0.00%	0.00%	to	0.00%
9) Inorganic Matrix	1.21%	0.00%	to	7.93%
10) Soil/Gravel	0.00%	0.00%	to	0.00%
11) Steel (Packaging Materials)	0.00%	0.00%	to	0.00%
12) Plastics (Packaging Materials)	0.00%	0.00%	to	0.00%
Total Inorganic	**83.03%**			
Total Organic	**16.97%**			

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
X10C0011087			7920		25			
	72			Plastic , glass, metal, paper		7/24/2000	BAGP	5
	73			Plastic , glass, metal, paper		7/24/2000	BAGP	5
	74			Plastic , glass, metal, paper, cloth		7/24/2000	BAGP	5
	75			Plastic , glass, metal, paper, cloth		11/20/2000	BAGP	5
	76			Plastic , glass, metal, paper, cloth		7/24/2000	BAGP	5
	77			Plastic , glass, metal, paper		7/24/2000	BAGP	5
	78			Metal, glass, plastic		11/20/2000	BAGP	5
X10C0011088			7920		25			
	1			VOG filter, metal, paper		8/22/2000	BAGP	16
	2			Pipe tunnel waste, metal, plastic		8/31/2000	BAGP	6
	3			4 poly buckets, MSM Boots, metal, poly		9/15/2000	BAGP	3
X10C0011102			7920		50			
	1			3 hopcalite filters (metal)		4/26/2001	BAGP	8
	2			MSM boots		5/4/2001	BAGP	12
	3			misc. plastic and metal filters		5/4/2001	BAGP	3
X10C0011108			7920		25			
	1			glass, paper, cloth, poly, metal		8/12/2002	BAGP	2.4
	2			glass, paper, cloth, poly, metal		8/12/2002	BAGP	2.4
	3			glass, paper, cloth, poly, metal		8/12/2002	BAGP	2.4
	4			glass, paper, cloth, poly, metal		8/12/2002	BAGP	2.4
	5			glass, paper, cloth, poly, metal		8/12/2002	BAGP	2.4
	6			glass, paper, cloth, poly, metal		8/12/2002	BAGP	2.4
	7			glass, paper, cloth, poly, metal		8/12/2002	BAGP	2.4
X10C0201071			7920		25			
	1(86)			Plastic, glass, metal		10/17/2002	BAGP	2.4
	2(87)			Plastic, glass		10/17/2002	BAGP	2.4
	3(88)			Plastic, glass		10/17/2002	BAGP	2.4
	4(89)			Plastic, glass		10/17/2002	BAGP	2.4
	5(90)			Plastic, glass, metal		10/17/2002	BAGP	2.4
	6(91)			Plastic, glass		10/17/2002	BAGP	2.4
	7(92)			Plastic, glass		10/17/2002	BAGP	2.4
	8(S-25)			Plastic, glass		10/17/2002	BAGP	2.4
	9(100)			Metal (In-cell furnace, no electronics)		10/17/2002	BAGP	1.2

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
					50			
X10C0201072			7920			1/15/2003	BAGP	4
	1			1'x2'x2' Charcoal filter/metal		1/15/2003	BAGP	4
	2			1'x2'x2' Charcoal filter/metal		1/22/2003	BAGP	2
	3			15 pieces of cut up steel tubing		7/23/2003	BAGP	15
	4			(19) buckets with MSM boots/plastic & metal		1/22/2003	BAGP	3
	5			(3) buckets of glovebox waste/plastic & metal		1/18/2003	BAGP	2
	6			Bag with tools, glass tank, cloth wipes, plastic pan				
					50			
X10C0300529			7920			4/5/2004	Bag	7.5
	1			Plastic, Glass, String		4/5/2004	Bag	7.5
	2			Glass, poly, String		4/5/2004	Bag	7.5
	3			Glass, poly, paper		4/5/2004	Bag	7.5
	4			Plastic, Glass, String, Metal, Paper		4/5/2004	Bag	7.5
	5			Plastic, glass, grout, string		4/5/2004	Bag	7.5
	6			Paper, glass, metal, poly, grout		4/5/2004	Bag	7.5
	7			Plastic, metal, string				
					50			
X10C0402055			7920			7/21/2005	Bag	7
	1			Center Hopcalite Filter (non RCRA)		7/21/2005	Bag	7
	2			East Hopcalite Filter (non RCRA)		7/21/2005	Bag	7
	3			West Hopcalite Filter (non RCRA)		7/21/2005	Bag	7
	4			East Charcoal Filter (non RCRA)		7/21/2005	Bag	7
	5			West Charcoal Filter (non RCRA)		7/21/2005	Poly bucket	0.75
	6			MSM boots #1618		7/21/2005	Bag	2
	7			Lab waste - metal, glass, plastic		7/21/2005	Poly bucket	0.75
	8			MSM boots #1610		7/21/2005	Bag	2
	9			Lab waste - metal, glass, plastic		7/21/2005	Poly bucket	0.75
	10			MSM boots #1617		7/21/2005	Poly bucket	2.25
	11			MSM boots #1625, #1623, #1624		7/21/2005	Poly bucket	2.25
	12			MSM boots #1619, #1618, #1621				

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	13			MSM boots #1622		7/21/2005	Poly bucket	0.75
	14			MSM boots #1615		7/21/2005	Poly bucket	0.75
	15			MSM boots #1616		7/21/2005	Poly bucket	0.75
	16			MSM boots #1603		7/21/2005	Poly bucket	0.75
	17			MSM boots #1614		7/21/2005	Poly bucket	0.75
	18			MSM boots #1613		7/21/2005	Poly bucket	0.75
	19			Lab waste solids		7/21/2005	Bag	0.5
	20			Analytical glovebox waste		7/21/2005	Bag	0.5
	21			Analytical glovebox waste		7/21/2005	Bag	0.5
	22			Analytical glovebox waste		7/21/2005	Bag	0.5
	23			Analytical glovebox waste		7/21/2005	Bag	0.5
	24			Analytical glovebox waste		7/21/2005	Bag	0.5
	25			Analytical glovebox waste		7/21/2005	Bag	0.5
	26			Analytical glovebox waste		7/21/2005	Bag	0.5
	27			Analytical glovebox waste		7/21/2005	Bag	0.5
	28			Analytical glovebox waste		7/21/2005	Bag	0.5
	29			Analytical glovebox waste		7/21/2005	Bag	0.5
	30			Analytical glovebox waste		7/21/2005	Bag	0.5
	31			Analytical glovebox waste		7/21/2005	Bag	0.5
	32			Analytical glovebox waste		7/21/2005	Bag	0.5
	33			Analytical glovebox waste		7/21/2005	Bag	0.5
	34			Analytical glovebox waste		7/21/2005	Bag	0.5
	35			Analytical glovebox waste		7/21/2005	Bag	0.5
	36			Analytical glovebox waste		7/21/2005	Bag	0.5
						7/21/2005	Bag	0.5
X10C0505647			7920					
	101			buckets of metal, glass, & plastic debris	70			
	102			buckets of metal, glass, & plastic debris		12/6/2006	BAGP	7.8
	103			buckets of metal, glass, & plastic debris		12/6/2006	BAGP	7.8
	104			buckets of metal, glass, & plastic debris		12/6/2006	BAGP	7.8
	105			buckets of metal, glass, & plastic debris		12/6/2006	BAGP	7.8
	44			buckets of metal, glass, & plastic debris		12/6/2006	BAGP	7.8
	47			buckets of metal, glass, & plastic debris		12/6/2006	BAGP	7.8

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
X10C0601826			7920		60			
	106			metal, glass, plastic, circuit boards debris		2/6/2007	BAGP	10
	107			metal, glass, plastic, light bulb bases debris		2/6/2007	BAGP	10
	108			metal, glass, plastic, circuit boards debris		2/6/2007	BAGP	10
	109			metal, glass, plastic, circuit boards debris		2/6/2007	BAGP	10
	X430687A			plastic, rubber, rope debris, poly bottles		2/6/2007	BAGP	10
	X430687B			lead shielding		2/6/2007	BAGP	2
X10C9304038			7920		29			
	X10I9305919/W-458			MT003, MT008, MT010	85	9/30/1993	poly bucket	0.27
		no number		metal, plastic, paper, cloth in 1-gal paint can (placed inside W-458 after survey)	10	9/21/1993	1-gal can	0.14
	X10I9305920/V-1			VOG filter and housing	10	9/2/1993	?	6.7
	X10I9305921/W-463			MT008, MT005, MT010		10/12/1993	poly bucket	0.27
		2225		20% by volume in 1-gal paint can (placed inside W-463 after survey)	20	9/21/1993	1-gal can	0.14
	X10I9305922/W-464			MT003, MT008, MT007		10/12/1993	poly bucket	0.27
		2229		needles, poly, string in 1-gal paint can (placed inside W-464 after survey)	90	10/11/1993	1-gal can	0.14
	X10I9305923/W-465			MT003, MT008, MT007		10/12/1993	poly bucket	0.27
		2226		wipes, cheese cloth, glass, metal in 1-gal paint can (placed inside W-465 after survey)	75	10/11/1993	1-gal can	0.14
	X10I9305925/W-474			MT010, MT007, MT003		10/18/1993	poly bucket	0.27
		no number		string, plastic, metal in 1-gal paint can (placed inside W-474 after survey)	70	9/21/1993	1-gal can	0.14

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9305926/W-476			MT010, MT008, MT007 (poly tubes, paper)		10/21/1993	poly bucket	0.27
		2182		melted poly, wire, string, wipes in 1-gal paint can (placed inside W-476 after survey)	90	10/21/1993	1-gal can	0.14
	X10I9305927/W-480			MT010, MT003		10/21/1993	poly bucket	0.27
		2011		melted poly, string, in 1-gal paint can (placed inside W-480 after survey)	100	10/21/1993	1-gal can	0.14
	X10I9305928/W-482			MT007, MT003		10/21/1993	poly bucket	0.27
		2252		metal lids, tools, light sockets, string in 1-gal paint can (placed inside W-482 after survey)	10	10/21/1993	1-gal can	0.14
	X10I9305929/W-483			MT010, MT005		10/25/1993	poly bucket	0.27
		2046		melted poly, glass in 1-gal paint can (placed inside W-483 after survey)	75	10/25/1993	1-gal can	0.14
	X10I9305930/W-484			MT010, MT005 (empty glass sample bottles)		10/25/1993	poly bucket	0.27
		2087		melted poly, glass in 1-gal paint can (placed inside W-484 after survey)	50	10/25/1993	1-gal can	0.14
	X10I9305931/W-485			MT010, MT005		10/25/1993	poly bucket	0.27
		2127		melted poly, glass in 1-gal paint can (placed inside W-485 after survey)	30	10/25/1993	1-gal can	0.14
	X10I9305932/W-486			MT010, MT005		10/25/1993	poly bucket	0.27
		2086		melted poly, glass in 1-gal paint can (placed inside W-486 after survey)	75	10/25/1993	1-gal can	0.14
	X10I9305933/W-487			MT010, MT005		10/25/1993	poly bucket	0.27
		2089		melted poly, glass in 1-gal paint can (placed inside W-487 after survey)	75	10/25/1993	1-gal can	0.14
	X10I9305934/W-488			MT010, MT005		10/25/1993	poly bucket	0.27
		2152		melted poly, glass in 1-gal paint can (placed inside W-488 after survey)	75	10/25/1993	1-gal can	0.14

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
X10C9304039			7920		43			
	X10I9306048/W-494			metal		11/8/1993	poly bucket	0.27
		2257		string, glass, metal, wire, wipes in 1-gal paint can (placed inside W-494 after survey)	20	10/22/1993	1-gal can	0.14
	X10I9306049/W-495					11/8/1993	poly bucket	0.27
		2258		glass, metal, string in 1-gal paint can (placed inside W-495 after survey)	20	10/21/1993	1-gal can	0.14
	X10I9306050/W-496					11/8/1993	poly bucket	0.27
		2262		string, metal, poly in 1-gal paint can (placed inside W-496 after survey)	80	10/25/1993	1-gal can	0.14
	X10I9306051/W-497					11/8/1993	poly bucket	0.27
		2259		string, wire in 1-gal paint can (placed inside W-497 after survey)	90	10/22/1993	1-gal can	0.14
	X10I9306052/W-498					11/8/1993	poly bucket	0.27
		2256		wire, string, can lids in 1-gal paint can (placed inside W-498 after survey)	50	10/21/1993	1-gal can	0.14
	X10I9306053/W-499					11/8/1993	poly bucket	0.27
		2251		string, metal in 1-gal paint can (placed inside W-499 after survey)	50	10/22/1993	1-gal can	0.14
	X10I9317978/W-500			mirror		11/15/1993	poly bucket	0.27
		2290		wipes, metal, glass in 1-gal paint can (placed inside W-500 after survey)	50	11/9/1993	1-gal can	0.14
	X10I9317979/W-501			mirror - metal, glass		11/15/1993	poly bucket	0.27
		2268		paper, glass, metal in 1-gal paint can (placed inside W-488 after survey)	80	11/5/1993	1-gal can	0.14
	X10I9317980/W-502					11/15/1993	poly bucket	0.27
		2265		wire, string, glass in 1-gal paint can (placed inside W-488 after survey)	90	11/3/1993	1-gal can	0.14

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9317981/W-503					11/15/1993	poly bucket	0.27
		2264		string in 1-gal paint can (placed inside W-488 after survey)	100	11/5/1993	1-gal can	0.14
	X10I9317984/W-506					11/15/1993	poly bucket	0.27
		2267		wire, metal in 1-gal paint can (placed inside W-488 after survey)	10	11/8/1993	1-gal can	0.14
	X10I9318008/W-509			MSM boot, mirror, gauge, poly block	80	11/30/1993	poly bucket	0.27
	X10I9318015/W-513					12/1/1993	poly bucket	0.27
		2296		metal, glass in 1-gal paint can (placed inside W-488 after survey)	0	11/9/1993	1-gal can	0.14
	X10I9318019/W-516					12/1/1993	poly bucket	0.27
		2292		wipes, string, metal, glass in 1-gal paint can (placed inside W-516 after survey)	70	11/9/1993	1-gal can	0.14
	X10I9318181/W-518					12/6/1993	poly bucket	0.27
		2306		string, poly, metal in 1-gal paint can (placed inside W-518 after survey)	85	12/3/1993	1-gal can	0.14
	X10I9318183/W-522					12/6/1993	poly bucket	0.27
		2283		paper, wipes, lids, poly in 1-gal paint can (placed inside W-522 after survey)	70	12/6/1993	1-gal can	0.14
	X10I9318185/W-524					12/6/1993	poly bucket	0.27
		2303		metal, rubber in 1-gal paint can (placed inside W-524 after survey)	10	12/3/1993	1-gal can	0.14
	X10I9318203/W-527					12/13/1993	poly bucket	0.27
		2315		paper, glass, poly in 1-gal paint can (placed inside W-527 after survey)	80	12/3/1993	1-gal can	0.14
	X10I9318204/W-528					12/13/1993	poly bucket	0.27
		2308		rope, glass, metal in 1-gal paint can (placed inside W-528 after survey)	20	12/3/1993	1-gal can	0.14

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9318206/W-530					12/13/1993	poly bucket	0.27
		2271		plastic, paper, metal, glass in 1-gal paint can (placed inside W-530 after survey)	50	12/3/1993	1-gal can	0.14
	X10I9318207/W-531					12/13/1993	poly bucket	0.27
		2316		metal, plastic, paper, glass in 1-gal paint can (placed inside W-531 after survey)	80	12/3/1993	1-gal can	0.14
	X10I9318210/W-533					12/14/1993	poly bucket	0.27
		2313		paper, glass, poly in 1-gal paint can (placed inside W-533 after survey)	80	12/3/1993	1-gal can	0.14
	X10I9318212/W-535					12/14/1993	poly bucket	0.27
		2314		string, glass, metal, wire in 1-gal paint can (placed inside W-535 after survey)	80	12/3/1993	1-gal can	0.14
	X10I9318215/W-536					12/15/1993	poly bucket	0.27
		2293		string, metal, poly in 1-gal paint can (placed inside W-536 after survey)	70	12/3/1993	1-gal can	0.14
	X10I93182214/ W-537					12/16/1993	poly bucket	0.27
		2269		glass, metal, string in 1-gal paint can (placed inside W-537 after survey)	20	12/3/1993	1-gal can	0.14
	X10I9318271/W-542			misc. tools	0	1/10/2004	poly bucket	0.27
	X10I9318275/W-545					1/11/1994	poly bucket	0.27
		2330		metal, glass, cloth in 1-gal paint can (placed inside W-545 after survey)	50	1/4/1994	1-gal can	0.14
	X10I9318276/W-546					1/11/1994	poly bucket	0.27
		2324		glass, metal, paper in 1-gal paint can (placed inside W-546 after survey)	70	1/4/1994	1-gal can	0.14
	X10I9318277/W-547					1/11/1994	poly bucket	0.27

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		2272		string, metal in 1-gal paint can (placed inside W-547 after survey)	50	1/4/1994	1-gal can	0.14
	X10I9318324/W-550					1/12/1994	poly bucket	0.27
		2281		wire, metal, cloth in 1-gal paint can (placed inside W-550 after survey)	50	1/4/1994	1-gal can	0.14
	X10I9318326/W-552					1/12/1994	poly bucket	0.27
		2317		string, glass, metal in 1-gal paint can (placed inside W-552 after survey)	70	1/4/1994	1-gal can	0.14
	X10I9318328/W-554					1/12/1994	poly bucket	0.27
		2318		glass, metal, paper in 1-gal paint can (placed inside W-554 after survey)	50	1/4/1994	1-gal can	0.14
	X10I93183??/W-555			Misc. wrenches - metal		1/19/1994	poly bucket	0.27
		2218		melted poly in 1-gal paint can (placed inside W-555 after survey)	50	1/19/1994	1-gal can	0.14
	X10I93183??/W-556			Misc. tools - metal		1/19/1994	poly bucket	0.27
		2211		melted poly in 1-gal paint can (placed inside W-556 after survey)	50	1/19/1994	1-gal can	0.14
	X10I93183??/W-558					1/19/1994	poly bucket	0.27
		4168		melted poly in 1-gal paint can (placed inside W-558 after survey)	50	1/19/1994	1-gal can	0.14
	X10I9318345/W-559			Misc. tool - metal		1/19/1994	poly bucket	0.27
		2053		melted poly in 1-gal paint can (placed inside W-559 after survey)	50	1/19/1994	1-gal can	0.14
	X10I9318346/W-560			Misc. tool - metal		1/19/1994	poly bucket	0.27
		2150		melted poly in 1-gal paint can (placed inside W-560 after survey)	50	1/19/1994	1-gal can	0.14
	X10I9318347/W-561					1/20/1994	poly bucket	0.27
		2233		melted poly in 1-gal paint can (placed inside W-488 after survey)	50	1/20/1994	1-gal can	0.14

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9318348/W-562					1/20/1994	poly bucket	0.27
		2028		grout in 1-gal paint can (placed inside W-562 after survey)	50	1/20/1994	1-gal can	0.14
	X10I9318349/W-563					1/20/1994	poly bucket	0.27
		2221		melted poly, glass in 1-gal paint can (placed inside W-563 after survey)	100	1/20/1994	1-gal can	0.14
	X10I9318581/W-564					2/18/1994	poly bucket	0.27
		2212		melted poly in 1-gal paint can (placed inside W-564 after survey)	100	2/18/1994	1-gal can	0.14
	X10I9318580/W-570					3/3/1994	poly bucket	0.27
		1991		melted poly in 1-gal paint can (placed inside W-570 after survey)	100	3/3/1994	1-gal can	0.14
	X10I9318582/W-571			can lids		3/3/1994	poly bucket	0.27
		no #		melted poly in 1-gal paint can (placed inside W-571 after survey)	100	3/3/1994	1-gal can	0.14
	X10I9318584/W-572					3/3/1994	poly bucket	0.27
		2180		melted poly in 1-gal paint can (placed inside W-572 after survey)	100	3/3/1994	1-gal can	0.14
	X10I9318585/W-573					3/3/1994	poly bucket	0.27
		2047		melted poly, sample bottle lids in 1-gal paint can (placed inside W-573 after survey)	100	3/3/1994	1-gal can	0.14
	X10I9318587/W-575					3/3/1994	poly bucket	0.27
		2027		concrete (solid) in 1-gal paint can (placed inside W-575 after survey)	0	3/3/1994	1-gal can	0.14
	X10I9318588/W-576					3/3/1994	poly bucket	0.27
		1765		melted poly in 1-gal paint can (placed inside W-576 after survey)	100	3/3/1994	1-gal can	0.14
	X10I9318589/W-577			misc. tools		3/4/1994	poly bucket	0.27

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		2157		melted poly, metal cap, rubber in 1-gal paint can (placed inside W-577 after survey)	98	3/4/1994	1-gal can	0.14
	X10I9318590/W-578			misc. tools		3/4/1994	poly bucket	0.27
		2223		sample bottles, melted poly, wire in 1-gal paint can (placed inside W-578 after survey)	80	3/4/1994	1-gal can	0.14
	X10I9318591/W-579			misc. tools		3/4/1994	poly bucket	0.27
		2033		melted poly, glass in 1-gal paint can (placed inside W-579 after survey)	70	3/4/1994	1-gal can	0.14
	X10I9318596/W-580					3/9/1994	poly bucket	0.27
		2104		melted poly in 1-gal paint can (placed inside W-580 after survey)	100	3/9/1994	1-gal can	0.14
	X10I9318598/W-582			wipes, metal		3/9/1994	poly bucket	0.27
		2158		melted poly, glass, metal in 1-gal paint can (placed inside W-582 after survey)	60	3/9/1994	1-gal can	0.14
	X10I9318599/W-583			misc. tools		3/9/1994	poly bucket	0.27
		1894		melted poly, glass in 1-gal paint can (placed inside W-583 after survey)	60	3/9/1994	1-gal can	0.14
	X10I9318600/W-584			glass		3/9/1994	poly bucket	0.27
		2329		melted poly, glass in 1-gal paint can (placed inside W-584 after survey)	10	3/4/1994	1-gal can	0.14
	X10I9318601/W-585					3/9/1994	poly bucket	0.27
		2333		paper, glass, metal in 1-gal paint can (placed inside W-585 after survey)	10	3/9/1994	1-gal can	0.14
	X10I9318603/W-587					3/9/1994	poly bucket	0.27
		2322		wipes, metal in 1-gal paint can (placed inside W-587 after survey)	50	3/9/1994	1-gal can	0.14
	X10I9318607/W-588					3/10/1994	poly bucket	0.27

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		2321		wipes, string in 1-gal paint can (placed inside W-588 after survey)	95	3/4/1994	1-gal can	0.14
	X10I9319087/W-617					4/12/1994	poly bucket	0.27
		no #		wire, pre-amp cans, glass, filter in 1-gal paint can (placed inside W-617 after survey)	10	4/11/1994	1-gal can	0.14
	X10I9319088/W-618					4/12/1994	poly bucket	0.27
		2335		wipes, tongs, lid in 1-gal paint can (placed inside W-618 after survey)	90	4/7/1994	1-gal can	0.14
	X10I9319090/W-620					4/12/1994	poly bucket	0.27
		2337		metal tubing, wipes, glass in 1-gal paint can (placed inside W-620 after survey)	20	4/7/1994	1-gal can	0.14
	X10I9319091/W-621					4/12/1994	poly bucket	0.27
		2338		wire, string in 1-gal paint can (placed inside W-621 after survey)	90	4/7/1994	1-gal can	0.14
	X10I9319092/W-622					4/12/1994	poly bucket	0.27
		2340		string, wipes, tubing in 1-gal paint can (placed inside W-622 after survey)	90	4/7/1994	1-gal can	0.14
X10C9310003			7920	MT010, MT005, MT003	0			
	X10I9319205			no description		5/2/1994		0.4
	X10I9319206			no description		5/2/1994		0.4
	X10I9319208			no description		5/3/1994		0.4
	X10I9319214			no description		5/4/1994		0.4
	X10I9319215			no description		5/4/1994		0.4
	X10I9319216			no description		5/4/1994		0.4
	X10I9319227			no description		5/9/1994		0.4
	X10I9319228			no description		5/9/1994		0.4
	X10I9319229			no description		5/9/1994		0.4
	X10I9319230			no description		5/9/1994		0.4
	X10I9319231			no description		5/9/1994		0.4
	X10I9319232			no description		5/9/1994		0.4
	X10I9319233			no description		5/9/1994		0.4
	X10I9319234			no description		5/9/1994		0.4

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9319238			no description		5/10/1994		0.4
	X10I9319239			no description		5/10/1994		0.4
	X10I9319241			no description		5/10/1994		0.4
	X10I9319242			no description		5/10/1994		0.4
	X10I9319178			no description		5/16/1994		0.4
	X10I9319179			no description		5/16/1994		0.4
	X10I9319183			no description		5/17/1994		0.4
	X10I9319184			no description		5/17/1994		0.4
	X10I9319185			no description		5/17/1994		0.4
	X10I9319188			no description		5/17/1994		0.4
	X10I9319276			no description		5/19/1994		0.4
	X10I9319277			no description		5/19/1994		0.4
	X10I9319278			no description		5/19/1994		0.4
	X10I9319279			no description		5/19/1994		0.4
	X10I9319283			no description		5/19/1994		0.4
	X10I9319427			no description		6/22/1994		0.4
	X10I9319429			no description		6/23/1994		0.4
	X10I9319431			no description		6/23/1994		0.4
	X10I9319439			no description		6/24/1994		0.4
	X10I9319440			no description		6/24/1994		0.4
	X10I9319442			no description		6/24/1994		0.4
	X10I9319443			no description		6/24/1994		0.4
	X10I9319445			no description		6/24/1994		0.4
	X10I9319471			no description		7/8/1994		0.4
	X10I9319472			no description		7/8/1994		0.4
	X10I9319473			no description		7/8/1994		0.4
	X10I9319487			no description		7/8/1994		0.4
	X10I9319488			no description		7/8/1994		0.4
	X10I9319489			no description		7/8/1994		0.4
	X10I9319492			no description		7/11/1994		0.4
	X10I9319493			no description		7/11/1994		0.4
	X10I9319494			no description		7/11/1994		0.4
	X10I9319496			no description		7/12/1994		0.4
	X10I9319498			no description		7/12/1994		0.4
	X10I9319499			no description		7/12/1994		0.4
	X10I9319500			no description		7/12/1994		0.4
	X10I9319501			no description		7/12/1994		0.4
	X10I9319502			no description		7/12/1994		0.4
	X10I9319505			no description		7/13/1994		0.4

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9319508			no description		7/13/1994		0.4
	X10I9319518			no description		7/21/1994		0.4
	X10I9319519			no description		7/21/1994		0.4
	X10I9319520			no description		7/21/1994		0.4
	X10I9319521			no description		7/21/1994		0.4
	X10I9319522			no description		7/21/1994		0.4
	X10I9319523			no description		7/21/1994		0.4
X10C9310023			7920		10			
	X10I9319839			charcoal filters		9/9/1994	BAGP	2.67
	X10I9319840			charcoal filters		9/9/1994	BAGP	2.67
	X10I9319841			valve		9/9/1994	BAGP	1.34
	X10I9319844			plastic		9/12/1994	BAGP	0.27
	X10I9319846			glass, metal		9/12/1994	BAGP	0.27
	X10I9319847			grout (solidified)		9/12/1994	BAGP	0.4
	X10I9319848			paper, plastic		9/12/1994	BAGP	0.4
	X10I9319850			paper, plastic, metal		9/13/1994	BAGP	0.4
	X10I9319851			metal		9/13/1994	BAGP	0.4
	X10I9319852			plastic		9/13/1994	BAGP	0.4
	X10I9319853			metal, plastic		9/13/1994	BAGP	0.4
	X10I9319854			plastic		9/13/1994	BAGP	0.4
	X10I9319855			plastic		9/13/1994	BAGP	0.4
	X10I9319856			metal, plastic		9/13/1994	BAGP	0.4
	X10I9319866			metal, paper		9/19/1994	BAGP	0.4
	X10I9319867			glass, metal, plastic		9/19/1994	BAGP	0.4
	X10I9319876			metal, plastic		9/20/1994	BAGP	0.4
	X10I9319879			metal		9/20/1994	BAGP	0.4
	X10I9319883			glass		9/22/1994	BAGP	0.4
	X10I9319884			glass		9/22/1994	BAGP	0.27
	X10I9319885			glass		9/22/1994	BAGP	0.4
	X10I9319886			glass		9/22/1994	BAGP	0.4
	X10I9319887			glass, cloth		9/22/1994	BAGP	0.4
	X10I9319897			glass		9/26/1994	BAGP	0.4
	X10I9319898			glass, plastic		9/26/1994	BAGP	0.4
	X10I9319899			glass		9/26/1994	BAGP	0.4
	X10I9319904			glass		9/28/1994	BAGP	0.4
	X10I9319905			glass		9/28/1994	BAGP	0.27
	X10I9319933			plastic, metal		10/4/1994	BAGP	0.4
	X10I9319916			glass, metal, paper		10/6/1994	BAGP	0.4

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9319917			glass, cloth, plastic		10/6/1994	BAGP	0.4
	X10I9319918			glass		10/6/1994	BAGP	0.4
	X10I9319919			glass		10/6/1994	BAGP	0.4
	X10I9320087			plastic, metal		11/8/1994	BAGP	0.4
	X10I9320088			plastic, metal		11/8/1994	BAGP	0.4
	X10I9320089			plastic		11/8/1994	BAGP	0.4
	X10I9320090			plastic, metal		11/8/1994	BAGP	0.4
	X10I9320091			plastic, metal		11/8/1994	BAGP	0.4
	X10I9320093			glass, plastic		11/8/1994	BAGP	0.4
	X10I9320094			glass, plastic		11/8/1994	BAGP	0.4
	X10I9320095			glass		11/9/1994	BAGP	0.4
	X10I9320096			glass		11/9/1994	BAGP	0.4
	X10I9320101			glass		11/10/1994	BAGP	0.4
	X10I9320102			glass		11/10/1994	BAGP	0.4
X10C9402626			7920					22.56
	X10I9415675			string, gauge, plastic	95	3/21/1996	bag	0.4
	X10I9415676			sample block, can lids	0	3/21/1996	bag	0.4
	X10I9415680			melted poly	100	3/22/1996	bag	0.4
	X10I9415683			glass, grouted resin	0	3/23/1996	bag	0.4
	X10I9415691			paper, metal, glass	20	3/26/1996	bag	0.4
	X10I9415731			glass, paper, cloth	5	3/26/1996	bag	0.4
	X10I9415732			glass, metal, cloth	20	3/26/1996	bag	0.4
	X10I9415733			glass, metal, plastic	30	3/26/1996	bag	0.4
	X10I9415734			paper, glass, metal	20	3/26/1996	bag	0.4
	X10I9415735			glass	0	3/26/1996	bag	0.4
	X10I9415736			plastic, metal	40	3/26/1996	bag	0.4
	X10I9415737			plastic, metal	10	3/26/1996	bag	0.4
	X10I9415739			glass, sample bottles	0	3/27/1996	bag	0.4
	X10I9415740			preamp can, wire, glass bottle, wipes	40	3/27/1996	bag	0.4
	X10I9415741			plastic valve, gaskets, wipes, string	80	3/27/1996	bag	0.4
	X10I9415742			string, plastic	100	3/27/1996	bag	0.4
	X10I9415743			melted poly, glass	50	3/29/1996	bag	0.4
	X10I9415744			melted poly, glass	50	3/29/1996	bag	0.4
	X10I9415745			melted poly, can lids (metal)	50	3/29/1996	bag	0.4
	X10I9415746			melted poly, metal	50	3/29/1996	bag	0.4
	X10I9415747			glass, paper, rubber	60	3/29/1996	bag	0.4
	X10I9415748			cloth, metal, paper	20	3/29/1996	bag	0.4
	X10I9415749			paper	100	3/29/1996	bag	0.4

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9415751			melted poly	100	3/30/1996	bag	0.4
	X10I9415752			melted poly	100	3/30/1996	bag	0.4
	X10I9415753			melted poly	100	3/30/1996	bag	0.4
	X10I9415754			grouted resin	0	3/30/1996	bag	0.4
	X10I9415756		no waste description form					
	X10I9415757			melted poly	100	3/30/1996	bag	0.4
	X10I9415758			melted poly, metal, glass	70	3/30/1996	bag	0.4
	X10I9415759			melted poly	100	3/30/1996	bag	0.4
	X10I9415760			grouted resin	0	3/30/1996	bag	0.4
	X10I9415761			paper	100	3/30/1996	bag	0.4
	X10I9415762			plastic, glass (melted poly)	50	4/2/1996	bag	0.4
	X10I9415764			metal, glass, paper	50	4/2/1996	bag	0.4
	X10I9415765			metal, glass, cloth	50	4/2/1996	bag	0.4
	X10I9415766			metal, glass, paper	45	4/2/1996	bag	0.4
	X10I9415767			glass, paper, poly	25	4/2/1996	bag	0.4
	X10I9415784			plastic, glass	70	5/21/1996	bag	0.4
	X10I9415785			melted poly	100	5/21/1996	bag	0.4
	X10I9415786			plastic, metal, rubber	70	5/21/1996	bag	0.4
	X10I9415787			glass, metal	40	5/21/1996	bag	0.4
	X10I9415788			glass	0	5/21/1996	bag	0.4
	X10I9415790			plastic/poly	100	5/21/1996	bag	0.4
	X10I9415791			plastic/poly	100	5/21/1996	bag	0.4
	X10I9415792			plastic/poly	100	5/21/1996	bag	0.4
	X10I9416127			metal	0	6/5/1996	bag	0.4
	X10I9416128			metal	0	6/5/1996	bag	0.4
	X10I9416129			plastic, cloth, glass	90	6/5/1996	bag	0.4
	X10I9416130			glass, plastic, paper	90	6/5/1996	bag	0.4
	X10I9416133			plastic, metal, glass	50	6/6/1996	bag	0.4
	X10I9416134			plastic, glass, paper	80	6/6/1996	bag	0.4
	X10I9416136			paper, metal ,glass	5	6/7/1996	bag	0.4
	X10I9416138			glass, metal, plastic	60	6/7/1996	bag	0.4
	X10I9416139			glass	60	6/7/1996	bag	0.4
	X10I9416140			glass, metal, paper	30	6/7/1996	bag	0.4
	X10I9416141			glass, metal, paper	90	6/7/1996	bag	0.4
	X10I9416142		no waste description form					

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9416143			glass, paper	50	6/7/1996	bag	0.4
	X10I9416144			glass, metal, plastic	60	6/7/1996	bag	0.4
								23.2
X10C9402627			7920		59.07752699			
	X10I9416154			plastic, metal (MSM boot)	60	6/26/1996	bag	0.4
	X10I9416158			plastic, metal	60	7/17/1996	bag	0.4
	X10I9416159			glass, metal, plastic	40	7/17/1996	bag	0.4
	X10I9416160			glass, metal, plastic	30	7/17/1996	bag	0.4
	X10I9416162			metal, glass	0	7/18/1996	bag	0.4
	X10I9416163			melted poly	100	7/18/1996	bag	0.4
	X10I9416164			paper, poly, metal	80	7/18/1996	bag	0.4
	X10I9416165			metal, glass	5	7/18/1996	bag	0.4
	X10I9416166			plastic, paper, metal	40	7/18/1996	bag	0.4
	X10I9416167			paper, glass, metal	50	7/18/1996	bag	0.4
	X10I9416168			paper, glass, metal	50	7/18/1996	bag	0.4
	X10I9416169			metal, cloth, paper	65	7/18/1996	bag	0.4
	X10I9416170			paper, glass, metal	35	7/18/1996	bag	0.4
	X10I9416171			plastic, paper, metal	50	7/18/1996	bag	0.4
	X10I9416172			poly(melted), metal	40	7/25/1996	bag	0.4
	X10I9416173			melted poly, metal	60	7/25/1996	bag	0.4
	X10I9416174			melted poly, metal	100	7/25/1996	bag	0.4
	X10I9416175			melted poly	100	7/25/1996	bag	0.4
	X10I9416326			melted poly	100	7/25/1996	bag	0.4
	X10I9416327			melted poly	100	7/25/1996	bag	0.4
	X10I9416328			melted poly	100	7/25/1996	bag	0.4
	X10I9416329			no description	100	7/25/1996	bag	0.4
	X10I9416330			melted poly	100	7/26/1996	bag	0.4
	X10I9416331			melted poly	100	7/26/1996	bag	0.4
	X10I9416332			melted poly	100	7/26/1996	bag	0.4
	X10I9416333			melted poly	100	7/26/1996	bag	0.4
	X10I9416334		no waste description form					
	X10I9416335		no waste description form		60			
	X10I9416336			paper, metal	50	8/1/1996	bag	0.4
	X10I9416337			cloth, glass, metal	80	8/1/1996	bag	0.4

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9416340			metal, plastic, paper	90	8/15/1996	bag	0.4
	X10I9416341			paper, glass, cloth	50	8/15/1996	bag	0.4
	X10I9416342			glass	0	8/15/1996	bag	0.4
	X10I9416343			metal, glass, cloth	70	8/15/1996	bag	0.4
	X10I9416344			cloth, paper , metal	95	8/15/1996	bag	0.4
	X10I9416345			cloth, metal, glass	50	8/15/1996	bag	0.4
	X10I9416350			cloth (string)	100	8/21/1996	bag	0.4
	X10I9416351			metal, glass	10	8/21/1996	bag	0.4
	X10I9416352			cloth	100	8/21/1996	bag	0.4
	X10I9416353			plastic, metal, paper	50	8/21/1996	bag	0.4
	X10I9416354			glass, metal	50	8/21/1996	bag	0.4
	X10I9416355			metal, poly, cloth	50	8/21/1996	bag	0.4
	X10I9416356			glass	0	8/21/1996	bag	0.4
	X10I9416349			manipulator boot and steel ring	60	8/21/1996	bag	0.4
	X10I9416358			plastic, metal, wood	50	8/22/1996	bag	0.4
	X10I9416359			metal, plastic	20	8/22/1996	bag	0.4
	X10I9416360			metal, plastic	20	8/24/1996	bag	0.4
	X10I9416363			paper, glass, metal	40	8/24/1996	bag	0.4
	X10I9416364			cloth, paper	100	8/24/1996	bag	0.4
	X10I9416365			metal, glass, cloth	50	8/24/1996	bag	0.4
	X10I9416366			glass	0	8/24/1996	bag	0.4
	X10I9416367			plastic, metal	10	8/24/1996	bag	0.4
	X10I9416368			plastic, metal	0	8/24/1996	bag	0.4
	X10I9416369			plastic, metal	5	8/26/1996	bag	0.4
	X10I9416370			metal, poly, glass	25	8/26/1996	bag	0.4
	X10I9416371			cloth, glass, paper			bag	0.4
	X10I9416372		no waste description form		20			
	X10I9416375			grouted resin, plastic	10	8/26/1996	bag	0.4
	X10I9416376			grouted resin	0	8/26/1996	bag	0.4
	X10I9416377			cloth, grouted resin	10	8/26/1996	bag	0.4
								22.8
X10C9402628			7920		9.870848708			
	X10I9416479	22		metal, plastic	10	9/22/1996	bag	3.3
		1) no ID		metal - 1 tall ring (?) stand	0			
		2) no ID		metal - 1 tall ring (?) stand	0			
		3) no ID		metal - 1 tall ring (?) stand	0			
		4) no ID		metal - 1 tall ring (?) stand	0			

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		5) 2065		glass - sample bottles	0	9/5/1996	1-gal paint can	
		6) 9994		glass - sample bottles	0	9/5/1996	1-gal paint can	
		7) 2274		glass - sample bottles	0	9/5/1996	1-gal paint can	
		8) ADC-ORG (93)		glass - sample bottles	0	9/5/1996	1-gal paint can	
		9) 1493		glass - sample bottles	0	9/5/1996	1-gal paint can	
		10) 2243		glass - sample bottles	0	9/5/1996	1-gal paint can	
		11) no ID		metal - scale beam	0			
		12) no ID		metal - 3 pieces of target spider (?)	0			
		13) no ID		metal - 3 pieces of target spider (?)	0			
		14) no ID		metal - dummy target	0			
		15) no ID		metal - 3/4 dummy target	0			
		16) 2655		plastic - melted poly	95	9/19/1996	1-gal paint can	
		17) 12234		glass - sample bottles	0	9/5/1996	1-gal paint can	
		18) 3052		broken glass	0	9/3/1996	1-gal paint can	
		19) no ID		metal - scales base	0			
		20) no ID		metal - squeegee	0			
		21) no ID		metal - dummy rod	0			
		22) no ID		metal - chill block	0			
	X10I9416486			metal, plastic	15	9/22/1996	bag	2
		1) no ID		metal - welder turntable	0	9/20/1996		
		2) no ID		metal frame	0	9/20/1996		
		3) no ID		triple beam balance	0	9/20/1996		
		4) no ID		metal - paint can lids	0	9/20/1996		
		5) no ID		double pan balance	0	9/20/1996		
		6) 1940		plastic, metal, rubber - melted poly, neutron probe, light cord	90	9/5/1996	1-gal paint can	
		7) 2105		glass sample bottles	90	9/5/1996	1-gal paint can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9416487	7		metal, plastic	50	9/23/1996	bag	1.3
		1) no ID		metal - elevator frame	0	9/23/1996		
		2) 1369		glass - sample bottles	0	9/5/1996	1-gal paint can	
		3) 2653		glass, plastic - melted poly, sample bottles	75	9/19/1996	1-gal paint can	
		4) 2801		glass, plastic - melted poly, sample bottles	70	9/19/1996	1-gal paint can	
		5) 2183		glass, plastic - melted poly, sample bottles	50	9/19/1996	1-gal paint can	
		6) 2800		glass, plastic - melted poly, sample bottles	70	9/19/1996	1-gal paint can	
		7) 7/19/36#2		glass 1L bottle	0			
	X10I9416480	17		metal	0	9/30/1996	bag	3.3
		1) no ID		metal - MK-42 can (no ?)	0	9/25/1996		
		2) no ID		metal - MK-42 can (no ?)	0	9/25/1996		
		3) no ID		metal - MK-42 can (no ?)	0	9/25/1996		
		4) no ID		metal - MK-42 can (no ?)	0	9/25/1996		
		5) no ID		metal - MK-42 can (no ?)	0	9/25/1996		
		6) no ID		metal - MK-42 can (no ?)	0	9/25/1996		
		7) no ID		metal - Mark 42 can	0	9/25/1996		
		8) no ID		metal - Mark 42 can	0	9/25/1996		
		9) no ID		metal - dummy (2) target	0	9/25/1996		
		10) no ID		metal - nine target ? Cans	0	9/25/1996		
		11) no ID		metal - ring stand clamp	0	9/25/1996		
		12) no ID		metal - tweezers	0	9/25/1996		
		13) no ID		metal pieces and tubing	0	9/25/1996		
		14) no ID		metal - ?	0	9/25/1996		
		15) no ID		metal - pieces of scales	0	9/25/1996		
		16) no ID		metal - ultra sonic ?	0	9/25/1996		
		17) no ID		metal - ?	0	9/25/1996		
	X10I9416481	13		metal, plastic	5	9/30/1996	bag	3.3
		1) no ID		metal - tool rack	0	9/26/1996		
		2) no ID		metal - Mark	0	9/26/1996		
		3) no ID		metal - cubicle light box receptacle	10	9/26/1996		

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		4) no ID		metal - cubicle light box receptacle	10	9/26/1996		
		5) no ID		metal - cubicle light box receptacle	10	9/26/1996		
		6) no ID		metal - cubicle light box receptacle	10	9/26/1996		
		7) no ID		metal - ?	0	9/26/1996		
		8) no ID		metal - disconnect mounting plate	0	9/26/1996		
		9) no ID		metal - Hg Vapor light fixture	0	9/26/1996		
		10) no ID		metal/rubber - squeegees	10	9/26/1996		
		11) no ID		metal - ? from triple beam balance	0	9/26/1996		
		12) no ID		metal - entire ? for balance	0	9/26/1996		
		13) no ID		metal - entire triple beam balance	5	9/26/1996		
	X10I9416488	7		metal, plastic	10	9/30/1996	bag	1.3
		1) no ID		metal - ?	0			
		2) no ID		metal - base for ?	0			
		3) no ID		metal/plastic - ? Tray	90			
		4) no ID		metal - ?	0			
		5) no ID		metal/insulation - poly melter furnace	0			
		6) 9876		melted plastic & one rusty can lid	90		1-gal paint can	
		7) no ID		metal & rubber - hot plate& cord	0			
	X10I9416482	15		metal, plastic, paper	10	10/10/1996	bag	4
		1) no ID		metal - old C-636 col	0	10/10/1996		
		2) no ID		metal - old C-648 col	0	10/10/1996		
		3) no ID		metal - ?	0	10/10/1996		
		4) no ID		metal - SetF MS tubing	0	10/10/1996		
		5) no ID		metal - tubing ?	0	10/10/1996		
		6) no ID		metal - tubing ?	0	10/10/1996		
		7) no ID		metal - mirror frame	0	10/10/1996		
		8) no ID		metal - ?	0	10/10/1996		
		9) 2623		cloth/paper/plastic - string, wipes, valves	100	9/3/1996	1-gal paint can	
		10) 2615		metal, plastic - preamp can, lead wire, wipes	20	9/3/1996	1-gal paint can	
		11) no ID		painted wooden holder	100	10/10/1996		
		12) no ID		metal plates	0	10/10/1996		

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		13) no ID		metal - ?	0	10/10/1996		
		14) no ID		metal - ?	0	10/10/1996		
		15) no ID		metal - ?	0	10/10/1996		
	X10I9416484	15		metal, plastic, rubber	5	10/15/1996	bag	2
		1) no ID		metal, ceramic, insulation - ? Furnace	0	10/14/1996		
		2) no ID		metal, ceramic, insulation - ? Furnace	0	10/14/1996		
		3) no ID		metal ?	0	10/14/1996		
		4) no ID		metal transfer ?	0	10/14/1996		
		5) no ID		plastic tray	100	10/14/1996		
		6) no ID		metal - ?	0	10/14/1996		
		7) no ID		metal - mounting hardware	0	10/14/1996		
		8) no ID		metal - mounting hardware	0	10/14/1996		
		9) no ID		metal/glass - ? From vacuum pump	0	10/14/1996		
		10) no ID		rubber - gasket from cub 9 door	100	10/14/1996		
		11) no ID		rubber, plastic, metal - electrical wire	60	10/14/1996		
		12) no ID		metal - vacuum pump, motor, cord	10	10/14/1996		
		13) no ID		metal - ? stand	0	10/14/1996		
		14) no ID		metal - ? stand	0	10/14/1996		
		15) no ID		metal - tweezers	0	10/14/1996		
	X10I9416489	8		metal	2	10/15/1996	bag	4
		1) no ID		metal, insulation, wiring - laboratory centrifuge	5	10/11/1996		
		2) no ID		metal, ceramic - furnace lid	0	10/11/1996		
		3) no ID		ceramic - broken plate	0	10/11/1996		
		4) no ID		metal/tape - vacuum ?	1	10/11/1996		
		5) no ID		metal - hack saw frame	0	10/11/1996		
		6) no ID		metal - frame/base plate	0	10/11/1996		
		7) no ID		metal/ceramic/insulation - cell bank	0	10/11/1996		
		8) no ID		metal - ?	0	10/11/1996		
	X10I9416493	2		metal	0	10/15/1996	bag	1.3
		1) no ID		conveyor port flange	0	10/15/1996		
		2) no ID		mounting plate	0	10/15/1996		
	X10I9416490	16		metal	40	10/21/1996	bag	1.3
		1) no ID		metal, ceramic - square furnace	0			
		2) no ID		metal - tee bar	0			

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		3) no ID		metal - Al target piece	0			
		4) no ID		metal - ? Tubes	0			
		5) no ID		plastic - drop cloths	100			
		6) no ID		metal & ceramic - furnace lid	0			
		7) no ID		metal - SS tray	0			
		8) 1100		melted poly& glass bottles	60	9/24/1996	1-gal can	
		9) no ID		metal - beam from triple balance beam	0			
		10) 9011		melted poly, glass sample bottles	50	9/24/1996	1-gal can	
		11) 8881		melted poly, glass sample bottles	60	9/24/1996	1-gal can	
		12) no ID		metal - ? from pump	0			
		13) no ID		metal - ? from pump	0			
		14) no ID		metal - ? from pump	0			
		15) no ID		metal & rubber	5			
		16) 7115		melted poly & glass bottles	70	9/23/1996	1-gal can	
								27.1
X10C9402631			7920					
	X10I9416384			no description	75	11/13/1996	BAGP	0.4
	X10I9416389			no description	50	11/14/1996	BAGP	0.4
	X10I9416390			no description	100	11/14/1996	BAGP	0.4
	X10I9416485			no description	25	12/6/1996	BAGP	4
	X10I9416491			no description	50	12/6/1996	BAGP	2.7
	X10I9416492			no description	75	12/6/1996	BAGP	2.7
	X10I9416494			no description	25	12/6/1996	BAGP	4
	X10I9416495			no description	50	12/6/1996	BAGP	4
	X10I9416496			no description	0	12/6/1996	BAGP	4
	X10I9416497			no description	25	12/6/1996	BAGP	4
	X10I9416577			no description	25	12/6/1996	BAGP	2.7
	X10I9416580			no description	0	12/6/1996	BAGP	2.7
	X10I9416581			no description	0	12/6/1996	BAGP	2.7
	X10I9416582			no description	50	12/6/1996	BAGP	2.7
								37.4
X10C9402633			7920					
	X10I9416621			metal	0	1/3/1997	BAGP	0.13
	X10I9416687			cloth, glass, paper	75	1/13/1997	BAGP	0.4
	X10I9416688			glass, metal, plastic	0	1/13/1997	BAGP	0.4
	X10I9416691			glass, metal	0	1/14/1997	BAGP	0.4
	X10I9416693			cloth, paper, plastic	100	1/14/1997	BAGP	0.4
	X10I9416694			glass, metal, plastic	25	1/14/1997	BAGP	0.4

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9416695			glass, metal, plastic	50	1/15/1997	BAGP	0.4
	X10I9416698			glass	0	1/15/1997	BAGP	0.4
	X10I9416699			glass	0	1/15/1997	BAGP	0.4
	X10I9416700			glass, metal	0	1/15/1997	BAGP	0.4
	X10I9416701			glass, plastic	75	1/15/1997	BAGP	0.4
	X10I9416703			glass, plastic	75	1/15/1997	BAGP	0.4
	X10I9416704			glass, metal, plastic	25	1/17/1997	BAGP	0.4
	X10I9416705			glass, plastic	50	1/17/1997	BAGP	0.4
	X10I9416706			glass, plastic	25	1/17/1997	BAGP	0.4
	X10I9416707			metal, paper, plastic	75	1/17/1997	BAGP	0.4
	X10I9416708			paper, plastic		1/17/1997	BAGP	0.4
	X10I9416711				100			
	X10I9416713			cloth, paper, plastic	100	1/17/1997	BAGP	0.4
	X10I9416714			glass, metal, plastic	50	1/17/1997	BAGP	0.4
	X10I9416715			glass, paper, plastic	75	1/17/1997	BAGP	0.4
	X10I9416716			glass, metal	0	1/17/1997	BAGP	0.4
	X10I9416718			glass, metal	0	1/17/1997	BAGP	0.4
	X10I9416719			glass, paper, plastic	50	1/17/1997	BAGP	0.4
	X10I9416720			cloth, metal, paper	75	1/17/1997	BAGP	0.4
	X10I9416399			metal, paper, plastic	50	1/31/1997	BAGP	0.4
	X10I9416785			metal, paper, plastic	50	2/7/1997	BAGP	0.4
	X10I9416797			cloth, metal, plastic	75	2/26/1997	BAGP	0.4
	X10I9416816			glass, metal, plastic	0	3/13/1997	BAGP	0.4
	X10I9416817			cloth, metal, paper	100	3/13/1997	BAGP	0.4
	X10I9416818			paper, plastic	100	3/13/1997	BAGP	0.4
	X10I9416819			glass	0	3/14/1997	BAGP	0.4
	X10I9416820			metal, plastic	25	3/14/1997	BAGP	0.4
	X10I9416821			glass, metal, plastic	75	3/14/1997	BAGP	0.4
	X10I9416822			cloth, metal, paper	75	3/14/1997	BAGP	0.4
	X10I9416823							
	X10I9416871			metal, plastic	50	3/17/1997	BAGP	0.4
	X10I9416872			glass, metal, plastic	0	3/17/1997	BAGP	0.4
	X10I9416873			glass, plastic	100	3/17/1997	BAGP	0.4
	X10I9417077			melted poly	100	5/5/1997	BAGP	0.4
	X10I9417078			melted poly	100	5/5/1997	BAGP	0.4
	X10I9417079			plastic, metal	75	5/5/1997	BAGP	0.4
	X10I9417080			plastic, glass, metal	75	5/5/1997	BAGP	0.4
	X10I9417081			plastic, metal, glass	25	5/5/1997	BAGP	0.4
	X10I9417082			plastic	100	5/5/1997	BAGP	0.4

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9417083			glass, metal, plastic	25	5/5/1997	BAGP	0.4
	X10I9417084			glass	0	5/5/1997	BAGP	0.4
	X10I9417095			plastic, metal, glass	75	5/15/1997	BAGP	0.4
	X10I9417096			glass, metal, plastic	25	5/15/1997	BAGP	0.4
	X10I9417097			melted poly, metal, glass	75	5/15/1997	BAGP	0.4
	X10I9417098			melted poly, metal	75	5/15/1997	BAGP	0.4
	X10I9417099			metal, poly	50	5/15/1997	BAGP	0.4
	X10I9417100			cloth, paper, plastic		5/15/1997	BAGP	0.4
	X10I9417101				25			
	X10I9417102			melted poly, metal, cloth	75	5/15/1997	BAGP	0.4
	X10I9417103			melted poly, metal	75	5/15/1997	BAGP	0.4
	X10I9417104			melted poly, metal	50	5/15/1997	BAGP	0.4
	X10I9417105			melted poly	100	5/15/1997	BAGP	0.4
	X10I9417110			melted poly	100	5/15/1997	BAGP	0.4
	X10I9417111			metal glass	0	5/20/1997	BAGP	0.4
	X10I9417112			glass, metal, paper	50	5/20/1997	BAGP	0.4
	X10I9417113			poly, glass, metal	25	5/20/1997	BAGP	0.4
	X10I9417115			metal, glass, poly	25	5/20/1997	BAGP	0.4
X10C9402642			7920		39.6393567			27.67
	X10I9417233			right rack 7, metal (no barcode on this unit)	0	6/26/1997	BAGP	2.7
	X10I9417226	13		poly, glass, metal	25	6/27/1997	BAGP	2.7
		no number		lower part of CUB 7 tool rack - metal	0		bag	
		no number		upper portion of CUB 7 tool rack - metal	0		bag	
		OU182		glass bottles	0	6/25/1997	1-gal can	
		1723		glass bottles	0	6/25/1997	1-gal can	
		no number		? Vise - metal	0	6/25/1997		
		2739		sample, bottles, dilution bottles-poly, broken glass, paper	30	6/25/1997	1-gal can	
		2652		Bundles of "cheese cloth", rubber gloves, blotter paper, wipe, tape, tips of cotton swabs	100	6/25/1997	1-gal can	
		2682		broken glass from 1L sample flask, light bulb glass, 500ml beakers, 250ml vacuum flask, 125ml glass bottle	0	6/25/1997	1-gal can	
		1732		glass sample bottles, glassware	0	6/25/1997	1-gal can	
		1734		wipes, glass, blotter paper, tape, 2-sample bottles	60	6/25/1997	1-gal can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		2662		poly bags, string	100	6/25/1997	1-gal can	
		no number		metal, SS	0	6/25/1997		
		no number		metal, SS	0	6/25/1997		
	X10I9417234			glass and metal column	0	6/27/1997	BAGP	0.4
	X10I9417216	15		glass, metal, plastic	25	7/18/1997	BAGP	2.7
		1) 2661		melted poly	100	7/14/1997	1-gal can	
		2) 2697		melted poly	100	7/14/1997	1-gal can	
		3) 2754		plastic, glass - plastic bags, poly squeeze bottle, poly lines, broken ball valve neck, Jaco's, dilution bottles, ball valve, PDV blocks	90	7/14/1997	1-gal can	
		4) 2760		glass & plastic - leached sample bottles & lids	1	7/14/1997	1-gal can	
		5) 2764		metal, blotter paper, glass, nf probe, wipes, dirt	73	7/14/1997	1-gal can	
		6) 1707		glass - sample bottles, vac. flask	0	7/14/1997	1-gal can	
		7) 777		glass bottles	0	7/14/1997	1-gal can	
		8) 2776		cloth, plastic, metal - wipes, bottle cap, tub 4 vacuum ?	100	7/14/1997	1-gal can	
		9) 2751		glass bottles	10	7/14/1997	1-gal can	
		10) 2717		glass, plastic (bakelite), rubber	10	6/29/1997	1-gal can	
		11) 2008		cloth, metal, plastic, rubber - wipes, coax cable, rubber gaskets, glass, metal, rod, MSM tong, metal ?, allen head wrenches, Thermo couple, 100 g weight, 500g weight	5	7/14/1997	1-gal can	
		12) R202		melted poly	100	7/14/1997	1-gal can	
		13) 1703		Glass, plastic - glass bottles, lids, electronic device (hand held pH meter ?)	1	7/14/1997	1-gal can	
		14) 116		Glass bottles and lids	10	7/14/1997	1-gal can	
		15) 2722		wipes, string, plastic, alpha probe, B&C co-ax cable	100	7/14/1997	1-gal can	
	X10I9417287	17		glass, metal, plastic	30	7/18/1997	BAGP	2.7
		1) 1736		cubicle brush, wipes, sample bottles & lids	70	7/16/1997	1-gal can	
		2) 2726		glass sample bottles	0	7/16/1997	1-gal can	
		3) 3019		glass sample bottles	0	7/16/1997	1-gal can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		4) OU 812		glass sample bottles	0	7/16/1997	1-gal can	
		5) 2784		glass bottles	0	7/16/1997	1-gal can	
		6) 2463		metal, rubber - preamp can, electric cord, bucket bales, metal valve body, metal lines, flat filter gaskets	10	7/16/1997	1.5-gal can	
		7) 2619		metal, F-455 filter, rubber gloves, gaskets	20	7/16/1997	1.5-gal can	
		8) 2525		glass, metal - F-455 filter, broken 2-line block for F-70, bad goose neck, misc. metal, pump bolts, probe can	0	7/16/1997	1.5-gal can	
		9) 2551		glass sample bottles, broken glass	0	7/16/1997	1.5-gal can	
		10) 2109		melted poly	100	5/20/1997	1-gal can	
		11) 3051		glass sample bottles	0	7/16/1997	1.5-gal can	
		12) no ID		rusty 1-gal can with filter cartridge (plastic)	100		1-gal can	
		13) no ID		assorted poly, metal	95	7/16/1997	1-gal can	
		14) no ID		metal - triple beam scale stand	0	7/16/1997	1-gal can	
		15) no ID		metal, glass- ? broken mirrors	0	7/16/1997	1-gal can	
		16) no ID		metal - ?	0	7/16/1997	1-gal can	
		17) no ID		metal - ? Lids	0	7/16/1997	1-gal can	
	X10I9417288	13		glass, metal, plastic	40	7/18/1997	BAGP	2.7
		1) 2746		glass - broken sample flask, light bulbs	0	5/14/1997	1-gal can	
		2) 2769		assorted poly, metal, glass sample bottle	95	7/16/1997	1-gal can	
		3) 2706		string	100	7/16/1997	1-gal can	
		4) 2723		string	100	7/16/1997	1-gal can	
		5) 2733		broken glass, dirt, plastic caps, syringe sampler, Hg vapor lamp innards, poly ? pass thru, metal gooseneck w/strainer	10	7/16/1997	1-gal can	
		6) 2761		misc broken glass, 150 ml beaker, dirt	0	7/16/1997	1-gal can	
		7) 1904		sample bottles and lids	1	7/16/1997	1-gal can	
		8) 2727		glass sample bottles	0	7/16/1997	1-gal can	
		9) 2735		glass - broken sample flask, light bulbs, F720 filter glass	0	7/16/1997	1-gal can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		10) 2666		leached sample bottles and lids	1	7/16/1997	1-gal can	
		11) no ID		metal, plastic - poly melter	0			
		12) 2740		light cord, BNC cord, MSM tong, broken clip, floor sweeping, glass, blotter paper	20	5/15/1997	1-gal can	
		13) pullbag #19		plastic, cloth	100			
	X10I9417289	13		plastic, glass, metal	25	7/18/1997	BAGP	2.7
		1) 1758		glass bottles	<1		1-gal can	
		2) 3013		glass, plastic, paper, cloth - glass, metal line, wipes, blotter paper bottle caps, pipette bulbs	64	7/16/1997	1-gal can	
		3) 3019		glass - leached sample bottles	<1	7/16/1997	1-gal can	
		4) 2785		glass, plastic	1	7/16/1997	1-gal can	
		5) 2699		glass, plastic lids	5	7/16/1997	1-gal can	
		6) 2547		broken glass from bulbs & mirrors	0	7/16/1997	1.5-gal can	
		7) 2577		wipes, tape, plastic w/ tape, rubber gaskets, glass, dirt	80	7/16/1997	1.5-gal can	
		8) 2453		wipes, PVC valve, dirt, bottle caps, rubber stopper, rubber gaskets, glass, metal parts	30	7/16/1997	1.5-gal can	
		9) 2449		dirt, metal bolt, light bulb, pieces of wipes, plastic, rubber, polytubes	60	7/16/1997	1.5-gal can	
		10) 2747		metal - cut up metal lines	0	7/15/1997	1-gal can	
		11) 2788		metal - cut up metal lines	0	7/15/1997	1-gal can	
		12) 2765		string, wipes, blotter paper, dirt	71	7/16/1997	1-gal can	
		13) 77		misc. broken glass	0	7/16/1997	1-gal can	
	X10I9417228	13		plastic, glass, metal	65	7/21/1997	BAGP	2.7
		1) 4012		glass sample bottles	0	7/16/1997	1-gal can	
		2) 0117		poly, plastic	100	7/16/1997	1-gal can	
		3) 1377		poly, paper	100	7/16/1997	1-gal can	
		4) 2783		metal, plastic, paper	75	7/16/1997	1-gal can	
		5) 2721		poly	100	7/16/1997	1-gal can	
		6) 2495		poly	100	7/16/1997	1-gal can	
		7) 2555		poly, plastic	100	7/16/1997	1-gal can	
		8) 2475		poly, plastic, metal	50	7/16/1997	1-gal can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		9) 2622		glass	0	7/16/1997	1-gal can	
		10) 2696		poly, metal	50	7/16/1997	1-gal can	
		11) 2698		poly, plastic	100	7/16/1997	1-gal can	
		12) 2790		glass, paper, metal, poly	25	7/16/1997	1-gal can	
		13) 1730		grouted resin	0	7/16/1997	1-gal can	
	X10I9417959			metal	0	2/23/1998	BAGP	0.27
	X10I9417961			metal	0	2/23/1998	BAGP	0.27
	X10I9417963			melted poly	100	2/23/1998	BAGP	0.27
	X10I9417964			glass	0	2/23/1998	BAGP	0.27
	X10I9417965			metal, poly	25	2/23/1998	BAGP	0.27
	X10I9417971			plastic, melted poly	100	3/3/1998	BAGP	0.27
	X10I9417973			plastic, melted poly	100	3/3/1998	BAGP	0.27
	X10I9417974			plastic, melted poly	100	3/3/1998	BAGP	0.27
	X10I9417975			plastic, paper	100	3/3/1998	BAGP	0.27
	X10I9417978			cloth, paper, plastic	100	3/6/1998	BAGP	0.27
	X10I9417979			plastic, melted poly	100	3/6/1998	BAGP	0.27
	X10I9417980			paper, string (cloth)	100	3/6/1998	BAGP	0.27
	X10I9417981			paper, metal	75	3/6/1998	BAGP	0.27
	X10I9417983			plastic, metal, melted poly	50	3/6/1998	BAGP	0.27
	X10I9417984			plastic, metal, paper	75	3/6/1998	BAGP	0.27
	X10I9417986			paper	100	3/6/1998	BAGP	0.27
	X10I9417987			paper, plastic	100	3/17/1998	BAGP	0.27
	X10I9417988			plastic, paper	100	3/17/1998	BAGP	0.27
	X10I9417989			glass	0	3/17/1998	BAGP	0.27
	X10I9417990			glass	0	3/17/1998	BAGP	0.27
	X10I9417995			melted, poly, glass	50	3/17/1998	BAGP	0.27
	X10I9417996			glass, paper, plastic	50	3/17/1998	BAGP	0.27
	X10I9417997			glass	0	3/17/1998	BAGP	0.27
	X10I9418229			metal, glass, paper	25	3/20/1998	BAGP	0.27
	X10I9418232			metal, paper	0	3/20/1998	BAGP	0.27
	X10I9418233			paper	100	3/20/1998	BAGP	0.27
	X10I9418234			paper, plastic (melted poly)	100	3/20/1998	BAGP	0.27
	X10I9418235			metal, paper	50	3/20/1998	BAGP	0.27
	X10I9418237			paper, glass	50	3/20/1998	BAGP	0.27
	X10I9418238			plastic, metal, paper	75	3/20/1998	BAGP	0.27
	X10I9418239			plastic, metal (batteries)	75	3/20/1998	BAGP	0.27
					1900			8.37

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
X10C9402644	63		7920		70		CASKC6	58.5
	X10I9417253			paper	100	9/5/1997	BAGP	0.4
	X10I9417254			plastic	100	9/5/1997	BAGP	0.4
	X10I9417255			metal pipe	0	9/5/1997	BAGP	0.4
	X10I9417256			metal pipe	0	9/5/1997	BAGP	0.4
	X10I9417281			paper, glass, metal	75	11/4/1997	BAGP	0.4
	X10I9417286			plastic, glass, metal	50	11/4/1997	BAGP	0.4
	X10I9417633			melted poly	100	11/4/1997	BAGP	0.4
	X10I9417634			melted poly	100	11/4/1997	BAGP	0.4
	X10I9417635			melted poly	100	11/4/1997	BAGP	0.4
	X10I9417285			melted poly	100	11/5/1997	BAGP	0.4
	X10I9417649			metal, glass, plastic	25	11/20/1997	BAGP	0.4
	X10I9417650			melted poly	100	11/20/1997	BAGP	0.4
	X10I9417651			glass, poly	25	11/20/1997	BAGP	0.4
	X10I9417646			glass, metal, plastic	50	11/25/1997	BAGP	0.4
	X10I9417653			melted poly	100	11/25/1997	BAGP	0.4
	X10I9417654	no 2109						
	X10I9417655			melted poly	100	11/25/1997	BAGP	0.4
	X10I9417661			plastic, metal, wood	75	12/4/1997	BAGP	0.4
	X10I9417662			glass, poly, metal	75	12/4/1997	BAGP	0.4
	X10I9417882			melted poly, plastic	100	2/16/1998	BAGP	0.4
	X10I9417884			melted poly, plastic	100	2/16/1998	BAGP	0.4
	X10I9417885			melted poly, plastic	100	2/16/1998	BAGP	0.4
	X10I9417890			glass, paper, cloth	75	2/20/1998	BAGP	0.4
	X10I9417892			metal, cloth	25	2/20/1998	BAGP	0.4
	X10I9417893			glass	0	2/20/1998	BAGP	0.4
	X10I9417894			paper	100	2/20/1998	BAGP	0.4
	X10I9417895			plastic, paper, metal	75	2/20/1998	BAGP	0.4
	X10I9417898			glass, melted poly	75	2/23/1998	BAGP	0.4
	X10I9417899			glass	0	2/23/1998	BAGP	0.4
	X10I9417956			glass, melted poly	75	2/23/1998	BAGP	0.4
	X10I9417958			melted poly	100	2/23/1998	BAGP	0.4
	X10I9417959	no 2109						
	X10I9417960	no 2109						
	X10I9417961	no 2109						
	X10I9417963	no 2109						
	X10I9417964	no 2109						
	X10I9417965	no 2109						
	X10I9417971	no 2109						

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9417973	no 2109						
	X10I9417974	no 2109						
	X10I9417975	no 2109						
	X10I9417978	no 2109						
	X10I9417979	no 2109						
	X10I9417980	no 2109						
	X10I9417981	no 2109						
	X10I9417983	no 2109						
	X10I9417984	no 2109						
	X10I9417986	no 2109						
	X10I9417987	no 2109						
	X10I9417988	no 2109						
	X10I9417989	no 2109						
	X10I9417990	no 2109						
	X10I9417991	no 2109						
	X10I9417995	no 2109						
	X10I9417996	no 2109						
	X10I9417997	no 2109						
	X10I9418229	no 2109						
	X10I9418232	no 2109						
	X10I9418233	no 2109						
	X10I9418234	no 2109						
	X10I9418235	no 2109						
	X10I9418237	no 2109						
	X10I9418238	no 2109						
	X10I9418239	no 2109						
X10C9402650	26		7920		27.14671246			20.38
	X10I9417669			msm boot, plastic, metal	75	12/30/1997	BAGP	0.4
	X10I9417670			msm boot, plastic, metal	75	12/30/1997	BAGP	0.4
	X10I9417671			msm boot, plastic	100	12/30/1997	BAGP	0.4
	X10I9417672			msm boot, metal, plastic	75	12/30/1997	BAGP	0.4
	X10I9417673			msm boot, plastic	100	12/30/1997	BAGP	0.4
	X10I9417674			msm boot, plastic, metal	75	12/30/1997	BAGP	0.4
	X10I9417664			hopcalite filter, metal and hopcalite	0	1/15/1998	BAGP	2.7
	X10I9417665			metal and hopcalite	0	1/15/1998	BAGP	2.7
	X10I9417666			metal and hopcalite	0	1/15/1998	BAGP	2.7
	X10I9417667			plastic and paper	100	1/15/1998	BAGP	2.7
	X10I9417842			metal	0	1/15/1998	BAGP	0.4

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9417843			wood	100	1/15/1998	BAGP	0.4
	X10I9417844			valve, metal	0	1/15/1998	BAGP	0.2
	X10I9417845			valve, metal	0	1/15/1998	BAGP	0.2
	X10I9417846			glass	0	1/15/1998	BAGP	0.4
	X10I9417847			metal	0	1/15/1998	BAGP	0.67
	X10I9417848			metal, heater elements		1/15/1998	BAGP	1.33
	X10I9417857	no 2109						
	X10I9417677			metal, charcoal filter	0	1/21/1998	BAGP	0.53
	X10I9417678			metal, charcoal filter	0	1/21/1998	BAGP	0.53
	X10I9417533			metal	0	1/22/1998	BAGP	0.13
	X10I9417534			metal	0	1/22/1998	BAGP	0.13
	X10I9417535			metal	0	1/22/1998	BAGP	0.13
	X10I9417536			metal	0	1/22/1998	BAGP	0.4
	X10I9417679			metal, plastic, paper	25	1/22/1998	BAGP	1.33
	X10I9417680			metal, plastic	25	1/22/1998	BAGP	0.4
X10C9402652	7		7920		40.61566092			13.92
	X10I9418802	16		glass, metal, poly (16 cans in a draw string bag)	25	11/4/1998	BAGP	4
		2870		grout, T-780 solids	0	10/30/1998	paint can	0.13
		2794		wire, thermocouple wire, cable, re-amp cable, MSM finger, glass, rubber gasket	1	10/30/1998	paint can	0.13
		2860		dirt, poly, paper	10	10/30/1998	paint can	0.13
		2868		grout, T-780 solids	0	10/30/1998	paint can	0.13
		2848		sample bottles	0	10/30/1998	paint can	0.13
		2839		sample bottles and lids	0	10/30/1998	paint can	0.13
		4040		sample bottles	0	10/30/1998	paint can	0.13
		2793		sample bottles and lids	0	10/30/1998	paint can	0.13
		2873		grout, T-780 solids	0	10/30/1998	paint can	0.13
		2757		pump parts, bolts, side sleeves, check valves	0	10/30/1998	paint can	0.13
		2719		wipes, paper	100	10/30/1998	paint can	0.13
		171		tygon tubing		10/30/1998	paint can	0.13
		252		special FDV, titrator probe, filter, broken ruler, misc. waste	50	10/30/1998	paint can	0.13
		2111		melted poly	100	10/30/1998	paint can	0.13
		2822		sample bottles	0	10/30/1998	paint can	0.13
		STRG		string & some plastic	100	10/30/1998	paint can	0.13

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9418807	1						
					0	11/4/1998	BAGP	0.4
		centrifuge		metal centrifuge	0	11/2/1998	draw string plastic bag	
	X10I9418810	13		glass, metal, poly (13 cans in a draw string bag)	25	11/4/1998	BAGP	4
		2872		melted poly	100		paint can	0.13
		2861		leached glass, sample bottles	0		paint can	0.13
		666		leached glass, sample bottles	0		paint can	0.13
		2858		leached glass, sample bottles	0		paint can	0.13
		6969		leached glass, sample bottles	0		paint can	0.13
		2852		leached glass, sample bottles	0		paint can	0.13
		2831		leached glass, sample bottles	0		paint can	0.13
		2876		grout, T-780 solids	0		paint can	0.13
		2846		leached glass, sample bottles	0		paint can	0.13
		2789		melted poly	100		paint can	0.13
		2598		sample bottle lids	90		paint can	0.13
		2611		2-pvc ball valves, 1-special FDV block, 1-sample carrier base, some metal tubing	80		paint can	0.13
		2867		leached glass, sample bottles	0		paint can	0.13
	X10I9418811	16		glass, metal, poly (16 cans in a draw string bag)	25	11/4/1998	BAGP	4
		2837		sample bottles	0	10/30/1998	paint can	0.13
		2855		sample bottles	0	10/30/1998	paint can	0.13
		2857		sample bottles	0	10/30/1998	paint can	0.13
		2862		instrument probe lens, light cord, rubber gasket, nf probe	5	10/30/1998	paint can	0.13
		2780		sample bottles, electrical cord	30	10/30/1998	paint can	0.13
		1755		sample bottles	1	10/30/1998	paint can	0.13
		2797		melted poly	100	10/30/1998	paint can	0.13
		3563		misc. glass bottles	1	10/30/1998	paint can	0.13
		2597		various glass sample bottles, 1 swing clamp	1	10/30/1998	paint can	0.13
		2787		sample bottles, misc. glass	1	10/30/1998	paint can	0.13
		1752			0	10/30/1998	paint can	0.13

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		2775		filter element, misc. glass, some poly	50	10/30/1998	paint can	0.13
		3566		sample bottles	1	10/30/1998	paint can	0.13
		2639		sample bottles & lids	0	10/30/1998	paint can	0.13
		Cu-8 #4		sample bottles	1	10/30/1998	paint can	0.13
		FT-1		floor filter elements	100	10/30/1998	paint can	0.13
	X10I9418812	16		glass, metal, poly (16 cans in a draw string bag)		11/4/1998	BAGP	4
		FS-1		floor sweepings, sample bottles & lids, hoke valve	5	10/30/1998	paint can	0.13
		3576		sample bottles & lids	5	10/30/1998	paint can	0.13
		3568		sample bottles	1	10/30/1998	paint can	0.13
		2687		4 floor filter elements, 1 rubber glove, wire, broken glass	75	10/30/1998	paint can	0.13
		2825		melted poly	100	10/30/1998	paint can	0.13
		2841		2/3 melted poly & 2 filter elements	100	10/30/1998	paint can	0.13
		7552		melted poly & FDV block	100	10/30/1998	paint can	0.13
		2802		melted poly	100	10/30/1998	paint can	0.13
		2851		1/2 full of melted poly & roll of tape	100	10/30/1998	paint can	0.13
		2828		melted poly	100	10/30/1998	paint can	0.13
		3564		melted poly	100	10/30/1998	paint can	0.13
		1757		melted poly	100	10/30/1998	paint can	0.13
		2817		melted poly	100	10/30/1998	paint can	0.13
		2423		stirrer, heater w/electric cord, misc metal	20	10/30/1998	syrup can	
		cu-8 #3		MSM tongs, misc. metal	1	10/30/1998	syrup can	
		3567		glass sample bottles and lids	3	10/30/1998		
	X10I9418813	17			50	11/4/1998	BAGP	4
		2830		glass sample bottles & lids	3	11/2/1998	paint can	0.13
		2804		glass sample bottles & lids	3	11/2/1998	paint can	0.13
		1422		sample bottles & lids	5	11/2/1998	paint can	0.13
		2816		string	100	11/2/1998	paint can	0.13
		3562		string	100	11/2/1998	paint can	0.13
		2762		floor filter elements	100	11/2/1998	paint can	0.13
		2813		wipes & paper	100	11/2/1998	paint can	0.13
		1722		misc. poly - plastic bags, jacos, cut up poly lines, gasket	100	11/2/1998	paint can	0.13
		2842		melted poly	100	11/2/1998	paint can	0.13

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		2818		melted poly	100	11/2/1998	paint can	0.13
		2826		broken glass from light bulbs & sample flasks	0	11/2/1998	paint can	0.13
		76		glass sample bottles & lids	3	11/2/1998	paint can	0.13
		4044		glass sample bottles	3	11/2/1998	paint can	0.13
		poly 1101		melted poly, floor filter element, glass sample thieve	100	11/2/1998	paint can	0.13
		2559		string	100	11/2/1998	syrup can	
		OU812		electrical cord, spot light cord & socket, glass	75	11/2/1998	syrup can	
		3567		glass sample bottles & lids	3	11/2/1998	paint can	0.13
	X10I9418814	17			50	11/4/1998	BAGP	4
		2849		broken glass - sample flasks and light bulbs	0	11/2/1998	paint can	0.13
		3552		melted poly	100	11/2/1998	paint can	0.13
		2836		floor filters	100	11/2/1998	paint can	0.13
		2798		glass sample bottles & lids	0	11/2/1998	paint can	0.13
		2847		broken glass	0	11/2/1998	paint can	0.13
		2840		melted poly & FDV block	100	11/2/1998	paint can	0.13
		misc		2- tongs, glass, special FDV can w/ no poly, needle block, MSM finger	1	11/2/1998	paint can	0.13
		2883		melted poly	100	11/2/1998	paint can	0.13
		2736		1/2 full of melted poly, FDV block, FMI pump lead, broken PS slide valve	75	11/2/1998	paint can	0.13
		2758		1/2 full of melted poly, blotter paper, wire	99	11/2/1998	paint can	0.13
		2806		glass sample bottles	5	11/2/1998	paint can	0.13
		2799		melted poly	100	11/2/1998	paint can	0.13
		1721		sample bottles, lids, rubber tubing	20	11/2/1998	paint can	0.13
		3550		glass sample bottles	2	11/2/1998	paint can	0.13
		2850		misc. broken glass	0	11/2/1998	paint can	0.13
		2838		broken glass	0	11/2/1998	paint can	0.13
		1901		glass sample bottles	2	11/2/1998	paint can	0.13
X10C9402660	none	none	7920	metal, paper (VOG filter), polyethylene beads were added to the inside of the cask to reduce the neutron dose rate.	25	8/26/1998	BAGP	45

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
X10C9600188	56		7920		67.07692308			26
	X10I9319671			plastic, paper , cloth	100	9/18/2005	BAGP	2
	X10I9415551			metal, plastic	60	1/22/1996	BAGP	0.4
	X10I9320465			paper, metal, rubber	90	5/3/1995	BAGP	0.4
	X10I9415544			melted poly	100	1/18/1996	BAGP	0.4
	X10I9415556			grouted resin (concrete)	0	1/22/1996	BAGP	0.4
	X10I9414952			glass, metal	0	8/3/1995	BAGP	0.4
	X10I9414989			glass, metal, grouted resin	0	8/8/1995	BAGP	0.4
	X10I9415320			rubber, metal	5	1/9/1996	BAGP	0.4
	X10I9415323			glass, plastic, paper	5	1/10/1996	BAGP	0.4
	X10I9415511			metal, plastic	60	1/11/1996	BAGP	0.4
	X10I9415512			metal, plastic	60	1/11/1996	BAGP	0.4
	X10I9415517			metal, plastic	60	1/11/1996	BAGP	0.4
	X10I9415523			metal, plastic	60	1/16/1996	BAGP	0.4
	X10I9414823			plastic, metal, cloth	60	5/30/1995	BAGP	0.4
	X10I9414839			plastic, metal, cloth	95	6/27/1995	BAGP	0.4
	X10I9419672			plastic, paper , cloth	100	9/18/1995	BAGP	2
	X10I9415554			melted poly	100	1/22/1996	BAGP	0.4
	X10I9415322			plastic, metal, glass		1/9/1996	BAGP	0.4
	X10I9415321			glass, metal, cloth	50	1/9/1996	BAGP	0.4
	X10I9414814			plastic, metal	95	5/17/1994	BAGP	0.4
	X10I9320191			MSM boot	75	12/19/1994	BAGP	0.4
	X10I9414951			no description	100	8/3/1995	BAGP	0.4
	X10I9415525			plastic	100	1/16/1996	BAGP	0.4
	X10I9415528			plastic	100	1/16/1996	BAGP	0.4
	X10I9415530			metal, plastic	60	1/17/1996	BAGP	0.4
	X10I9415531			metal, plastic	60	1/17/1996	BAGP	0.4
	X10I9415536			metal, plastic	60	1/17/1996	BAGP	0.4
	X10I9415537			metal, plastic	60	1/17/1996	BAGP	0.4
	X10I9415539			metal, plastic	60	1/17/1996	BAGP	0.4
	X10I9415540			metal, plastic	60	1/17/1996	BAGP	0.4
	X10I9415543			melted poly	100	1/18/1996	BAGP	0.4
	X10I9415545			melted poly	100	1/18/1996	BAGP	0.4
	X10I9415550						BAGP	
	X10I9415552			melted poly	100	1/22/1996	BAGP	0.4
	X10I9415526			plastic	100	1/16/1996	BAGP	0.4
	X10I9415547			grouted resin (concrete)	0	1/18/1996	BAGP	0.4
	X10I9415548			grouted resin (concrete)	0	1/18/1996	BAGP	0.4
	X10I9414953			glass, poly		8/3/1995	BAGP	0.4

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9320188			grouted resin	0	12/19/1994	BAGP	0.4
	X10I9414807			plastic, metal	95	5/15/1995	BAGP	0.4
	X10I9414817			plastic, metal	90	5/23/1995	BAGP	0.4
	X10I9414816			glass, plastic, metal	80	5/23/1995	BAGP	0.4
	X10I9415514			metal, plastic	60	1/11/1996	BAGP	0.4
	X10I9415541			plastic, metal	60	1/18/1996	BAGP	0.4
	X10I9414824			glass, metal, poly	50	5/30/1995	BAGP	0.4
	X10I9414822			glass, plastic, metal	30	5/30/1995	BAGP	0.4
	X10I9415521			metal, plastic, paper	60	1/16/1996	BAGP	0.4
	X10I9415553			melted poly	100	1/22/1996	BAGP	0.4
	X10I9320467			plastic, metal, cloth	60	5/3/1995	BAGP	0.4
	X10I9415538			metal, plastic	60	1/17/1996	BAGP	0.4
	X10I9415532			metal, plastic	60	1/17/1996	BAGP	0.4
	X10I9415542			metal, plastic	60	1/18/1996	BAGP	0.4
	X10I9415527			plastic	100	1/16/1996	BAGP	0.4
	X10I9415513			metal, plastic	60	1/11/1996	BAGP	0.4
	X10I9414818			cloth, metal	80	5/23/1995	BAGP	0.4
	X10I9414810						BAGP	
	X10I9415324			metal, plastic	60	1/11/1996	BAGP	0.4
	X10I9415522			metal, plastic, glass	60	1/16/1996	BAGP	0.4
	X10I9415555			melted poly	100	1/22/1996	BAGP	0.4
X10C9801083	9	none	7920		69.44444444			3.6
	X10I9418230			metal vise, paper	25	3/20/1998	BAGP	0.4
	X10I9418231			plastic	100	3/20/1998	BAGP	0.4
	X10I9418236			metal	0	3/20/1998	BAGP	0.4
	X10I9418240			MSM boot, plastic	100	3/20/1998	BAGP	0.4
	X10I9418241			MSM boot, plastic	75	3/20/1998	BAGP	0.4
	X10I9418243			plastic, metal, MSM boot	75	4/2/1998	BAGP	0.4
	X10I9418244			plastic, MSM boot	100	4/2/1998	BAGP	0.4
	X10I9418245			plastic, metal, MSM boot	75	4/2/1998	BAGP	0.4
	X10I9418246			plastic, metal, MSM boot	75	4/2/1998	BAGP	0.4
X10C9802663	2		7920		50			

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9418253	18		Metal, Plastic, and process solids. This bag contains the filter element cans from the HFIR target dissolutions. These cans have mixed fission products within them.	25	10/2/1998	BAGP	4
		1) /F-720 solids can/campaign 70 7-96		metal, plastic, process solids (filter solids)	50	?	?	
		2) F-720 solids can/campaign 68 6/27/91		metal, plastic, process solids (filter solids)	50	6/27/1991	11" SS filter can	
		3) F-720 solids can/M3-DS-1 11/7/92		metal, plastic, process solids (filter solids)	50	1/5/1992	11" SS can	
		4) F-720 solids can/M3-DS-2 12-92		metal, plastic, process solids (filter solids)	50	1/5/1992	11" SS can	
		5) Set F campaign 9 5-20-85		metal, plastic, process solids (filter solids)	50	?	11" SS can	
		6) F-720 solids can/M4-DS-1 6-3-93		metal, plastic, process solids (filter solids)	50	7/1/1993	11" SS can	
		7) Tall Al can SetF-6A		metal - two 1-qt paint cans containing setF-6-3 w/9 -D%-2 hulls and setF-6-6 w/9 -D5-3 hulls	0	3/5/1991	tall Al can	
		8) Tall Al can SetF-5A		no description	0	3/4/1991	tall Al can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		9) F-720 solids can/M2-DS-2 10-5-92		metal, plastic, process solids (filter solids)	50	10/5/1992	11" SS filter can	
		10) F-720 solids can/12-10-91		metal, plastic, process solids (filter solids)	50	12/10/1991	11" SS filter can	
		11) F-720 solids can/M2-DS-2 10-12-87		metal, plastic, process solids (filter solids)	50	10/12/1987	11" SS filter can	
		12) short Al can/ set F - 7A		metal - two 1-qt paint cans containing setF-7-1 w/10 -DS-2 hulls and setF-6-6 w/10 -DS-1 hulls 5-23-86	0	5/23/1986	short Al can	
		13) PFR Am. Cm./ ?/ 3-86		contents are shown as "empty"		3/1/1986	13.5" Al can	
		14) F-720 solids can/camp 67/ 1-9-87		metal, plastic, process solids (filter solids)	50	1/9/1987	11" SS filter can	
		15) SetF solids, cub 9 10-22-87		metal, plastic, process solids (filter solids)	50	10/22/1987	8" SS can	
		16) Camp 65 F-720 Filter solids 10-20-84		metal, plastic, process solids (filter solids)	50	10/20/1984	11" SS filter can	
		17) SetF camp. 10 filter solids 3-24-86		metal, plastic, process solids (filter solids)	50	3/24/1986	11" SS filter can	
		18) small impact ?		metal	0	?	paint can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	X10I9418714	20		Metal, Plastic, and process solids. This bag contains thirteen 1-gal. cans and four filter element cans that were used for target dissolution. The filter element cans have mixed fission products within them.	75	10/2/1998	BAGP	4
		1) F-720 solids can no ID		SS, plastic, process solids	50	?	11" SS filter can	
		2) 1-gal SS can/F-720 melted solids #1		metal, plastic process solids	75	?	11" SS filter can	
		3) F-720 solids can/camp. 66 10/4/85		plastic, SS, process solids	50	?	11" SS filter can	
		4) F-720 Solids can/?		SS, plastic, process solids	50	?	11" SS filter can	
		5) F-720 Solids can/M6-DS-2/ 11/8/96		SS, plastic, process solids	50	?	11" SS filter can	
		6) 2745		wipes, dirt, cloth, paper	100	3/17/1998	paint can	
		7/ 1-gal can/black band		melted poly	100	9/27/1998	paint can	
		8) 3042		string, 90% wipes	100	9/24/1998	paint can	
		9) Cu-8 #1		dirt, paper, wipes, rubber tube	75	9/21/1998	paint can	
		10) 3026		string, dirt, paper, tape	100	3/11/1997	paint can	
		11) 1011		melted poly	100	9/24/1998	paint can	
		12) 7111		melted poly	100	9/21/1998	paint can	
		13) 1550/7550		plastic, melted poly	100	9/22/1968	paint can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		14) 100000		wipes, paper, filter elements	100	9/24/1998	paint can	
		15) no ID		dirt, poly, paper, glass	10	9/27/1998	paint can	
		16) 1711		dirt, poly	50	7/16/1997	paint can	
		17) 2366		melted poly	100	9/24/1998	paint can	
		18) 3018		wipes, string, cubicle brush, filter flat gaskets, cloth towel, green scrub pad	60	9/27/1998	paint can	
		19) machine vise		metal	0	?		
		20) machine vise		metal	0	?		
X10C9802665	none	none	7920	plastic, glass, metal, paper, PPE, rubber, incidental metal	75	5/6/1999	NA	58.5
X10C9802672	none	none	7920	plastic, glass, metal, PPE, paper, rubber, incidental metal	75	8/12/1999	NA	
X10C9802684			7920					
	X10I0001670			plastic, glass, metal, PPE, paper, rubber, incidental metal	50	9/1/1999	BAGP	58.5
		1) 1		MSM boot, plastic		12/3/1999	?	1
		2) 2		MSM boot, plastic		12/3/1999	?	3
		3) 61		glass, metal, plastic, cloth		3/1/2000	?	10
		4) 66		glass, plastic, metal		3/1/2000	?	10
		5) 67		glass, metal, plastic, paper		3/1/2000	?	10
		6) 68		glass, metal, nylon, rubber		3/1/2000	?	10
		7) 69		plastic, glass, metal, nylon		3/2/2000	?	10
		8) 70		glass, metal, plastic		3/2/2000	?	10
		9) 71		metal, glass, plastic, rubber		3/2/2000	?	10
		10) 31		glass, metal		3/2/2000	?	10
X10CSATN03042	63	none	7920		58	10/25/1991		
	1) W076				40	2/23/1989		
		8951					plastic bucket	
	2) W077				60	2/23/1989		
		2753					plastic bucket	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	3) W078				40	2/23/1989		
		2765					plastic bucket	
	4) W080				80	3/2/1989		
		8942					plastic bucket	
	5) W081				60	3/2/1989		
		2775					plastic bucket	
	6) W082				60	3/2/1989		
		2806					plastic bucket	
	7) W083				70	3/2/1989		
		2698					plastic bucket	
	8) W084				70	3/2/1989		
		no #					plastic bucket	
	9) W090				20	3/7/1990		
	10) W091				50	3/7/1990		
	11) W092				70	3/8/1990		
		7070					plastic bucket	
	12) W093				0	7/23/1991		
	13 W094				70	7/23/1991		
	14) W095				5	8/1/1991		
	15) W096				30	8/1/1991		
	16) W097				50	8/8/1991		
	17) W098				70	9/10/1991		
		1716					plastic bucket	
	18) W099				80	9/19/1991		
	19) W100				90	9/19/1991		
		1034					plastic bucket	
	20) W101				80	9/19/1991		
		1169					plastic bucket	
	21) W102				70	9/19/1991		

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		2020					plastic bucket	
	22) W103				70	9/19/1991		
		4075					plastic bucket	
	23) W104				70	9/19/1991		
		1722					plastic bucket	
	24) W105				70	9/19/1991		
		4002					plastic bucket	
	25) W106				20	9/19/1991		
		4020					plastic bucket	
	26) W107				50	9/23/1991		
		4028					plastic bucket	
	27) W108				30	9/23/1991		
		4036					plastic bucket	
	28) W109				10	9/23/1991		
		2820					plastic bucket	
	29) W110				30	9/23/1991		
		4027					plastic bucket	
	30) W111				20	9/23/1991		
		4405					plastic bucket	
	31) W112				10	9/24/1991		
		4131					plastic bucket	
	32) W113				100	9/24/1991		
		1733					plastic bucket	
	33) W114				100	9/24/1991		
		1724					plastic bucket	
	34) W115				100	9/26/1991		

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		4133					plastic bucket	
	35) W116				0	9/26/1991		
		4122					plastic bucket	
	36) W117				0	9/30/1991		
		3767					plastic bucket	
	37) W118				10	9/30/1991		
		4121					plastic bucket	
	38) W119				100	9/30/1991		
		4064					plastic bucket	
	39) W120				40	9/30/1991		
		4152					plastic bucket	
	40) W121				50	9/30/1991		
		4136					plastic bucket	
	41) W122				30	10/3/1991		
		4074					plastic bucket	
	42) W123				90	10/3/1991		
		4087					plastic bucket	
	43) W124				10	10/3/1991		
		4005					plastic bucket	
	44) W125				0	10/3/1991		
		3773					plastic bucket	
	45) W126				10	10/3/1991		
		4094					plastic bucket	
	46) W127				0	10/10/1991		
		2751					plastic bucket	
	47) W130				0	10/10/1991		

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		3771					plastic bucket	
	48) W131				0	10/10/1991		
		4026					plastic bucket	
	49) W134				90	10/11/1991		
		4157					plastic bucket	
	50) W139				70	10/21/1991		
		3676					plastic bucket	
	51) W140				95	10/21/1991		
		4031					plastic bucket	
	52) W141				95	10/21/1991		
		1730					plastic bucket	
	53) W142				95	10/21/1991		
		4170					plastic bucket	
	54) W143				50	10/21/1991		
		4126					plastic bucket	
	55) W144				70	10/21/1991		
		4043					plastic bucket	
	56) W145				80	10/22/1991		
		3781					plastic bucket	
	57) W146				90	10/22/1991		
		4004					plastic bucket	
	58) W147				20	10/22/1991		
		3772					plastic bucket	
	59) W148				70	10/22/1991		
		8893					plastic bucket	
	60) W149				80	10/22/1991		

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		3765					plastic bucket	
	61) W150				60	10/24/1991		
		torn label					plastic bucket	
	62) W151				90	10/24/1991		
		3684					plastic bucket	
	63) W152				90	10/24/1991		
		no label					plastic bucket	
X10CSATN03043	62	none	7920		70			58
	1) W153				95	11/11/1991	plastic bucket	
		0355		sheet plastic, string, plastic tubing	100	11/11/1991	paint can	
	2) W154				50	11/11/1991	plastic bucket	
		3741		sheet plastic, wipes, metal tube/fittings, glass bottles, bottle caps	50	11/11/1991	paint can	
	3) W155				50		plastic bucket	
		4018		broken light bulbs, string, wipes, sheet plastic, wipes, paper, knife handles	50	11/11/1991	paint can	
	4) W157				90	11/14/1991	plastic bucket	
		4007		wipes	100	11/14/1991	paint can	
	5) W159				30	11/14/1991	plastic bucket	
		8918		wipes, broken light bulbs, empty sample bottles, bottle caps	30	11/14/1991	paint can	
	6) W161				30	11/20/1991	plastic bucket	
		0244		MSM hand, broken light bulbs, filter frit, string, glass sample bottles	30	11/20/1991	paint can	
	7) W160				80	11/20/1991	plastic bucket	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		2722		paper, wipes, sheet plastic, string, broken glass bottle, glass and plastic sample bottles,	80	11/20/1991	paint can	
	8) W162				10	11/20/1991	plastic bucket	
		4037		glass sample bottles, bottle caps, pipettes	10	11/20/1991	paint can	
	9) W163				90	11/20/1991	plastic bucket	
		4182		wipes, plastic pipettes, plastic sample bottles, bottle caps	90	11/20/1991	paint can	
	10) W164				0	11/21/1991	plastic bucket	
		1735		probe pre amp cans	0	11/21/1991	paint can	
	11) W166				60	11/21/1991	plastic bucket	
		4038		melted poly, glass sample bottles	60	11/21/1991	paint can	
	12) W167				30	11/21/1991	plastic bucket	
		4137		poly blocks, broken glass bottles, wipes, bottle caps, metal tubing fittings	30	11/21/1991	paint can	
	13 W168				95	11/21/1991	plastic bucket	
		30		melted poly, wipes	100	11/21/1991	paint can	
	14) W169				70	11/21/1991	plastic bucket	
		31		melted poly, glass sample bottles	50	11/21/1991	paint can	
	15) W173				50	12/4/1991	plastic bucket	
		4149		empty glass sample bottles, bottle caps, wipes, cardboard	50	12/4/1991	paint can	
	16) W174				30	12/4/1991	plastic bucket	
		4049		Al foil, sheet plastic, Pellet dies & punches, broken flood light bulbs. Wipes, plastic fittings, elect wire & probes, empty glass bottles, bottle caps	30	12/4/1991	paint can	
	17) W176			msm boot	95	12/9/1991	plastic bucket	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	18) W179				0	12/10/1991	plastic bucket	
		1764		empty glass sample bottles, bottle caps	0	12/10/1991	paint can	
	19) W180				0	12/10/1991	plastic bucket	
		4030		empty glass sample bottles, bottle caps	0	12/10/1991	paint can	
	20) W181				50	12/10/1991	plastic bucket	
		4113		wipes, plastic & metal process fittings, light bulbs, empty glass bottles, bottle caps, string, pressure gauge, sheet plastic, filter element	50	12/10/1991	paint can	
	21) W182				70	1/22/1992	plastic bucket	
		3708		wipes, string, plastic & metal fittings, sheet plastic, plastic tubing	70	1/22/1992	paint can	
	22) W183				70	1/22/1992	plastic bucket	
		2671		string, broken light bulbs, sheet plastic, poly blocks	70	1/22/1992	paint can	
	23) W184				100	1/22/1992	plastic bucket	
		2704		bag - in paper, wipes	100	1/22/1992	paint can	
	24) W185				30	1/22/1992	plastic bucket	
		1010		Broken concrete, glass & plastic sample bottles, sheet plastic, MSM finger pads	30	1/22/1992	paint can	
	25) W186				50	1/22/1992	plastic bucket	
		05??		poly blocks, wipes, plastic sheet, broken light bulbs, empty glass sample bottles, bottle caps, tubing fittings	50	1/22/1992	paint can	
	26) W187				20	1/22/1992	plastic bucket	
		2676		poly blocks, string, flood light fixture & cord, poly tubing, broken glass bottles	20	1/22/1992	paint can	
	27) W188				40	1/23/1992	plastic bucket	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		C313		broken light bulbs, sheet plastic, string, plastic tubing & fittings, glass bottles & caps, plastic bottle caps	40	1/23/1992	paint can	
	28) W189				40	1/23/1992	plastic bucket	
		1718		plastic pipettes, plastic bottle caps, empty glass bottles, empty plastic bottles	40	1/23/1992	paint can	
	29) W190				30	1/23/1992	plastic bucket	
		4038		wipes, metal process tubing & fittings, cloth filter element, glass & plastic pipettes, glass sample bottles, bottle caps, steelblock, broken light bulbs	30	1/23/1992	paint can	
	30) W191				80	1/23/1992	plastic bucket	
		2831		wipes, filter element, sheet plastic, string, plastic tube fittings	80	1/23/1992	paint can	
	31) W192				20	1/24/1992	plastic bucket	
		3740		metal process tubing, MSM hand, wipes, glass sample bottles, bottle caps, steel wire, cloth filter element	20	1/24/1992	paint can	
	32) W193				20	1/24/1992	plastic bucket	
		3722		glass sample bottles, bottle caps, hand tools, MSM fingers, wipes	20	1/24/1992	paint can	
	33) W194				5	1/24/1992	plastic bucket	
		1745		glass sample bottles, eye droppers with bulbs, broken light bulbs	5	1/24/1992	paint can	
	34) W195				80	1/24/1992	plastic bucket	
		2795					paint can	
	35) W196				80	1/24/1992	plastic bucket	
		2672		melted poly, glass sample bottles, bottle caps, plastic fittings (process lines)	80	1/24/1992	paint can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	36) W198			MSM boot	80	2/11/1992	plastic bucket	
	37) W203				0	2/12/1992	plastic bucket	
		1796		broken flood lights	0	2/12/1992	paint can	
	38) W204				0	2/12/1992	plastic bucket	
		1748		broken flood lights	20	2/12/1992	paint can	
	39) W205				20	2/12/1992	plastic bucket	
		1784		melted poly, poly blocks, wipes	20	2/12/1992	paint can	
	40) W206				20	2/12/1992	plastic bucket	
		8943		wipes, plastic process tubing, MSM hand, cloth filter element, broken light bulbs, hand tools	20	2/12/1992	paint can	
	41) W207				30	2/12/1992	plastic bucket	
		1771		melted poly, wipes	30	2/12/1992	paint can	
	42) W208				90	2/13/1992	plastic bucket	
		1767		melted poly	90	2/13/1992	paint can	
	43) W209				80	2/13/1992	plastic bucket	
		4003		melted poly, metal process tubing, wipes, paper	80	2/13/1992	paint can	
	44) W210				80	2/13/1992	plastic bucket	
		1786		melted poly, probes & wire, poly, metal tubes, wipes	80	2/13/1992	paint can	
	45) W211				90	2/13/1992	plastic bucket	
		4082		melted poly	90	2/13/1992	paint can	
	46) W212				90	2/13/1992	plastic bucket	
		4174		melted poly, wipes	90	2/13/1992	paint can	
	47) W215			MSM boot	95	2/21/1992	plastic bucket	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	48) W217			MSM boot	70	2/21/1992	plastic bucket	
	49) W219			MSM boot	90	2/27/1992	plastic bucket	
	50) W218			MSM boot	80	2/27/1992	plastic bucket	
	51) W220			MSM boot	90	2/20/1992	plastic bucket	
	52) W221			MSM boot	80	3/4/1992	plastic bucket	
	53) W223			MSM boot	80	3/4/1992	plastic bucket	
	54) W222			MSM boot	90	3/4/1999	plastic bucket	
	55) W224			MSM boot	90	3/4/1992	plastic bucket	
	56) W227				0	3/27/1992	plastic bucket	
		1783		grouted resin	0	3/27/1992	paint can	
	57) W228				0	3/27/1992	plastic bucket	
		1781		grouted resin	0	3/26/1992	paint can	
	58) W229				0	3/27/1992	plastic bucket	
		1780		grouted resin	0	3/27/1992	paint can	
	59) W230				40	3/27/1992	plastic bucket	
		1768		old HV valve stems, plastic tubing, fittings, empty glass sample bottles, bottle caps, hand tools	40	3/27/1992	paint can	
	60) W231				95	3/27/1992	plastic bucket	
		1838		melted poly	100	3/27/1992	paint can	
	61) W232				95	3/27/1992	plastic bucket	
		4171		melted poly	100	3/27/1992	paint can	
	62) W233				95	3/27/1992	plastic bucket	
		4039		melted poly	100	3/27/1992	paint can	

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
X10CSATN03208	62	none	7920		43	8/27/1992	6" cask	
	1) no ID			obsolete sources (residues from preparation of ORELA Target)	0	4/7/1992	lard can	
	2) no ID			containing obsolete samples from F. M. Scheitlin	0	4/7/1992	lard can	
	3) no ID			two packets containing pipe nipple carrier	0	4/7/1992	plastic bag	
	4) no ID			2 paint cans containing old obsolete sources: (1) Cm-244 for ORELA target (2) CmO2	0	4/7/1992	paint cans	
	5) no ID			1-1/2 " SS glove box drain line	0	4/7/1992	plastic bag	
	6) W236				0	6/3/1992	plastic bucket	
		1795		broken incandescent bulbs	0	6/2/1992	paint can	
	7) W237				80	6/3/1992	plastic bucket	
		1726		melted poly, empty glass sample bottles, bottle caps	80	6/3/1992	paint can	
	8) W238				0	6/3/1992	plastic bucket	
		4044		broken incandescent light bulbs	0	4/8/1992	paint can	
	9) W239				30	6/8/1992	plastic bucket	
		??32		wipes, metal tubing	30	6/8/1992	paint can	
	10) W240				90	6/8/1992	plastic bucket	
		2724		wipes, sheet plastic, MSM hand , plastic tubing	90	6/8/1992	paint can	
	11) W241				0	6/8/1992	plastic bucket	
		2668		steel pipe fittings, scale balance pan	0	6/8/1992	paint can	
	12) W242				50	6/8/1992	plastic bucket	
		4033		wipes, sheet plaster, misc. hand tools	50	6/8/1992	paint can	
	13 W243				50	6/9/1992	plastic bucket	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		4029		incand, light fixtures and elect wire, plastic bottle caps, rubber tubing, tubing clamps, nylon string, rubber stoppers.		6/9/1992	paint can	
	14) W244				50	6/9/1992	plastic bucket	
		1797		glass pipettes, wipes, sheet plastic, metal tubing, rubber gaskets	50	6/9/1992	paint can	
	15) W245				0	6/9/1992	plastic bucket	
		1805		metal tubing and fittings	0	6/9/1992	paint can	
	16) W246				100	6/9/1992	plastic bucket	
		1820		sheet plastic, nylon string, plastic tubing fittings, wipes	100	6/9/1992	paint can	
	17) W247				0	6/10/1992	plastic bucket	
		4220		broken glassware	0	6/10/1992	paint can	
	18) W248				70	6/10/1992	plastic bucket	
		1721		plastic valve, wipes, probe and wire, indcand. light fixture and wire, plastic tubing, sheet plastic	70	4/8/1992	paint can	
	19) W250				100	6/10/1992	plastic bucket	
		4115		melted poly, wipes	100	4/8/1992	paint can	
	20) W251				80	6/10/1992	plastic bucket	
		not legible		valve stem, hand tools, plastic tubing and fittings, MSM finger pads	80	6/10/1992	paint can	
	21) W253				30	6/22/1992	plastic bucket	
		1844		metal valve, stem, MSM pads, sheet plastic, sampler needles, plastic & glass pipettes, plastic bottle caps, empty glass bottles, broken glassware	30	6/11/1992	paint can	
	22) W254				0	6/22/1992	plastic bucket	
		4194		empty glass bottles, metal needle block	0	6/11/1992	paint can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	23) W255				20	6/23/1992	plastic bucket	
		1859		broken glassware, plastic bottle caps, empty glass bottles	20	6/11/1992	paint can	
	24) W256				0	6/23/1992	plastic bucket	
		1808		glass filters, empty glass bottles		6/11/1992	paint can	
	25) W257				30	6/23/1992	plastic bucket	
		1738		empty glass bottles, plastic bottle caps, plastic pipettes	30	6/11/1992	paint can	
	26) W258				80	6/26/1992	plastic bucket	
		1850		melted poly, empty glass sample bottles, plastic bottle caps		6/25/1992	paint can	
	27) W259				80	6/26/1992	plastic bucket	
		1845		melted poly, empty glass bottles, plastic bottle caps	80	6/26/1992	paint can	
	28) W260				100	6/26/1992	plastic bucket	
		1818		melted poly	100	6/25/1992	paint can	
	29) W261				100	6/26/1992	plastic bucket	
		4172		melted poly	100	6/25/1992	paint can	
	30) W262				30	6/26/1992	plastic bucket	
		4180		empty glass bottles, glass filters, plastic bottle caps, plastic pipettes, rubber bulbs, elect. Wire	30	6/25/1992	paint can	
	31) W263				0	7/13/1992	plastic bucket	
		1754		broken glassware	0	7/13/1992	paint can	
	32) W264				0	7/13/1992	plastic bucket	
		4134		broken incandescent light bulbs	0	7/10/1992	paint can	
	33) W265				0	7/13/1992	plastic bucket	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		4155		broken glassware and incandescent light bulbs	0	7/10/1992	paint can	
	34) W266				100	7/13/1992	plastic bucket	
		1801		sheet plastic, poly block, wipes, glass bottles, glass bottles, plastic bottle caps, rubber stopper	100	7/10/1992	paint can	
	35) W267				100	7/13/1992	plastic bucket	
		1836		melted poly	100	7/10/1992	paint can	
	36) W268				100	7/13/1992	plastic bucket	
		1835		melted poly	100	7/10/1992	paint can	
	37) W269				100	7/13/1992	plastic bucket	
		1890		nylon string, sheet plastic, wipes	100	7/10/1992	paint can	
	38) W270				50	7/28/1992	plastic bucket	
		4162		elect. wire, plastic sheet, wipes	50	7/10/1992	paint can	
	39) W271				100	7/28/1992	plastic bucket	
		1828		melted poly	100	7/10/1992	paint can	
	40) W272				100	7/28/1992	plastic bucket	
		1882		melted poly	100	7/10/1992	paint can	
	41) W273				100	8/5/1992	plastic bucket	
		1837		melted poly	100	7/10/1992	paint can	
	42) W274				90	8/5/1992	plastic bucket	
		1869		melted poly, metal valve parts	90	7/10/1992	paint can	
	43) W275				10	8/6/1992	plastic bucket	
		1825		broken glassware, broken light bulbs (incandescent and Hg-vapor w/o the inner Hg vapor quartz tube), wipes	10	8/5/1992	paint can	
	44) W276				10	8/6/1992	plastic bucket	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		1892		broken glassware, broken light bulbs (incandescent and Hg-vapor w/o the inner Hg vapor quartz tube), plastic tube, light bulb holder (fixture)	10	8/5/1992	paint can	
	45) W286	none		MSM boot and ring	85	8/12/1992	plastic bucket	
	46) W287	none		sample carrier, top-cap magazines, mirror	10	8/18/1992	plastic bucket	
	47) W288	none		two filter assemblies	0	8/18/1992	plastic bucket	
	48) W289	none		calorimeter assembly, valve assembly, Tap-cap magazine, mirror	0	8/18/1992	plastic bucket	
	49) W291				80	8/18/1992	plastic bucket	
		1926		poly blocks, string, plastic sheet, elect. Wire w/plugs, filter elements, empty glass bottles, plastic bottle caps	80	8/17/1992	paint can	
	50) W292				20	8/19/1992	plastic bucket	
		1860		plastic dies, wipes, plastic sheet, glass pipettes, rubber gaskets, probe amplifier, broken glass-ware	20	8/1/1992	paint can	
	51) W293				50	8/19/1992	plastic bucket	
		1848		elect. wire & plugs, poly blocks	50	8/18/1992	paint can	
	52) W294				0	8/19/1992	plastic bucket	
		1867		broken incand. light bulbs, broken glassware, metal tubing, hand tools, pellet dies	0	8/18/1992	paint can	
	53) W295				30	8/19/1992	plastic bucket	
		1908		poly blocks, empty glass bottles, broken incand. light bulbs, broken glassware, plastic bottle caps, plastic sheet, wipes, valve parts (metal)	30	8/18/1992	paint can	
	54) W296				70	8/19/1992	plastic bucket	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		1798		string, plastic tubing fittings, plastic sheet, rubber gaskets, empty glass bottles, empty poly bottles, plastic bottle caps, broken incand. light bulbs	70	8/18/1992	paint can	
	55) W297	none		string, wipes, plastic sheet, poly tubing & fittings, incand. light bulb bases	80	8/21/1992	plastic bucket	
	56) W298	none		electric wire/plugs, poly tubing, incand. Light bulbs, mirror frames, broken mirror glass, poly-metal block, metal valve	40	8/21/1992	plastic bucket	
	57) W299	none		poly tubing & fittings, electric wire & plugs, SS metal disc, incand. light bulbs, poly block	40	8/24/1992	plastic bucket	
	58) W300				10	8/24/1992	plastic bucket	
		1924		metal valves, metal blocks, metal bolts & nuts, poly tubing, MSM finger, hand tools, pressure gauge	10	8/20/1992	paint can	
	59) W301				95	8/24/1992	plastic bucket	
		1917		string, wipes, plastic sheet, poly block	95	8/24/1992	paint can	
	60) W302	none		electric wire, plugs, and bulb holders, Plexiglas disc	40	8/25/1992	plastic bucket	
	61) W303	none		electric motor, paint brush, glassware, incand. Light bulbs, rubber stoppers w/ metal tubes attached, plastic bottle cap, plastic tubing and fittings	30	8/26/1992	plastic bucket	
	62) W304	none		glass bottle, poly blocks, filter element, elect. Wire & plugs, paper, rubber sheet, plastic sheet, string, plastic tubing & fittings, mirror frame	40	8/26/1992	plastic bucket	
X10CSATN03210	61	2 each	7920	post 1991, paint cans within plastic bucket	70	8/17/1992		
	1) W311				25	10/15/1992	plastic bucket	
		1938		metal valve parts, sheet plastic, wipes, empty glass bottles, sampler blocks, hand tools	25	10/14/1992	paint can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	2) W312				75	10/15/1992	plastic bucket	
		nonlegible		melted poly, sheet plastic	75	10/14/1992	paint can	
	3) W314	none		MSM boot w/ ring	75	10/21/1992	plastic bucket	
	4) W315	none		MSM boot pieces	100	10/21/1992	plastic bucket	
	6) 313	none		MSM boot w/ ring	75	10/21/1992	plastic bucket	
	7) W317				25	10/26/1992	plastic bucket	
		1982		Empty glass sample bottles, plastic bottle caps, needles	25	10/26/1992	paint can	
	8) W324			MSM boot	98	1/20/1993	plastic bucket	
	9) W337				75	3/1/1993	plastic bucket	
		1861		radiation probe wire & connectors, string (for lowering supplies to cub)	75	2/8/1993	paint can	
	10) W336				100	3/1/1993	plastic bucket	
		1785		melted poly, string	100	2/8/1993	paint can	
	11) W338				75	3/3/1993	plastic bucket	
		1997		string for lowering supplies to cub, glass for processing solution, wipes for cub cleaning	75	2/8/1993	paint can	
	12) W339				80	3/3/1993	plastic bucket	
		1935		string, plastic	100	2/8/1993	paint can	
	13) W340				75	3/4/1993	plastic bucket	
		1985		melted poly used in processing, used glass sample bottles	75	2/8/1993	paint can	
	14) W341				100	3/4/1993	plastic bucket	
		1891		melted poly, filter used in filtering waste	100	2/8/1993	paint can	
	15) W342				100	3/4/1993	plastic bucket	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		1863		wipes, filter	100	2/8/1993	paint can	
	16) W343				98	3/10/1993	plastic bucket	
		no ID		string, radiation probe wire, rope (lower supplies to cub) plastic (umeltable poly used in processing), filter (used filter solids from product)	98	2/8/1993	paint can	
	17) W344				10	3/10/1993	plastic bucket	
		2013		radiation probe wire, used sample bottles	10	2/8/1993	paint can	
	18) W346				75	3/11/1993	plastic bucket	
		2001		melted poly, glass	75	2/8/1993	paint can	
	19) W347				10	3/11/1993	plastic bucket	
		1979		glass sample bottles and lids from processing	10	2/8/1993	paint can	
	20) W352				90	4/5/1993	plastic bucket	
		2024		melted poly, used glass sample bottles	90	3/19/1993	paint can	
	21) W353				90	4/5/1993	plastic bucket	
		1834		melted poly, used glass sample bottles	90	3/19/1993	paint can	
	22) W354				90	4/6/1993	plastic bucket	
		1980		melted poly, used glass sample bottles	90	3/19/1993	paint can	
	23) W355				90	4/6/1993	plastic bucket	
		1966		melted poly, used glass sample bottles	90	3/19/1993	paint can	
	24) W356				90	4/6/1993	plastic bucket	
		2030		melted poly, used glass sample bottles	90	3/19/1993	paint can	
	25) W358				90	4/7/1993	plastic bucket	
		2032		melted poly, used glass sample bottles	90	3/19/1993	paint can	
	26) W359				100	4/7/1993	plastic bucket	
		1983		melted poly, wipes for cleaning cells	100	3/19/1993	paint can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	27) W385				60	6/15/1993	plastic bucket	
		1883		poly, metal, wipes	60	6/8/1993	paint can	
	28) W386				80	6/15/1993	plastic bucket	
		1803		wipes, glass, poly, metal	80	6/8/1993	paint can	
	29) W388				90	6/16/1993	plastic bucket	
		1963		melted poly, glass, plastic	90	6/16/1993	paint can	
	30) W389				80	6/16/1993	plastic bucket	
		3441		wipes, metal, poly	80	6/16/1993	paint can	
	31) W392				75	6/22/1993	plastic bucket	
		1990		string, wipes, metal	75	6/16/1993	paint can	
	32) W393				90	6/22/1993	plastic bucket	
		2129	missing				paint can	
	33) W395					6/23/1993	plastic bucket	
		no ID		metal, poly, glass	25	5/24/1993	paint can	
	34) W396				80	6/23/1993	plastic bucket	
		2022		string, poly, glass	80	6/8/1993	paint can	
	35) W397				75	6/23/1993	plastic bucket	
		1950		wipes, poly, metal, glass	75	6/8/1993	paint can	
	36) W403				90	6/29/1993	plastic bucket	
		no IID		melted poly, glass	90	6/29/1993	paint can	
	37) W404				100	6/29/1993	plastic bucket	
		1996		melted poly	100	6/29/1993	paint can	
	38) W405				90	6/29/1993	plastic bucket	
		1817		melted poly, glass	90	6/29/1993	paint can	
	39) W408				90	7/1/1993	plastic bucket	
		1939		melted poly, glass	90	6/29/1993	paint can	

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	40) W409				90	7/1/1993	plastic bucket	
		2058		melted poly, glass	90	6/29/1993	paint can	
	41) W410				90	7/1/1993	plastic bucket	
		69		rubber, paper, plastic, metal	90	6/29/1993	paint can	
	42) W411				100	7/1/1993	plastic bucket	
		2018		melted poly, wipes	100	5/24/1992	paint can	
	43) W413				70	7/1/1993	plastic bucket	
		2034		metal, paper, glass	70	7/1/1993	paint can	
	44) W414			metal lid	80	7/7/1993	plastic bucket	
		2016		poly, glass	80	7/7/1993	paint can	
	45) W415				20	7/7/1993	plastic bucket	
		2066		glass, poly, metal	20	7/7/1993	paint can	
	46) W416				80	7/7/1993	plastic bucket	
		1977		poly, glass	80	7/7/1993	paint can	
	47) 01			card board, glass, metal, cloth	80	7/7/1993	bag	
	48) W417				75	7/20/1993	plastic bucket	
		1903		poly, metal, glass, cloth	75	7/7/1993	paint can	
	49) W419				75	7/20/1993	plastic bucket	
		3210		metal, paper, poly	75	7/7/1993	paint can	
	50) W420				85	7/20/1993	plastic bucket	
		no ID		paper, metal, plastic	85	7/7/1993	paint can	
	51) W421				50	7/20/1993	plastic bucket	
		1826		metal, wood, poly	50	7/7/1993	paint can	
	52) W427				80	7/27/1993	plastic bucket	
		2085		wipes, glass, string, wire	80	7/20/1993	paint can	
	53) W429				0	7/27/1993	plastic bucket	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
		1871		metal - tongs, target shrouds	0	7/20/1993	paint can	
	54) W432				50	7/29/1993	plastic bucket	
		1922		glass, string, cloth	50	7/28/1993	paint can	
	55) W433				0	7/29/1993	plastic bucket	
		2114		tools, glass	0	7/28/1993	paint can	
	56) W434				0	7/29/1993	plastic bucket	
		2111		glass, metal	0	7/28/1993	paint can	
	57) W440				20	8/3/1993	plastic bucket	
		1918		glass, wipes	20	7/28/1993	paint can	
	58) W443				0	8/4/1993	plastic bucket	
		tan		glass	0	7/28/1993	paint can	
	59) W444				80	8/4/1993	plastic bucket	
		2054		poly, glass	80	8/4/1993	paint can	
	60) W445				80	8/4/1993	plastic bucket	
		1937		poly, glass	80	8/4/1993	paint can	
	61) W446				0	8/4/1993	plastic bucket	
		2029		concrete, glass	0	8/4/1993	paint can	
X10CSATN03211	20	some have inner	7920	post 1991, paint cans within plastic bucket	70.14705882		6" cask	
	1) W363			MSM boot	90	5/7/1993	plastic bucket	
	2) W364			MSM boot	90	5/7/1993	plastic bucket	
	3) no ID			VOG filter	5	5/5/1993	plastic bag	
	4) W365			MSM boot	90	5/11/1993	plastic bucket	
	5) W367				100	5/11/1993	plastic bucket	
		1992		wipes, string from cleaning cell bank	100	4/13/1993	paint can	

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	6) W368				100	5/11/1993	plastic bucket	
		1794		wipes, string from cleaning cell bank	100	4/13/1993	paint can	
	7) W369				100	5/13/1993	plastic bucket	
		1936		wipes, string from cleaning cell bank	100	4/13/1993	paint can	
	8) W370				60	5/13/1993	plastic bucket	
		1888		wipes from cleaning cell banks, filter glass	60	4/13/1993	paint can	
	9) W371				100	5/13/1993	plastic bucket	
		5023		wipes, string from cleaning cell bank	100	4/13/1993	paint can	
	10) W372	none		MSM boot	90	5/21/1993	plastic bucket	
	11) W373	none		poly bags, cheese cloth	100	5/26/1993	plastic bucket	
	12) W374				5	5/26/1993	plastic bucket	
		2005		sample bottles	5		paint can	
	13 W375				10	5/26/1993	plastic bucket	
		1812		sample bottles, titrator tip	10	5/24/1993	paint can	
	14) W376				100	5/26/1993	plastic bucket	
		2000		string, poly block, poly valve, wipes	100	5/24/1993	paint can	
	15) W377				75	6/1/1993	plastic bucket	
		1925		needle block, valve stems, sample bottles, string, wipes, poly block	75	5/24/1993	paint can	
	16) W378				20	6/1/1993	plastic bucket	
		2050		glass, bottle caps	20	5/24/1993	paint can	
	17) W379				90	6/1/1993	plastic bucket	
		1987		wipes, valve stem, glass	90	5/24/1993	paint can	
	18) W380				60	6/1/1993	plastic bucket	
		1896		wipes, poly blocks, sample bottles	60	5/24/1993	paint can	

Bldg 7920 (REDC) RH Waste Cask WMP Estimates Attachment 1

cask	Intermediate Container item number/Pak no.	inner container item number	Origin Facility	Waste Item Description	% vol combustible	Date placed in container/origin date	Inner Container Type	Estimated Waste Volume (cubic feet)
	19) W381				80	6/1/1993	plastic bucket	
		1976		melted poly, sample bottles	80	5/24/1993	paint can	
	20) W382				60	6/1/1993	plastic bucket	
		2062		wipes, metal tube, sample bottles	60	5/24/1993	paint can	

Bldg. 7920 (REDC) RH Waste Casks WMP Estimates Attachment 2

	Estimated % by Volume										
cask	Iron Based Metals/ Alloys	Al Based Metals/ Alloys	Other Metals	Other Inorganic Materials	Cellulosics	Rubber	Plastics	Organic Matrix	Inorganic Matrix	Soils/ Gravel	Total
X10C0011087	37.50%			37.50%	12.50%		12.50%				100.00%
X10C0011088	37.50%			37.50%	12.50%		12.50%				100.00%
X10C0011102	25.00%		25.00%		25.00%		25.00%				100.00%
X10C0011108	37.50%			37.50%	12.50%		12.50%				100.00%
X10C0201071	25.00%			50.00%	12.50%		12.50%				100.00%
X10C0201072	25.00%			25.00%	10.00%	10.00%	30.00%				100.00%
X10C0300529	15.00%			22.00%	15.00%		40.00%		8.00%		100.00%
X10C0402055	15.00%		15.00%	20.00%	15.00%		35.00%				100.00%
X10C0505647	15.00%			15.00%			70.00%				100.00%
X10C0601826	20.00%		5.00%	15.00%	4.00%	4.00%	52.00%				100.00%
X10C9304038	32.50%			35.50%	14.50%	1.00%	14.50%				98.00%
X10C9304039	26.00%			26.00%	21.00%	1.00%	21.00%		5.00%		100.00%
X10C9310003											
X10C9310023	30.00%			55.00%	6.00%		7.00%		2.00%		100.00%
X10C9402626	25.00%			23.00%	20.00%	5.00%	25.00%		2.00%		100.00%
X10C9402627	28.00%			20.00%	24.50%		24.50%		3.00%		100.00%
X10C9402628	58.00%	1.00%	1.00%	30.00%	1.00%	1.00%	8.00%				100.00%
X10C9402631											
X10C9402633	25.00%			25.00%	10.00%		40.00%				100.00%
X10C9402642	29.00%		1.00%	29.00%	9.00%	1.00%	30.00%		1.00%		100.00%
X10C9402644	15.00%			15.00%	10.00%		60.00%				100.00%
X10C9402650	48.00%		20.00%	2.00%	8.00%		22.00%				100.00%
X10C9402652	10.00%		1.00%	47.00%	5.00%	5.00%	30.00%		2.00%		100.00%
X10C9402660	75.00%				12.50%		12.50%				100.00%
X10C9600188	18.00%			8.00%	16.00%	1.00%	50.00%		7.00%		100.00%
X10C9801083	31.00%				4.00%		65.00%				100.00%
X10C9802663	30.00%			20.00%	10.00%	1.00%	39.00%				100.00%
X10C9802665	12.50%			12.50%	25.00%	25.00%	25.00%				100.00%
X10C9802672	12.50%			12.50%	25.00%	25.00%	25.00%				100.00%
X10C9802684	30.00%			20.00%	35.00%	5.00%	10.00%				100.00%
X10CSATN03043	9.00%	0.50%	0.50%	14.00%	20.00%	1.00%	49.00%		6.00%		100.00%
X10CSATN03208	18.00%		4.00%	35.00%	5.00%	2.00%	36.00%				100.00%
X10CSATN03210	12.00%		1.00%	16.00%	9.00%	1.00%	60.00%		1.00%		100.00%
X10CSATN03211	15.00%			15.00%	35.00%		35.00%				100.00%
Avg. weight %											
Highest wt %											
Lowest wt%											
Total weight											

Bldg. 7920 (REDC) RH Waste Casks WMP Estimates Attachment 2

	7.8	2.6	11	2.6	1.2	1	1	2.5	2.5	1.5	
	Estimated % by Weight (using above specific gravities)										
cask	Iron Based Metals/ Alloys	Al Based Metals/ Alloys	Other Metals	Other Inorganic Materials	Cellulosics	Rubber	Plastic	Organic Matrix	Inorganic Matrix	Soils/ Gravel	Total
X10C0011087	70.06%	0.00%	0.00%	23.35%	3.59%	0.00%	2.99%	0.00%	0.00%	0.00%	100.00%
X10C0011088	70.06%	0.00%	0.00%	23.35%	3.59%	0.00%	2.99%	0.00%	0.00%	0.00%	100.00%
X10C0011102	37.14%	0.00%	52.38%	0.00%	5.71%	0.00%	4.76%	0.00%	0.00%	0.00%	100.00%
X10C0011108	70.06%	0.00%	0.00%	23.35%	3.59%	0.00%	2.99%	0.00%	0.00%	0.00%	100.00%
X10C0201071	55.32%	0.00%	0.00%	36.88%	4.26%	0.00%	3.55%	0.00%	0.00%	0.00%	100.00%
X10C0201072	62.50%	0.00%	0.00%	20.83%	3.85%	3.21%	9.62%	0.00%	0.00%	0.00%	100.00%
X10C0300529	46.39%	0.00%	0.00%	22.68%	7.14%	0.00%	15.86%	0.00%	7.93%	0.00%	100.00%
X10C0402055	30.23%	0.00%	42.64%	13.44%	4.65%	0.00%	9.04%	0.00%	0.00%	0.00%	100.00%
X10C0505647	51.77%	0.00%	0.00%	17.26%	0.00%	0.00%	30.97%	0.00%	0.00%	0.00%	100.00%
X10C0601826	50.19%	0.00%	17.70%	12.55%	1.54%	1.29%	16.73%	0.00%	0.00%	0.00%	100.00%
X10C9304038	66.94%	0.00%	0.00%	24.37%	4.59%	0.26%	3.83%	0.00%	0.00%	0.00%	100.00%
X10C9304039	61.44%	0.00%	0.00%	20.48%	7.63%	0.30%	6.36%	0.00%	3.79%	0.00%	100.00%
X10C9310003											
X10C9310023	59.06%	0.00%	0.00%	36.09%	1.82%	0.00%	1.77%	0.00%	1.26%	0.00%	100.00%
X10C9402626	62.14%	0.00%	0.00%	19.06%	7.65%	1.59%	7.97%	0.00%	1.59%	0.00%	100.00%
X10C9402627	65.82%	0.00%	0.00%	15.67%	8.86%	0.00%	7.38%	0.00%	2.26%	0.00%	100.00%
X10C9402628	81.63%	0.47%	1.98%	14.07%	0.22%	0.18%	1.44%	0.00%	0.00%	0.00%	100.00%
X10C9402631											
X10C9402633	62.50%	0.00%	0.00%	20.83%	3.85%	0.00%	12.82%	0.00%	0.00%	0.00%	100.00%
X10C9402642	63.38%	0.00%	3.08%	21.13%	3.03%	0.28%	8.41%	0.00%	0.70%	0.00%	100.00%
X10C9402644	51.32%	0.00%	0.00%	17.11%	5.26%	0.00%	26.32%	0.00%	0.00%	0.00%	100.00%
X10C9402650	59.32%	0.00%	34.85%	0.82%	1.52%	0.00%	3.49%	0.00%	0.00%	0.00%	100.00%
X10C9402652	30.33%	0.00%	4.28%	47.51%	2.33%	1.94%	11.66%	0.00%	1.94%	0.00%	100.00%
X10C9402660	95.51%	0.00%	0.00%	0.00%	2.45%	0.00%	2.04%	0.00%	0.00%	0.00%	100.00%
X10C9600188	56.41%	0.00%	0.00%	8.36%	7.71%	0.40%	20.09%	0.00%	7.03%	0.00%	100.00%
X10C9801083	77.60%	0.00%	0.00%	0.00%	1.54%	0.00%	20.86%	0.00%	0.00%	0.00%	100.00%
X10C9802663	69.23%	0.00%	0.00%	15.38%	3.55%	0.30%	11.54%	0.00%	0.00%	0.00%	100.00%
X10C9802665	46.43%	0.00%	0.00%	15.48%	14.29%	11.90%	11.90%	0.00%	0.00%	0.00%	100.00%
X10C9802672	46.43%	0.00%	0.00%	15.48%	14.29%	11.90%	11.90%	0.00%	0.00%	0.00%	100.00%
X10C9802684	68.22%	0.00%	0.00%	15.16%	12.24%	1.46%	2.92%	0.00%	0.00%	0.00%	100.00%
X10CSATN03043	34.68%	0.64%	2.72%	17.98%	11.86%	0.49%	24.21%	0.00%	7.41%	0.00%	100.00%
X10CSATN03208	43.96%	0.00%	13.78%	28.49%	1.88%	0.63%	11.27%	0.00%	0.00%	0.00%	100.00%
X10CSATN03210	42.45%	0.00%	4.99%	18.87%	4.90%	0.45%	27.21%	0.00%	1.13%	0.00%	100.00%
X10CSATN03211	50.21%	0.00%	0.00%	16.74%	18.03%	0.00%	15.02%	0.00%	0.00%	0.00%	100.00%
Avg. weight %											
Highest wt %	95.51%	0.64%	52.38%	47.51%	18.03%	11.90%	30.97%	0.00%	7.93%	0.00%	
Lowest wt%	30.23%	0.00%	0.00%	0.00%	0.00%	0.00%	1.44%	0.00%	0.00%	0.00%	
Total weight											

Bldg. 7920 (REDC) RH Waste Casks WMP Estimates Attachment 2

	Estimated Weight (kgs)									
cask	Iron Based Metals/ Alloys	Al Based Metals/ Alloys	Other Metals	Other Inorganic Materials	Cellulosics	Rubber	Plastic	Organic Matrix	Inorganic Matrix	Soils/Gravel
X10C0011087	1827.3	0.0	0.0	609.1	93.7	0.0	78.1	0.0	0.0	0.0
X10C0011088	1809.8	0.0	0.0	603.3	92.8	0.0	77.3	0.0	0.0	0.0
X10C0011102	892.9	0.0	1259.3	0.0	137.4	0.0	114.5	0.0	0.0	0.0
X10C0011108	1931.7	0.0	0.0	643.9	99.1	0.0	82.6	0.0	0.0	0.0
X10C0201071	1449.1	0.0	0.0	966.1	111.5	0.0	92.9	0.0	0.0	0.0
X10C0201072	1509.6	0.0	0.0	503.2	92.9	77.4	232.2	0.0	0.0	0.0
X10C0300529	1199.4	0.0	0.0	586.4	184.5	0.0	410.1	0.0	205.0	0.0
X10C0402055	908.1	0.0	1280.6	403.6	139.7	0.0	271.7	0.0	0.0	0.0
X10C0505647	105.7	0.0	0.0	35.2	0.0	0.0	63.2	0.0	0.0	0.0
X10C0601826	114.0	0.0	40.2	28.5	3.5	2.9	38.0	0.0	0.0	0.0
X10C9304038	455.4	0.0	0.0	165.8	31.3	1.8	26.1	0.0	0.0	0.0
X10C9304039	215.7	0.0	0.0	71.9	26.8	1.1	22.3	0.0	13.3	0.0
X10C9310003										
X10C9310023	231.2	0.0	0.0	141.3	7.1	0.0	6.9	0.0	4.9	0.0
X10C9402626	191.7	0.0	0.0	58.8	23.6	4.9	24.6	0.0	4.9	0.0
X10C9402627	238.3	0.0	0.0	56.7	32.1	0.0	26.7	0.0	8.2	0.0
X10C9402628	464.7	2.7	11.3	80.1	1.2	1.0	8.2	0.0	0.0	0.0
X10C9402631										
X10C9402633	196.5	0.0	0.0	65.5	12.1	0.0	40.3	0.0	0.0	0.0
X10C9402642	336.4	0.0	16.4	112.1	16.1	1.5	44.6	0.0	3.7	0.0
X10C9402644	161.1	0.0	0.0	53.7	16.5	0.0	82.6	0.0	0.0	0.0
X10C9402650	413.0	0.0	242.7	5.7	10.6	0.0	24.3	0.0	0.0	0.0
X10C9402652	221.5	0.0	31.2	347.0	17.0	14.2	85.2	0.0	14.2	0.0
X10C9402660	3119.2	0.0	0.0	0.0	80.0	0.0	66.7	0.0	0.0	0.0
X10C9600188	2558.6	0.0	0.0	379.1	349.9	18.2	911.2	0.0	318.9	0.0
X10C9801083	29.9	0.0	0.0	0.0	0.6	0.0	8.0	0.0	0.0	0.0
X10C9802663	1727.1	0.0	0.0	383.8	88.6	7.4	287.9	0.0	0.0	0.0
X10C9802665	1158.3	0.0	0.0	386.1	356.4	297.0	297.0	0.0	0.0	0.0
X10C9802672	1221.5	0.0	0.0	407.2	375.8	313.2	313.2	0.0	0.0	0.0
X10C9802684	4260.9	0.0	0.0	946.9	764.8	91.0	182.1	0.0	0.0	0.0
X10CSATN03043	157.3	2.9	12.3	81.6	53.8	2.2	109.8	0.0	33.6	0.0
X10CSATN03208	199.4	0.0	62.5	129.3	8.5	2.8	51.1	0.0	0.0	0.0
X10CSATN03210	288.8	0.0	33.9	128.4	33.3	3.1	185.1	0.0	7.7	0.0
X10CSATN03211	341.7	0.0	0.0	113.9	122.6	0.0	102.2	0.0	0.0	0.0
Avg. weight %	59.13%	0.01%	5.91%	16.78%	6.68%	1.66%	8.62%	0.00%	1.21%	0.00%
Highest wt %										
Lowest wt%										
Total weight	29935.8	5.6	2990.4	8494.0	3383.8	839.9	4366.7	0.0	614.5	0.0

cask	Net Weight
X10C0011087	2608.2
X10C0011088	2583.2
X10C0011102	2404.0
X10C0011108	2757.3
X10C0201071	2619.5
X10C0201072	2415.4
X10C0300529	2585.5
X10C0402055	3003.7
X10C0505647	204.1
X10C0601826	227.1
X10C9304038	680.4
X10C9304039	351.1
X10C9310003	
X10C9310023	391.5
X10C9402626	308.4
X10C9402627	362.0
X10C9402628	569.3
X10C9402631	
X10C9402633	314.3
X10C9402642	530.7
X10C9402644	313.9
X10C9402650	696.3
X10C9402652	730.3
X10C9402660	3265.9
X10C9600188	4535.9
X10C9801083	38.5
X10C9802663	2494.8
X10C9802665	2494.9
X10C9802672	2630.9
X10C9802684	6245.6
X10CSATN03043	453.7
X10CSATN03208	453.7
X10CSATN03210	680.4
X10CSATN03211	680.4
Avg. weight %	1.0
Highest wt %	
Lowest wt%	
Total weight	50630.6

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MEMORANDUM

To: Hillari Neely, CCP SPM

From: Kevin Peters, CCP KRP STEVE SCHAFER FOR

Date: August 19, 2009

RE: Evaluation of the Physical Waste Composition for Candidate Casks to be Repackaged in Waste Stream OR-REDC-RH-HET

The purpose of this memorandum is to address issues relating to the CCP assessment of the physical composition of the waste in casks generated at the REDC to be included in waste stream OR-REDC-RH-HET identified during the EPA Tier 1 Inspection No. EPA-ORNL-CCP-RH-SETF-T1-09 (July 8, 2009) and during subsequent communications with EPA Inspectors. This memo will be included with Attachment 6 (Waste Form, Waste Material Parameters, Prohibited Items, and Packaging) to further support the physical waste description of waste stream OR-REDC-RH-HET.

As described in CCP-AK-ORNL-500, RH waste stream OR-REDC-RH-HET will consist primarily of waste to repackaged in the Transuranic Waste Processing Center (TWPC) generated by REDC operations currently stored in concrete casks, 55-gallon drums, and a B-88 box. Initially, CCP reviewed the available container documentation for more than 300 casks stored on site that ORNL had identified as potentially containing RH waste. CCP used this documentation to determine that 263 of these casks were generated by Building 7920 REDC operations between 1972 and 2007. To determine the physical composition of the waste expected to be contained in these casks, the AK documentation relating to the historic operations conducted in the REDC was reviewed, in addition to the container documentation that was available that described the contents of the waste contained in these casks. In addition, container documentation was reviewed for comparable CH waste generated by the same REDC operations. This information was used to identify specific waste items and materials expected to be included in the waste to be generated during the repackaging of the REDC concrete casks (See Section 5.4.1 of the AK Summary Report). Based on this evaluation it was determined that these casks contained predominantly debris waste materials and were selected as the candidate population for selected RH waste materials to be repackaged into RH debris waste stream OR-REDC-RH-HET.

As described in Section 5.4.1.2 of the AK Summary Report, container documentation for a population of 45 casks generated between December 1991 and February 2007 was assessed to estimate waste material parameters expected for the waste stream. As described, these casks were selected because casks from this time period were to be the first casks to be repackaged in the TWPC. Additionally, the container documentation generated after 1990, typically includes waste items descriptions that are sufficient to estimate the waste material parameters within the casks. A majority of the earlier container documentation includes limited information and typically only identifies the waste as "burnable" or "unburnable" material. However, review of the available information recorded on the container documentation for the remaining casks generated prior to 1990, though not comprehensive, did not identify any inconsistencies or discrepancies with the physical waste form or packaging descriptions in the AK Summary Report. Based on this information and review of the AK record it was determined

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that the physical composition of the waste generated after 1990 would be representative of the waste generated prior to that time frame. This assumption was made based on the ongoing production nature of the operations in the cubicles that generated a vast majority of the RH waste materials and also that the laboratory operations waste is similar to the production waste involving small-scale production development work and analysis of production samples.

As described in CCP-AK-ORNL-501, the RH waste stream OR-REDC-RH-HET is grouped into three major time periods for the purposes of implementing the dose-to-curie approach for radiological characterization.

EPA inspectors commented that CCP did not provide information to establish the physical form similarity of waste generated during the SETF period relative to the whole waste stream. EPA commented that documentation should be provided to clearly show all the waste meets the WCPIP definition of a waste stream for physical form. CCP contends that VE performed during repackaging will establish and document that every container added to waste stream OR-REDC-RH-HET will contain only waste that is consistent with the waste stream description provided in the AK summary report. The VE process is specifically designed and implemented to ensure that this key element of the CCP waste characterization process is satisfied. However, since no containers of waste have been repackaged from the SETF period as of the date of this memo, no VE documentation is available to directly address EPA's comment.

In an effort to address this issue, and better support the physical waste composition assumptions for waste generated prior to 1991 described above, the following information was reviewed:

A comparison of existing RTR results for CH drums generated in the three REDC (Mark 42, SETF, and Pre-SETF) time periods was performed. This approach was determined to be valid based on the RH TRU Waste Correlation and Surrogate Summary Form and an interview with the generators (AK Source C600) that document that there are generally no distinctions in physical form or area of generation for CH and RH Waste. The only difference between RH and CH waste is the magnitude of the radiological contamination on the waste items. The available RTR data for 255 drums of CH REDC waste was compiled into the attached tables. These results are comparable to the waste material parameters presented in Table 5-1 of the AK Summary report that shows a wide distribution expected within the containers, with iron based metal alloys, other inorganic materials, cellulosics, and plastics as the major contributors to the debris in waste stream OR-REDC-CH-HET.

Additionally, 64 CH drums have been repackaged in the TWCP from seven (7) of the Pre-SETF casks between September 2008 and July 2009. These casks contain REDC waste generated during the 1973 to 1978 time frame. An evaluation of the cask documentation, historic generator logbooks, and the TWPC Contact Handled Waste Repackaging Data Form for each daughter drum was reviewed to add these containers to CH waste stream OR-REDC-CH-HET. This information further supports the assertion that the TRU waste contained in the casks to be repackaged in waste stream OR-REDC-RH-HET is physically similar over the generation time period and the waste stream description in the AK Summary Report is representative for all the time periods described in CCP-AK-ORNL-501.

Waste Material Parameters identified for CH Drums in Waste Stream OR-REDC-RH-HET											
Period		Iron-Based Metals/ Alloys	Aluminum-Based Metals/ Alloys	Other Metals	Other Inorganic Materials	Cellulosics	Rubber	Plastics Waste Materials	Organic Matrix	Inorganic Matrix	Soils
Pre-SETF	Average	11.48%	0.00%	7.31%	12.06%	5.48%	9.28%	54.39%	0.00%	0.00%	0.00%
SETF	Average	32.52%	0.41%	2.15%	19.01%	4.65%	1.31%	39.96%	0.00%	0.00%	0.00%
Mark 42	Average	33.77%	2.08%	0.29%	10.31%	5.03%	1.04%	47.47%	0.00%	0.00%	0.01%
Overall	Average	33.03%	1.58%	0.93%	12.79%	4.93%	1.26%	45.48%	0.00%	0.00%	0.01%

Waste Material Parameter Range for CH Drums in Waste Stream OR-REDC-RH-HET											
Period		Iron-Based Metals/ Alloys	Aluminum-Based Metals/ Alloys	Other Metals	Other Inorganic Materials	Cellulosics	Rubber	Plastics Waste Materials	Organic Matrix	Inorganic Matrix	Soils
Pre-SETF 6 Drums	Minimum	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Maxiumum	48.23%	0.00%	47.85%	22.42%	18.26%	52.15%	86.78%	0.00%	0.00%	0.00%
SETF 64 Drums	Minimum	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.69%	0.00%	0.00%	0.00%
	Maxiumum	92.98%	7.59%	55.82%	59.17%	44.35%	31.62%	100.00%	0.00%	0.00%	0.00%
Mark 42 185 Drums	Minimum	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.94%	0.00%	0.00%	0.00%
	Maxiumum	98.77%	21.16%	9.93%	80.24%	70.43%	18.18%	100.00%	0.00%	0.00%	3.33%
Overall	Minimum	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Maxiumum	98.77%	21.16%	55.82%	80.24%	70.43%	52.15%	100.00%	0.00%	0.00%	3.33%

AK17

Attachment 8 - Waste Containers List

Site(s): Oak Ridge National Laboratory

Waste Stream Number(s): OR-ISTP-CH-HET

Waste Stream Description: Heterogeneous debris waste from the Oak Ridge Isotopes Programs facilities

Number of Waste Containers in All Waste Stream: 610 55-gallon drums (those in 79-, 85-, and 110-gallon drums will be repackaged into 55-gallon drums)

Total Existing Volume (m^3): 126.9 m^3

Is waste expected to be generated in the future? Possible future waste from D&D but no estimate at this time

If yes, Estimated Future Volume (m^3): Although no estimate from D&D is available, there is one box (X10C9600555) that will produce an estimated 15 drums once repackaged assuming 7 ft3 per drum.

Assumptions: Current volume assumes all waste packaged into 55-gallon drums

Waste Stream Container Evaluation Memo(s) for Added Containers: M197

Container Identification Number	Generation Date	Generation Point
See Attached Waste Containers List		

Acceptable Knowledge Expert: Jeff Harrison (Print) _____ (Sign) 12/6/2013 (Date)

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Attachment 8 - Waste Containers

Waste Stream OR-ISTP-CH-HET

Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack_Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C0303312			ATN-3648	DRUM85		12/4/1970		3028		7/6/2010
X10C0303313			ATN-0629	DRUM85		12/4/1972		3028		7/6/2010
X10C0401430				DRUMSS55		12/3/2002		3038		7/6/2010
X10C0404147				DRUM85		6/6/1994	8/7/2007	3038	AHF	7/6/2010
X10C0501523A	X10C0501523	X10C9311139	ATN-3085	55 GAL DRUM	BD	10/19/1989	5/23/2007	3038	AHF	7/6/2010
X10C0501524	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/9/2006	3038	AHF	7/6/2010
X10C0501525	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/9/2006	3038	AHF	7/6/2010
X10C0501526	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/9/2006	3038	AHF	7/6/2010
X10C0501527A	X10C0501527	X10C9311139	ATN-3085	55 GAL DRUM	BD	10/19/1989	4/3/2008	3038	AHF	7/6/2010
X10C0501529	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/9/2006	3038	AHF	7/6/2010
X10C0501530A	X10C0501530	X10C9311139	ATN-3085	55 GAL DRUM	BD	10/19/1989	4/27/2006	3038	AHF	7/6/2010
X10C0501531	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/10/2006	3038	AHF	7/6/2010
X10C0501532	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/10/2006	3038	AHF	7/6/2010
X10C0501533	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/10/2006	3038	AHF	7/6/2010
X10C0501534	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/17/2006	3038	AHF	7/6/2010
X10C0501536	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/17/2006	3038	AHF	7/6/2010
X10C0501539	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501540	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501541	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501588	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501589	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501590	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501594	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501595	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501596	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501597	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501598	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501599	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501601	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/23/2006	3038	AHF	7/6/2010
X10C0501602	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/26/2006	3038	AHF	7/6/2010
X10C0501603	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/26/2006	3038	AHF	7/6/2010
X10C0501604	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/26/2006	3038	AHF	7/6/2010
X10C0501605	X10C9311139		ATN-3085	55 GAL DRUM	BD	10/19/1989	10/26/2006	3038	AHF	7/6/2010
X10C0501650	X10C9312391		ATN-3623	55 GAL DRUM	R	8/25/1971	12/21/2006	9204-3		7/6/2010
X10C0501673	X10C9400149		ATN-1917	55 GAL DRUM	R	1/22/1980	2/6/2007	9204-3		7/6/2010
X10C0501694	X10C9312262		ATN-3616	55 GAL DRUM	R	2/27/1975	2/12/2007	9204-3	Floor 1	7/6/2010
X10C0501721	X10C9312282		ATN-2306	55 GAL DRUM	R	4/1/1982	3/19/2007	3047		7/6/2010
X10C0501741	X10C9311479		ATN-0597	55 GAL DRUM	R	10/10/1972	3/28/2007	3033A		7/6/2010

Attachment 8 - Waste Containers
Waste Stream OR-ISTP-CH-HET

Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C0501748	X10C9311475		ATN-1870	55 GAL DRUM	R	9/26/1979	4/2/2007	9204-3		7/6/2010
X10C0501810	X10C9400265		ATN-0103	55 GAL DRUM	R	5/19/1971	4/11/2007	3028		7/6/2010
X10C0501828	X10C0501538	X10C9311139	ATN-3085	55 GAL DRUM	BD	10/19/1989	4/20/2007	3038	AHF	7/6/2010
X10C0501832A	X10C0501832	X10C0501587, X10C9311139	ATN-3085	55 GAL DRUM	BD	10/19/1989	4/28/2008	3038	AHF	7/6/2010
X10C0501832B	X10C0501832, X10C9312789	X10C9311139	ATN-3085	55 GAL DRUM	BD	10/19/1989	4/28/2008	3038	AHF	7/6/2010
X10C0501835	X10C0501587	X10C9311139	ATN-3085	55 GAL DRUM	BD	10/19/1989	4/23/2007	3038	AHF	7/6/2010
X10C0501838	X10C0501537	X10C9311139	ATN-3085	55 GAL DRUM	BD	10/19/1989	4/25/2007	3038	AHF	7/6/2010
X10C0505885			ATN-0281	DRUM110		11/23/1971	4/25/2007	3028	Floors 3 & 4	7/6/2010
X10C0600035			ATN-1008	DRUM85		4/21/1975	2/26/2007	3033A		7/6/2010
X10C0600038			ATN-0454	DRUM110		5/22/1972	4/25/2007	3029		7/6/2010
X10C0600039			ATN-3692	DRUM110		8/16/1971	4/25/2007	3028	Cm Cells	7/6/2010
X10C0600041			ATN-0206	DRUM110		10/4/1971	4/25/2007	3028		7/6/2010
X10C0800015			ATN-0421	DRUM110		3/22/1972	4/15/2008	3028		7/6/2010
X10C0800017			ATN-0813	DRUM110		2/19/1974	4/15/2008	3038	AHF	7/6/2010
X10C9307318			ATN-3133	DRUMSS55		3/22/1994		3038	AHF	7/6/2010
X10C9308367			ATN-3206	DRUMSS55		3/15/1994		3038	AHF	7/6/2010
X10C9308368			ATN-3176	DRUMSS55		3/19/1994		3038	AHF	7/6/2010
X10C9308369				DRUMSS55		4/7/1994		3038		7/6/2010
X10C9309168A	X10C9309168		ATN-0769	55 GAL DRUM	R	10/22/1973	7/3/2007	3033A		7/6/2010
X10C9309201A	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/24/2007	9204-3		7/6/2010
X10C9309201A1	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/16/2007	9204-3		7/6/2010
X10C9309201B	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/24/2007	9204-3		7/6/2010
X10C9309201B1	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/16/2007	9204-3		7/6/2010
X10C9309201C	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201C1	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/16/2007	9204-3		7/6/2010
X10C9309201D	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201D1	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/16/2007	9204-3		7/6/2010
X10C9309201E	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201E1	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/16/2007	9204-3		7/6/2010
X10C9309201F	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201G	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201H	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201I	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201J	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201K	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201L	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201M	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010

Attachment 8 - Waste Containers

Waste Stream OR-ISTP-CH-HET

Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9309201N	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201O	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/29/2007	9204-3		7/6/2010
X10C9309201P	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/30/2007	9204-3		7/6/2010
X10C9309201Q	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/30/2007	9204-3		7/6/2010
X10C9309201R	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/30/2007	9204-3		7/6/2010
X10C9309201S	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	10/30/2007	9204-3		7/6/2010
X10C9309201T	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/12/2007	9204-3		7/6/2010
X10C9309201U	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/12/2007	9204-3		7/6/2010
X10C9309201V	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/12/2007	9204-3		7/6/2010
X10C9309201W	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/12/2007	9204-3		7/6/2010
X10C9309201X	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/12/2007	9204-3		7/6/2010
X10C9309201Y	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/16/2007	9204-3		7/6/2010
X10C9309201Z	X10C9309201		ATN-3081	55 GAL DRUM	BD	8/29/1989	11/16/2007	9204-3		7/6/2010
X10C9309204			ATN-2527	DRUMSS55		6/11/1984		3038	AHF	7/6/2010
X10C9310152				DRUMSS55		6/10/1995		3028		7/6/2010
X10C9310169				DRUMSS55		9/9/1994		3038	AHF Annex	7/6/2010
X10C9310208			ATN-3563	DRUMSS55		1/25/1995		3028		7/6/2010
X10C9310218			ATN-3041	DRUMSS55		9/18/1997		3038		7/6/2010
X10C9311031			ATN-0229	DRUM79		10/20/1971		3028		7/6/2010
X10C9311032			ATN-0360	DRUM79		2/8/1972		3028		7/6/2010
X10C9311033			ATN-0216	DRUM79		10/13/1971		3028		7/6/2010
X10C9311034			ATN-0441	DRUM79		5/3/1972		9204-3	Floor 1	7/6/2010
X10C9311035			ATN-0335	DRUM79		2/2/1972		9204-3		7/6/2010
X10C9311041			ATN-0211	DRUM79		10/6/1971		3028	Floors 2, 3, & 4	7/6/2010
X10C9311049			ATN-0183	DRUM79		9/22/1971		3029	East shed	7/6/2010
X10C9311051			ATN-0212	DRUM79		10/6/1971		3028	Floors 2, 3, & 4	7/6/2010
X10C9311054			ATN-0291	DRUM79		12/13/1971		3028		7/6/2010
X10C9311055			ATN-0308	DRUM79		1/6/1972		3038	AHF	7/6/2010
X10C9311059			ATN-2135	DRUM79		12/16/1981		3028	Cm Cells	7/6/2010
X10C9311062			ATN-2126	DRUM79		9/25/1981		3028	Cm Cells	7/6/2010
X10C9311063			ATN-2112	DRUM79		5/19/1981		3028		7/6/2010
X10C9311066			ATN-1881	DRUM79		10/28/1981		3028	Cm Cells	7/6/2010
X10C9311067			ATN-2125	DRUM79		9/25/1981		3028	Cm Cells	7/6/2010
X10C9311069			ATN-2110	DRUM79		5/13/1981		3028	Cm Cells	7/6/2010
X10C9311072			ATN-0628	DRUMSS79		12/4/1972		3028		7/6/2010
X10C9311078			ATN-2302	DRUMSS55		3/16/1982		3047		7/6/2010
X10C9311089			ATN-2301	DRUM79		7/23/1982		3038	IRML	7/6/2010
X10C9311113			ATN-1552	DRUMSS55		1/18/1978		3038	AHF	7/6/2010

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Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack_Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9311119			ATN-1520	DRUMSS55		10/20/1977		3028	Cm Cells	7/6/2010
X10C9311133			ATN-1571	DRUMSS55		3/8/1978		3047		7/6/2010
X10C9311173			ATN-0647	DRUMSS55		1/16/1973		3028		7/6/2010
X10C9311174			ATN-0648	DRUMSS55		1/16/1973		3028		7/6/2010
X10C9311193			ATN-1959	DRUMSS55		5/13/1980		3028	Cm Cells	7/6/2010
X10C9311194			ATN-2374	DRUMSS55		8/10/1983		3038	IRML	7/6/2010
X10C9311196			ATN-2121	DRUMSS55		9/17/1981		3028	Cm Cells	7/6/2010
X10C9311210			ATN-0307	DRUM79		1/5/1972		3038	AHF	7/6/2010
X10C9311211			ATN-3638	DRUM79		6/23/1971		3028	Cell 4	7/6/2010
X10C9311212			ATN-0288	DRUM79		12/13/1971		3028		7/6/2010
X10C9311216			ATN-3639	DRUM79		12/21/1970		3028	Floors 3 & 4	7/6/2010
X10C9311218			ATN-0256	DRUM79		11/4/1971		3028		7/6/2010
X10C9311220			ATN-1880	DRUM79		10/28/1981		3028	Cm Cells	7/6/2010
X10C9311221			ATN-2137	DRUM79		12/16/1981		3028	Cm Cells	7/6/2010
X10C9311222			ATN-2115	DRUM79		6/4/1981		3028	Cm Cells	7/6/2010
X10C9311223			ATN-0767	DRUM79		10/22/1973		3033A		7/6/2010
X10C9311225			ATN-2140	DRUM79		1/14/1982		3028	Cm Cells	7/6/2010
X10C9311226			ATN-0424	DRUM79		3/29/1972		3028	Floor 3	7/6/2010
X10C9311229			ATN-2114	DRUM79		5/22/1981		3028	Cm Cells	7/6/2010
X10C9311230			ATN-2136	DRUM79		12/16/1981		3028	Cm Cells	7/6/2010
X10C9311231			ATN-0706	DRUM79		5/31/1973		3028	Cm Cells	7/6/2010
X10C9311233			ATN-0541	DRUM79		8/16/1972		9204-3		7/6/2010
X10C9311234			ATN-2141	DRUM79		1/14/1982		3028	Cm Cells	7/6/2010
X10C9311237			ATN-0409	DRUM79		3/7/1972		9204-3	Floor 1	7/6/2010
X10C9311238			ATN-2130	DRUM79		10/16/1981		3028	Cm Cells	7/6/2010
X10C9311239			ATN-1211	DRUM79		2/4/1976		3033A		7/6/2010
X10C9311240			ATN-1210	DRUM79		1/22/1976		3028	Cm Cells	7/6/2010
X10C9311241			ATN-3641	DRUM79		6/17/1971		3028	Cell 4	7/6/2010
X10C9311245			ATN-0213	DRUM79		10/6/1971		3028	Floors 2, 3, & 4	7/6/2010
X10C9311252			ATN-0631	DRUMSS55		12/6/1972		9204-3		7/6/2010
X10C9311261			ATN-1330	DRUMSS55		11/5/1976		3047	Rm 211	7/6/2010
X10C9311267			ATN-0545	DRUMSS55		8/18/1972		3033A		7/6/2010
X10C9311278			ATN-3643	DRUMSS55		6/2/1971		3028		7/6/2010
X10C9311279			ATN-1868	DRUMSS55		9/26/1979		9204-3		7/6/2010
X10C9311281			ATN-1867	DRUMSS55		9/26/1979		9204-3		7/6/2010
X10C9311285			ATN-0407	DRUMSS55		3/6/1972		3028		7/6/2010
X10C9311289			ATN-0776	DRUMSS55		11/7/1973		3028		7/6/2010
X10C9311290			ATN-0380	DRUMSS55		2/23/1972		3028		7/6/2010

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Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9311298			ATN-1965	DRUMSS55		7/30/1980		9204-3		7/6/2010
X10C9311302			ATN-0367	DRUMSS55		2/16/1972		3047		7/6/2010
X10C9311303			ATN-1865	DRUMSS55		9/26/1979		9204-3		7/6/2010
X10C9311304			ATN-0358	DRUMSS55		2/8/1972		3028	Cm Cells	7/6/2010
X10C9311313			ATN-1362	DRUM79		3/21/1977		3038	IRML	7/6/2010
X10C9311317			ATN-0363	DRUM79		2/8/1972		9204-3	Floor 1	7/6/2010
X10C9311320			ATN-0290	DRUM79		12/13/1971		3028		7/6/2010
X10C9311322			ATN-0901	DRUM79		7/12/1974		3028	Cm Cells	7/6/2010
X10C9311323			ATN-0528	DRUM79		7/19/1972		3028		7/6/2010
X10C9311326			ATN-0593	DRUM79		10/9/1972		3028		7/6/2010
X10C9311330			ATN-0148	DRUM79		8/3/1971		3028	Cm Cells	7/6/2010
X10C9311332			ATN-0019	DRUMSS79		12/16/1970		9204-3		7/6/2010
X10C9311333			ATN-0292	DRUM79		12/13/1971		3028		7/6/2010
X10C9311334			ATN-0603	DRUM79		10/12/1972		3028		7/6/2010
X10C9311336			ATN-0167	DRUM79		9/9/1971		3031		7/6/2010
X10C9311340			ATN-0217	DRUM79		10/13/1971		3028		7/6/2010
X10C9311341			ATN-0311	DRUM79		1/6/1972		3028		7/6/2010
X10C9311342			ATN-0162	DRUM79		8/27/1971		3028	Cm Cells	7/6/2010
X10C9311343			ATN-3636	DRUM79		8/4/1971		3028	Cm Cells	7/6/2010
X10C9311344			ATN-0431	DRUM79		4/19/1972		9204-3	Floor 1	7/6/2010
X10C9311351			ATN-0547	DRUMSS55		8/23/1972		3038	AHF Annex	7/6/2010
X10C9311353A	X10C9311353		ATN-0741	DRUMSS55	R	9/5/1973	2/20/2008	9204-3	Floor 1	7/6/2010
X10C9311353B	X10C9310151A, X10C9311353, X10C9313025	X10C9310151	ATN-3324	DRUMSS55	R	6/17/1995	2/21/2008	3028		7/6/2010
X10C9311354			ATN-0753	DRUMSS55		9/25/1973		3028	Cm Cells	7/6/2010
X10C9311359			ATN-0601	DRUMSS55		10/11/1972		9204-3	Floor 1	7/6/2010
X10C9311360			ATN-1348	DRUMSS55		1/7/1977		3038	AHF Annex	7/6/2010
X10C9311364			ATN-0561	DRUMSS55		9/21/1972		3038	AHF Annex	7/6/2010
X10C9311369			ATN-0870	DRUMSS55		5/15/1974		3028	Cm Cells	7/6/2010
X10C9311370			ATN-3770	DRUMSS55		1/21/1975		3028	Floor 3	7/6/2010
X10C9311374			ATN-0429	DRUMSS55		4/12/1972		3038		7/6/2010
X10C9311380			ATN-2327	DRUMSS55		9/27/1982		3028		7/6/2010
X10C9311383			ATN-0553	DRUMSS55		9/8/1972		3033A		7/6/2010
X10C9311386A	X10C9311386		ATN-1997	DRUMSS55	R	2/19/1981	5/19/2008	3028		7/6/2010
X10C9311396			ATN-2538	DRUMSS55		11/1/1984		3038	IRML	7/6/2010
X10C9311403			ATN-3637	DRUM79		8/4/1971		3028	Cm Cells	7/6/2010
X10C9311416			ATN-3634	DRUM79		6/28/1971		3028	Floors 2, 3, & 4	7/6/2010
X10C9311419			ATN-0196	DRUM79		9/29/1971		3028		7/6/2010

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Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack_Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9311421			ATN-0223	DRUM79		10/18/1971		3028	Cell 3	7/6/2010
X10C9311422			ATN-0198	DRUM79		9/29/1971		3028		7/6/2010
X10C9311423			ATN-0245	DRUM79		10/27/1971		3028		7/6/2010
X10C9311426			ATN-0244	DRUM79		10/27/1971		3028		7/6/2010
X10C9311429			ATN-0255	DRUM79		11/4/1971		3028		7/6/2010
X10C9311431			ATN-0243	DRUM79		10/27/1971		9204-3		7/6/2010
X10C9311434			ATN-0253	DRUM79		11/4/1971		3028		7/6/2010
X10C9311440			ATN-0207	DRUM79		10/4/1971		3028		7/6/2010
X10C9311452			ATN-0815	DRUMSS55		2/27/1974		3038	AHF Annex	7/6/2010
X10C9311454			ATN-0723	DRUMSS55		8/7/1973		3028	Cm Cells	7/6/2010
X10C9311459			ATN-0766	DRUMSS55		10/4/1973		3038	Cell Area	7/6/2010
X10C9311461			ATN-1811	DRUMSS55		5/8/1979		3033A		7/6/2010
X10C9311466			ATN-3607	DRUMSS55		11/20/1970		3028	Cell 6	7/6/2010
X10C9311471			ATN-1045	DRUMSS55		6/13/1975		3038	AHF	7/6/2010
X10C9311472			ATN-0386	DRUMSS55		2/28/1972		3028		7/6/2010
X10C9311476			ATN-0782	DRUMSS55		12/12/1973		3038	AHF	7/6/2010
X10C9311480			ATN-0811	DRUMSS55		2/19/1974		3038	AHF	7/6/2010
X10C9311484			ATN-1280	DRUMSS55		6/11/1976		3038	AHF	7/6/2010
X10C9311490			ATN-0385	DRUMSS55		2/28/1972		3028		7/6/2010
X10C9311492			ATN-0733	DRUMSS55		8/31/1973		3038	AHF	7/6/2010
X10C9311501			ATN-0778	DRUMSS55		11/7/1973		3028		7/6/2010
X10C9311509			ATN-1378	DRUMSS55		5/25/1977		3028	Cm Cells	7/6/2010
X10C9311511			ATN-0557	DRUMSS55		9/18/1972		3047		7/6/2010
X10C9311512			ATN-1365	DRUMSS55		3/25/1977		3028	Cm Cells	7/6/2010
X10C9311517A	X10C9311517		ATN-0602	55 GAL DRUM	R	10/11/1972	11/13/2007	9204-3		7/6/2010
X10C9311520			ATN-0406	DRUMSS55		3/6/1972		3028		7/6/2010
X10C9311523			ATN-0752	DRUMSS55		9/25/1973		3028	Cm Cells	7/6/2010
X10C9311525			ATN-3602	DRUMSS55		2/27/1975		9204-3	Floor 1	7/6/2010
X10C9311529			ATN-0728	DRUMSS55		8/9/1973		3038	AHF	7/6/2010
X10C9311552			ATN-0408	DRUMSS55		3/6/1972		3028		7/6/2010
X10C9311553			ATN-0964	DRUMSS55		11/2/1975		3038	AHF	7/6/2010
X10C9311555			ATN-0566	DRUMSS55		9/28/1972		3028		7/6/2010
X10C9311556			ATN-0594	DRUMSS55		10/9/1972		3028		7/6/2010
X10C9311558			ATN-1381	DRUMSS55		6/3/1977		3028	Cm Cells	7/6/2010
X10C9311559			ATN-0836	DRUMSS55		3/18/1974		3028	Cm Cells	7/6/2010
X10C9311561			ATN-0834	DRUMSS55		3/18/1974		3028	Cm Cells	7/6/2010
X10C9311571			ATN-3610	DRUMSS55		7/16/1975		3033A	Target Lab	7/6/2010
X10C9311598			ATN-3614	DRUMSS55		11/7/1974		3038		7/6/2010

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Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack_Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9311604			ATN-0960	DRUMSS55		11/10/1975		9204-3	Floor 1	7/6/2010
X10C9311605			ATN-0957	DRUMSS55		12/17/1974		3047	Rm 110 Cell	7/6/2010
X10C9311669			ATN-0890	DRUMSS55		6/21/1974		3028	Cm Cells	7/6/2010
X10C9311671			ATN-1866	DRUMSS55		9/26/1979		9204-3		7/6/2010
X10C9311674			ATN-1990	DRUMSS55		11/3/1980		3038	IRML	7/6/2010
X10C9311680A	X10C9311680		ATN-1992	DRUMSS55	R	1/2/1981	5/19/2008	3038	AHF Annex	7/6/2010
X10C9311680B	X10C9311386, X10C9311680		ATN-1992	DRUMSS55	R	1/2/1981	5/19/2008	3038	AHF Annex	7/6/2010
X10C9311681			ATN-2132	DRUMSS55		11/11/1981		3028	Cm Cells	7/6/2010
X10C9311685			ATN-0278	DRUMSS55		11/23/1971		3028	Floors 3 & 4	7/6/2010
X10C9311688			ATN-0277	DRUMSS55		11/23/1971		3028	Floors 3 & 4	7/6/2010
X10C9311697			ATN-2143	DRUMSS55		2/24/1982		3047	Rm 211 Cell	7/6/2010
X10C9311698			ATN-1810	DRUMSS55		5/8/1979		3038	IRML	7/6/2010
X10C9311700			ATN-3727	DRUMSS55		3/10/1971		3028		7/6/2010
X10C9311709			ATN-0692	DRUMSS55		4/11/1973		9204-3	Floor 1	7/6/2010
X10C9311710			ATN-0463	DRUMSS55		6/14/1972		9204-3		7/6/2010
X10C9311726			ATN-0949	DRUMSS55		10/30/1974		9204-3	Floor 1	7/6/2010
X10C9311727			ATN-2792	DRUMSS55		3/6/1986		3038	IRML	7/6/2010
X10C9311731			ATN-0812	DRUMSS55		2/19/1974		3038	AHF	7/6/2010
X10C9311739			ATN-0732	DRUMSS55		8/22/1973		9204-3	Floor 1	7/6/2010
X10C9311757			ATN-2784	DRUMSS55		12/2/1985		3038	IRML	7/6/2010
X10C9311765			ATN-2793	DRUMSS55		3/20/1986		3047	Rm 110 Cell	7/6/2010
X10C9311769			ATN-3732	DRUM79		6/23/1971		3028	Cell 4	7/6/2010
X10C9311772			ATN-0810	DRUM79		2/19/1974		3038	AHF	7/6/2010
X10C9311774			ATN-0242	DRUM79		10/27/1971		9204-3		7/6/2010
X10C9311775			ATN-0280	DRUM79		11/23/1971		3028	Floors 3 & 4	7/6/2010
X10C9311776			ATN-3731	DRUM79		7/26/1971		3028	Cells 3 & 6	7/6/2010
X10C9311777			ATN-0469	DRUM79		6/21/1972		9204-3		7/6/2010
X10C9311778			ATN-3730	DRUM79		7/26/1971		3028	Cells 3 & 6	7/6/2010
X10C9311779			ATN-0249	DRUM79		11/3/1971		9204-3	Floor 1	7/6/2010
X10C9311780			ATN-3733	DRUM79		8/12/1971		3028	Cm Cells	7/6/2010
X10C9311781			ATN-2326	DRUMSS55		9/27/1982		3028		7/6/2010
X10C9311795			ATN-3743	DRUMSS55		3/10/1971		3028		7/6/2010
X10C9311797			ATN-3741	DRUMSS55		3/30/1971		3028		7/6/2010
X10C9311810			ATN-0649	DRUMSS55		1/16/1973		3028		7/6/2010
X10C9311811			ATN-3747	DRUMSS55		3/10/1971		3028		7/6/2010
X10C9311812			ATN-3748	DRUMSS55		9/5/1985		3038	IRML	7/6/2010
X10C9311818			ATN-3749	DRUMSS55		6/17/1971		3028	Cell 4	7/6/2010

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Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9311834			ATN-2828	DRUMSS55		9/17/1986		3047	Rm 211 Cell	7/6/2010
X10C9311886			ATN-2917	DRUMSS55		6/26/1987		3047		7/6/2010
X10C9311894			ATN-2955	DRUMSS55		1/10/1989		3038	AHF Annex	7/6/2010
X10C9311915			ATN-2823	DRUMSS55		6/14/1989		3047		7/6/2010
X10C9311954			ATN-1510	DRUM79		9/22/1977		3038	IRML	7/6/2010
X10C9311999			ATN-3719	DRUMSS55		12/4/1970		3028		7/6/2010
X10C9312003A	X10C9312003		ATN-0600	55 GAL DRUM	R	10/11/1972	11/14/2007	9204-3	Floor 1	7/6/2010
X10C9312013			ATN-0768	DRUMSS55		10/22/1973		3033A		7/6/2010
X10C9312020			ATN-0608	DRUMSS55		10/18/1972		9204-3	Floor 1	7/6/2010
X10C9312021			ATN-0076	DRUMSS55		3/31/1971		9204-3		7/6/2010
X10C9312029			ATN-2102	DRUMSS55		3/17/1981		3028	Cm Cells	7/6/2010
X10C9312037			ATN-0552	DRUMSS55		9/6/1972		3028		7/6/2010
X10C9312056			ATN-1372	DRUMSS55		5/2/1977		3038	AHF	7/6/2010
X10C9312063			ATN-1327	DRUMSS55		11/5/1976		3047	Rm 211 Cell	7/6/2010
X10C9312064			ATN-2365	DRUMSS55		9/21/1983		3038, 4501		7/6/2010
X10C9312077			ATN-0384	DRUMSS55		2/28/1972		3028		7/6/2010
X10C9312084			ATN-1364	DRUMSS55		3/25/1977		3028	Cm Cells	7/6/2010
X10C9312092			ATN-0751	DRUMSS55		9/25/1973		3028	Cm Cells	7/6/2010
X10C9312096A	X10C9312096		ATN-0276	55 GAL DRUM	R	11/10/1971	7/11/2007	9204-3		7/6/2010
X10C9312098			ATN-1366	DRUMSS55		3/25/1977		3028	Cm Cells	7/6/2010
X10C9312100			ATN-1821	DRUMSS55		5/23/1979		9204-3		7/6/2010
X10C9312107A	X10C9312107		ATN-0534	DRUMSS55	R	7/28/1972	4/3/2008	3032		7/6/2010
X10C9312108			ATN-1839	DRUMSS55		7/18/1979		9204-3		7/6/2010
X10C9312110			ATN-0558	DRUMSS55		9/18/1972		3047		7/6/2010
X10C9312135			ATN-3722	DRUMSS55		11/4/1970		3028	Cm Cells	7/6/2010
X10C9312143			ATN-3723	DRUMSS55		3/30/1971		3028		7/6/2010
X10C9312144			ATN-1596	DRUMSS55		4/26/1978		3038	AHF	7/6/2010
X10C9312154A	X10C9312154		ATN-2324	55 GAL DRUM	R	9/15/1982	7/16/2007	9204-3	Floor 1	7/6/2010
X10C9312157			ATN-1741	DRUMSS55		3/21/1979		9204-3		7/6/2010
X10C9312160			ATN-0754	DRUMSS55		9/25/1973		3028	Cm Cells	7/6/2010
X10C9312162			ATN-0688	DRUMSS55		4/4/1973		9204-3	Floor 1	7/6/2010
X10C9312163			ATN-0789	DRUMSS55		1/9/1974		9204-3	Floor 1	7/6/2010
X10C9312170A	X10C9312170		ATN-1090	DRUMSS55	R	8/27/1975	10/24/2007	3038	AHF	7/6/2010
X10C9312171			ATN-0189	DRUMSS55		9/29/1971		9204-3	Floor 1	7/6/2010
X10C9312174			ATN-0735	DRUMSS55		8/31/1973		3028	Floors 2 & 3	7/6/2010
X10C9312176			ATN-0662	DRUMSS55		2/12/1973		3038	AHF	7/6/2010
X10C9312189			ATN-1513	DRUMSS55		9/29/1977		3047		7/6/2010
X10C9312192			ATN-0745	DRUMSS55		9/12/1973		9204-3	Floor 1	7/6/2010

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Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9312198			ATN-3725	DRUMSS55		1/6/1971		3028		7/6/2010
X10C9312214			ATN-0982	DRUMSS55		3/3/1975		3038	AHF	7/6/2010
X10C9312222A	X10C9312222		ATN-1918	55 GAL DRUM	R	1/22/1980	9/10/2007	9204-3		7/6/2010
X10C9312223			ATN-0740	DRUMSS55		9/5/1973		9204-3	Floor 1	7/6/2010
X10C9312227			ATN-3615	DRUMSS55		11/6/1970		3028	Floor 3	7/6/2010
X10C9312229			ATN-1850	DRUMSS55		8/22/1979		9204-3		7/6/2010
X10C9312231			ATN-0868	DRUMSS55		5/15/1974		3028	Cm cells	7/6/2010
X10C9312235A	X10C9312235		ATN-1026	55 GAL DRUM	R	4/30/1975	8/30/2007	9204-3	Floor 1	7/6/2010
X10C9312235B	X10C9312235		ATN-1026	55 GAL DRUM	R	4/30/1975	8/30/2007	9204-3	Floor 1	7/6/2010
X10C9312238			ATN-0630	DRUMSS55		12/6/1972		3028		7/6/2010
X10C9312253			ATN-2124	DRUMSS55		9/22/1981		3033A		7/6/2010
X10C9312256			ATN-0623	DRUMSS55		11/28/1972		3028		7/6/2010
X10C9312269			ATN-1671	DRUMSS55		9/11/1978		3038	IRML	7/6/2010
X10C9312272			ATN-1328	DRUMSS55		11/5/1976		3047	Rm 211 Cell	7/6/2010
X10C9312311			ATN-2133	DRUMSS55		11/11/1981		3028	Cm Cells	7/6/2010
X10C9312328			ATN-3622	DRUMSS55		2/27/1975		9204-3	Floor 1	7/6/2010
X10C9312335			ATN-2123	DRUMSS55		9/22/1981		3033A		7/6/2010
X10C9312337			ATN-1522	DRUMSS55		10/20/1977		3028		7/6/2010
X10C9312348			ATN-2118	DRUMSS55		8/21/1981		3028	Cm Cells	7/6/2010
X10C9312366			ATN-3600	DRUM79		11/4/1970		3028	Cm Cells	7/6/2010
X10C9312387			ATN-1820	DRUMSS55		5/23/1979		9204-3		7/6/2010
X10C9312394			ATN-1514	DRUMSS55		9/29/1977		3047	Rm 211 Cell	7/6/2010
X10C9312405			ATN-2148	DRUMSS55		2/24/1982		3038	IRML	7/6/2010
X10C9312419			ATN-1329	DRUMSS55		11/5/1976		3047	Rm 211 Cell	7/6/2010
X10C9312454			ATN-2117	DRUMSS55		8/18/1981		3028	Cm Cells	7/6/2010
X10C9312458			ATN-1885	DRUMSS55		10/17/1979		9204-3		7/6/2010
X10C9312460			ATN-2116	DRUMSS55		8/18/1981		3028	Cm Cells	7/6/2010
X10C9312467			ATN-1897	DRUMSS55		11/28/1979		9204-3		7/6/2010
X10C9312472			ATN-2376	DRUMSS55		9/21/1983		3038	AHF Annex	7/6/2010
X10C9312473			ATN-2149	DRUMSS55		2/24/1982		3038	IRML	7/6/2010
X10C9312474			ATN-1151	DRUMSS55		11/4/1975		3028	Cm Cells	7/6/2010
X10C9312484			ATN-2120	DRUMSS55		8/25/1981		3038	IRML	7/6/2010
X10C9312486			ATN-2322	DRUMSS55		9/8/1982		3038	AHF	7/6/2010
X10C9312520			ATN-0316	DRUMSS79		1/11/1972		3028	Cm Cells	7/6/2010
X10C9312521			ATN-0375	DRUM79		2/22/1972		3038	AHF	7/6/2010
X10C9312527			ATN-0214	DRUM79		10/7/1971		3029		7/6/2010
X10C9312530			ATN-0624	DRUMSS79		11/28/1972		3028		7/6/2010
X10C9312532			ATN-0654	DRUM79		1/24/1973		9204-3		7/6/2010

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Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9312533			ATN-0678	DRUMSS79		3/14/1973		9204-3		7/6/2010
X10C9312538			ATN-3628	DRUM79		8/4/1971		3028	Cm Cells	7/6/2010
X10C9312539			ATN-0173	DRUMSS79		9/15/1971		9204-3		7/6/2010
X10C9312540			ATN-0314	DRUM79		1/11/1972		3028	Cm Cells	7/6/2010
X10C9312542			ATN-0137	DRUMSS79		7/20/1971		9204-3		7/6/2010
X10C9312544			ATN-0200	DRUM79		9/29/1971		3028		7/6/2010
X10C9312547			ATN-0702	DRUMSS79		5/30/1973		3038	AHF	7/6/2010
X10C9312548			ATN-0653	DRUMSS79		1/24/1973		9204-3		7/6/2010
X10C9312550			ATN-3630	DRUM79		8/12/1971		3028	Cm Cells	7/6/2010
X10C9312551			ATN-0317	DRUM79		1/12/1972		3028	Cm Cells	7/6/2010
X10C9312553A	X10C9312553		ATN-0619	55 GAL DRUM	R	11/15/1972	7/5/2007	3033A		7/6/2010
X10C9312555			ATN-0709	DRUMSS55		6/6/1973		9204-3	Floor 1	7/6/2010
X10C9312569			ATN-0719	DRUMSS55		7/19/1973		3038	AHF	7/6/2010
X10C9312576			ATN-0954	DRUMSS55		11/25/1974		3038	AHF	7/6/2010
X10C9312587			ATN-1745	DRUM79		3/20/1979		3038	AHF Annex, IRML	7/6/2010
X10C9312590			ATN-0697	DRUMSS55		5/7/1973		3038	AHF	7/6/2010
X10C9312599			ATN-0729	DRUMSS55		8/9/1973		3038	AHF	7/6/2010
X10C9312601			ATN-0055	DRUM110		2/26/1971		3028	Floor 3	7/6/2010
X10C9312610			ATN-0202	DRUM79		9/29/1971		3028		7/6/2010
X10C9312613			ATN-0310	DRUM110		1/6/1972		3028		7/6/2010
X10C9312615			ATN-0204	DRUM79		9/29/1971		3028	Cm Cells	7/6/2010
X10C9312617			ATN-0376	DRUM79		2/22/1972		3032	Cell Glovebox	7/6/2010
X10C9312620			ATN-0250	DRUM79		11/2/1971		9204-3	Floor 1	7/6/2010
X10C9312621			ATN-0218	DRUM79		10/13/1971		3028		7/6/2010
X10C9312622			ATN-0315	DRUM79		1/11/1972		3028	Cm Cells	7/6/2010
X10C9312623			ATN-0199	DRUM79		9/29/1971		3028	Cm Cells	7/6/2010
X10C9312625			ATN-0359	DRUM79		2/8/1972		3028	Cm Cells	7/6/2010
X10C9312626			ATN-0185	DRUM79		9/22/1971		3029	East Shed	7/6/2010
X10C9312627			ATN-0254	DRUM79		11/4/1971		3028		7/6/2010
X10C9312631			ATN-0328	DRUM79		1/21/1972		3028	Upper floors	7/6/2010
X10C9312633			ATN-0390	DRUM79		3/1/1972		9204-3	Floor 1	7/6/2010
X10C9312634			ATN-0235	DRUM79		10/25/1971		3028	Cm Cells	7/6/2010
X10C9312642			ATN-0855	DRUMSS55		4/24/1974		9204-3	Floor 1	7/6/2010
X10C9312644			ATN-0551	DRUMSS55		9/6/1972		3028		7/6/2010
X10C9312647			ATN-0879	DRUMSS55		5/31/1974		3047		7/6/2010
X10C9312659			ATN-3653	DRUMSS55		6/17/1971		3028	Cell 4	7/6/2010
X10C9312666			ATN-0777	DRUMSS55		11/7/1973		3028		7/6/2010
X10C9312667			ATN-0730	DRUMSS55		8/15/1973		3028		7/6/2010

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Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9312674			ATN-1303	DRUMSS55		9/7/1976		3038	AHF Annex	7/6/2010
X10C9312676			ATN-0556	DRUMSS55		9/13/1972		9204-3		7/6/2010
X10C9312690			ATN-3657	DRUMSS55		6/17/1971		3028	Cell 4	7/6/2010
X10C9312694			ATN-0722	DRUMSS55		8/7/1973		3028	Cm Cells	7/6/2010
X10C9312696			ATN-1688	DRUMSS55		10/19/1978		3038		7/6/2010
X10C9312698			ATN-0357	DRUMSS55		2/8/1972		3028	Cm Cells	7/6/2010
X10C9312716			ATN-0521	DRUMSS55		7/5/1972		3038	AHF Annex	7/6/2010
X10C9312719			ATN-1380	DRUMSS55		6/3/1977		3028	Cm Cells	7/6/2010
X10C9312721A	X10C9312721		ATN-0639	55 GAL DRUM	R	12/13/1972	7/3/2007	9204-3		7/6/2010
X10C9312723A	X10C9312723		ATN-0613	55 GAL DRUM	R	11/8/1972	7/10/2007	9204-3		7/6/2010
X10C9312740			ATN-1957	DRUMSS55		4/23/1980		9204-3		7/6/2010
X10C9312745			ATN-3659	DRUMSS55		5/5/1971		9204-3		7/6/2010
X10C9312747			ATN-0703	DRUMSS55		5/31/1973		3028	Cm Cells	7/6/2010
X10C9312753			ATN-3663	DRUM79		12/21/1970		3028	Floors 3 & 4	7/6/2010
X10C9312754			ATN-3669	DRUM79		6/2/1971		3028		7/6/2010
X10C9312756			ATN-3668	DRUMSS79		11/7/1974		3028, 3033A, 3038		7/6/2010
X10C9312760			ATN-3665	DRUM79		7/26/1971		3028	Cells 3 & 6	7/6/2010
X10C9312761			ATN-3664	DRUM79		8/3/1971		3028	Cm Cells	7/6/2010
X10C9312765			ATN-2131	DRUM79		10/21/1981		3038	IRML	7/6/2010
X10C9312766			ATN-3670	DRUM79		8/16/1971		3028	Cm Cells	7/6/2010
X10C9312768			ATN-0442	DRUMSS79		5/3/1972		9204-3	Floor 1	7/6/2010
X10C9312770			ATN-3672	DRUM79		8/27/1971		3028	Cm Cells	7/6/2010
X10C9312775			ATN-3674	DRUMSS55		12/4/1970		3028		7/6/2010
X10C9312779			ATN-2119	DRUMSS55		8/21/1981		3028	Cm Cells	7/6/2010
X10C9312787			ATN-3679	DRUMSS55		11/20/1970		3028		7/6/2010
X10C9312789A	X10C9312789		ATN-0062	55 GAL DRUM	R	3/9/1971	4/29/2008	9204-3		7/6/2010
X10C9312790			ATN-0529	DRUMSS55		7/19/1972		3028		7/6/2010
X10C9312795A	X10C9312795		ATN-0803	55 GAL DRUM	R	2/13/1974	8/21/2007	9204-3	Floor 1	7/6/2010
X10C9312803			ATN-3681	DRUMSS55		1/6/1971		3028		7/6/2010
X10C9312805A	X10C9312805		ATN-3682	55 GAL DRUM	R	11/6/1970	8/13/2007	3028	Floor 3	7/6/2010
X10C9312806			ATN-2109	DRUMSS55		4/28/1981		3038	IRML	7/6/2010
X10C9312807			ATN-0808	DRUMSS55		2/19/1974		3047	Rm 110 Cell	7/6/2010
X10C9312818			ATN-3686	DRUMSS55		12/4/1970		3028		7/6/2010
X10C9312822A	X10C9312822		ATN-0633	55 GAL DRUM	R	12/6/1972	8/29/2007	9204-3		7/6/2010
X10C9312824			ATN-0891	DRUMSS55		6/21/1974		3028	Cm Cells	7/6/2010
X10C9312826			ATN-3689	DRUMSS55		1/21/1975		3028	Floor 3	7/6/2010
X10C9312828			ATN-0599	DRUM79		10/11/1972		9204-3		7/6/2010
X10C9312831			ATN-3149	DRUMSS55		4/24/1992		3033A		7/6/2010

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Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9312832			ATN-3178	DRUMSS55		5/22/1992		3033A, 3047		7/6/2010
X10C9312834			ATN-3177	DRUMSS55		6/1/1992		3047		7/6/2010
X10C9312842			ATN-3695	DRUM79		8/12/1971		3028	Cm Cells	7/6/2010
X10C9312843			ATN-0393	DRUMSS79		3/1/1972		9204-3	Floor 1	7/6/2010
X10C9312857			ATN-3697	DRUMSS55		5/5/1971		9204-3		7/6/2010
X10C9312861			ATN-0787	DRUMSS55		12/19/1973		9204-3	Floor 1	7/6/2010
X10C9312884			ATN-2139	DRUMSS55		1/14/1982		3028	Cm Cells	7/6/2010
X10C9312890			ATN-0664	DRUMSS55		2/14/1973		3028	Cell 6	7/6/2010
X10C9312891			ATN-3700	DRUMSS55		11/7/1974		3028, 3033A, 3038		7/6/2010
X10C9312906			ATN-2916	DRUMSS79		6/26/1987		3047		7/6/2010
X10C9312909			ATN-0809	DRUMSS79		2/19/1974		3038	AHF	7/6/2010
X10C9312911			ATN-2918	DRUMSS79		6/26/1987		3047		7/6/2010
X10C9312912			ATN-0336	DRUM79		2/2/1972		9204-3	Floor 1	7/6/2010
X10C9312913			ATN-0197	DRUM79		9/29/1971		3028	Cm Cells	7/6/2010
X10C9312915			ATN-0432	DRUMSS79		4/19/1972		9204-3	Floor 1	7/6/2010
X10C9312917			ATN-3703	DRUM79		8/3/1971		3028	Cm Cells	7/6/2010
X10C9312918			ATN-0661	DRUMSS79		2/12/1973		3038	AHF	7/6/2010
X10C9312922			ATN-3704	DRUM79		8/4/1971		3028	Cm Cells	7/6/2010
X10C9312923			ATN-0638	DRUMSS79		12/7/1972		3033A		7/6/2010
X10C9312924			ATN-0257	DRUM79		11/4/1971		3028		7/6/2010
X10C9312926			ATN-3705	DRUM79		7/26/1971		3028	Cells 3 & 6	7/6/2010
X10C9312938			ATN-0620	DRUMSS55		11/16/1972		3038	AHF Annex	7/6/2010
X10C9312942			ATN-3649	DRUMSS55		1/6/1971		3028		7/6/2010
X10C9312945			ATN-0172	DRUMSS55		9/15/1971		9204-3		7/6/2010
X10C9312946			ATN-3647	DRUMSS55		7/16/1975		3033A	Target Lab	7/6/2010
X10C9312947			ATN-0232	DRUMSS55		10/25/1971		3038	AHF Annex	7/6/2010
X10C9312958			ATN-1670	DRUMSS55		9/11/1978		3038	IRML	7/6/2010
X10C9312972			ATN-1932	DRUMSS55		2/6/1980		9204-3		7/6/2010
X10C9312973			ATN-3706	DRUMSS55		11/20/1970		3028	Cell 6	7/6/2010
X10C9312980			ATN-0252	DRUM79		11/4/1971		3028		7/6/2010
X10C9312982			ATN-0233	DRUM79		10/25/1971		3028	Cm Cells	7/6/2010
X10C9312983			ATN-0201	DRUM79		9/29/1971		3028		7/6/2010
X10C9312985			ATN-0289	DRUM110		12/13/1971		3028		7/6/2010
X10C9312987			ATN-3708	DRUM79		8/4/1971		3028	Cm Cells	7/6/2010
X10C9312988			ATN-3709	DRUM79		8/27/1971		3028	Cm Cells	7/6/2010
X10C9312989			ATN-0457	DRUM79		5/30/1972		3028	All Floors	7/6/2010
X10C9312990			ATN-0234	DRUM110		10/25/1971		3028	Cm Cells	7/6/2010
X10C9312993			ATN-0671	DRUM79		2/26/1973		3033A		7/6/2010

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X10C9312995			ATN-0464	DRUM79		6/14/1972		9204-3		7/6/2010
X10C9313001			ATN-0269	DRUM79		11/10/1971		3028	Cell 6	7/6/2010
X10C9313003			ATN-0168	DRUM79		9/9/1971		3028	Cm Cells	7/6/2010
X10C9313005			ATN-0445	DRUM79		5/1/1972		3028	Floor 4	7/6/2010
X10C9313006			ATN-0456	DRUM79		5/26/1972		3028	All Floors	7/6/2010
X10C9313013			ATN-0331	DRUM79		1/26/1972		3028	Cell 3	7/6/2010
X10C9313014			ATN-0208	DRUM79		10/4/1971		3028		7/6/2010
X10C9313016			ATN-3711	DRUM79		8/3/1971		3028	Cm Cells	7/6/2010
X10C9313017			ATN-0123	DRUM79		6/28/1971		3028	Floors 2, 3, & 4	7/6/2010
X10C9313025A	X10C9313025		ATN-1998	DRUMSS55	R	2/25/1981	2/21/2008	3028	Cm Cells	7/6/2010
X10C9313031			ATN-0622	DRUMSS55		11/22/1972		9204-3		7/6/2010
X10C9313046			ATN-2364	DRUMSS55		6/27/1983		3038	AHF Annex	7/6/2010
X10C9313063			ATN-0734	DRUMSS55		8/31/1973		3028	Cell 2	7/6/2010
X10C9313065			ATN-0869	DRUMSS55		5/15/1974		3028	Cm Cells	7/6/2010
X10C9313087			ATN-3714	DRUMSS55		1/6/1971		3028		7/6/2010
X10C9313089			ATN-0724	DRUMSS55		8/7/1973		3028	Cm Cells	7/6/2010
X10C9313094			ATN-0544	DRUMSS55		8/17/1972		3028		7/6/2010
X10C9313095			ATN-0625	DRUMSS55		11/28/1972		3028		7/6/2010
X10C9313096			ATN-1379	DRUMSS55		5/25/1977		3028	Cm Cells	7/6/2010
X10C9313101			ATN-1851	DRUMSS55		8/22/1979		9204-3	Gloveboxes	7/6/2010
X10C9313102			ATN-1110	DRUMSS55		9/15/1975		3033A	AHF	7/6/2010
X10C9313103			ATN-0381	DRUMSS55		2/23/1972		3028		7/6/2010
X10C9313104			ATN-0665	DRUMSS55		2/14/1973		3028	Cell 6	7/6/2010
X10C9313105			ATN-3716	DRUMSS55		2/1/1971		3028		7/6/2010
X10C9313106			ATN-1347	DRUMSS55		1/6/1977		3038	AHF	7/6/2010
X10C9313107			ATN-3715	DRUMSS55		2/1/1971		3028		7/6/2010
X10C9313108			ATN-0604	DRUMSS55		10/12/1972		3047		7/6/2010
X10C9313110			ATN-0540	DRUM79		8/16/1972		9204-3		7/6/2010
X10C9313111			ATN-1869	DRUMSS55		9/26/1979		9204-3		7/6/2010
X10C9313112			ATN-0460	DRUMSS55		6/1/1972		3038		7/6/2010
X10C9313113			ATN-3717	DRUMSS55		12/4/1970		3028		7/6/2010
X10C9313119			ATN-0632	DRUMSS55		12/6/1972		9204-3		7/6/2010
X10C9313123			ATN-0867	DRUMSS55		5/15/1974		3028	Cm Cells	7/6/2010
X10C9313138			ATN-1301	DRUMSS55		8/27/1976		3038	AHF	7/6/2010
X10C9313591			ATN-3050	DRUMSS55		10/24/1990		3038	IRML	7/6/2010
X10C9313593			ATN-2942	DRUMSS55		3/29/1989		3030, 3038	AHF (3038)	7/6/2010
X10C9313648			ATN-2850	DRUMSS55		3/8/1988		3038, 3047	AHF (3038), IRML (3038), Room 110 (3047)	7/6/2010

Attachment 8 - Waste Containers
Waste Stream OR-ISTP-CH-HET

Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9313665			ATN-0592	DRUMSS55		10/9/1972		3028		7/6/2010
X10C9313670			ATN-0771	DRUMSS55		10/31/1973		9204-3	Floor 1	7/6/2010
X10C9313671			ATN-0854	DRUMSS55		4/24/1974		9204-3	Floor 1	7/6/2010
X10C9313672			ATN-0856	DRUMSS55		4/24/1974		9204-3	Floor 1	7/6/2010
X10C9400001			ATN-2919	DRUMSS55		6/26/1987		3047		7/6/2010
X10C9400031			ATN-2943	DRUMSS55		3/29/1989		3038	AHF	7/6/2010
X10C9400032			ATN-3100	DRUMSS55		10/10/1988		3038	AHF	7/6/2010
X10C9400038			ATN-2794	DRUMSS55		8/14/1986		3047	Rm 110 Cell	7/6/2010
X10C9400045			ATN-2852	DRUMSS55		12/8/1986		3047	Rm 212	7/6/2010
X10C9400066A	X10C9400066		ATN-2905	55 GAL DRUM	R	4/20/1987	7/12/2007	3047	Rm 110 Cell & Rm 212 GB	7/6/2010
X10C9400070			ATN-3109	DRUMSS55		3/8/1990		3038	AHF Annex	7/6/2010
X10C9400083			ATN-0951	DRUMSS55		11/12/1974		3038	AHF	7/6/2010
X10C9400090			ATN-0203	DRUM79		9/29/1971		3028	Cm Cells	7/6/2010
X10C9400097			ATN-0835	DRUM79		3/18/1974		3028	Cm Cells	7/6/2010
X10C9400102			ATN-0184	DRUM79		9/22/1971		3029	East shed	7/6/2010
X10C9400103			ATN-0422	DRUM79		3/29/1972		9204-3	Floor 1	7/6/2010
X10C9400105			ATN-0188	DRUM79		9/29/1971		9204-3	Floor 1	7/6/2010
X10C9400110			ATN-0236	DRUM79		10/25/1971		3028	Cm Cells	7/6/2010
X10C9400117			ATN-0279	DRUM79		11/23/1971		3028	Floors 3 & 4	7/6/2010
X10C9400120			ATN-0237	DRUM79		10/25/1971		3028	Cm Cells	7/6/2010
X10C9400121			ATN-0537	DRUM79		8/9/1972		9204-3		7/6/2010
X10C9400123			ATN-0337	DRUM79		2/2/1972		9204-3	Floor 1	7/6/2010
X10C9400125			ATN-0228	DRUM79		10/19/1971		3028	Floor 3	7/6/2010
X10C9400126			ATN-0118	DRUM79		6/18/1971		3028	Cell 4	7/6/2010
X10C9400129			ATN-3756	DRUM79		8/4/1971		3028	Cm Cells	7/6/2010
X10C9400131			ATN-0394	DRUM79		3/1/1972		9204-3	Floor 1	7/6/2010
X10C9400132			ATN-0186	DRUM79		9/22/1971		3029	East shed	7/6/2010
X10C9400134			ATN-0361	DRUM79		2/8/1972		3028	Cell 3	7/6/2010
X10C9400147			ATN-0705	DRUMSS55		5/31/1973		3028	Cm Cells	7/6/2010
X10C9400148			ATN-0698	DRUMSS55		5/7/1973		3038	AHF	7/6/2010
X10C9400154			ATN-0530	DRUMSS55		7/19/1972		3028		7/6/2010
X10C9400173			ATN-0663	DRUMSS55		2/12/1973		3038	AHF	7/6/2010
X10C9400202			ATN-2113	DRUMSS55		5/22/1981		3028	Cm Cells	7/6/2010
X10C9400218			ATN-1537	DRUMSS55		12/14/1977		9204-3		7/6/2010
X10C9400226			ATN-0334	DRUMSS55		2/2/1972		9204-3	Floor 1	7/6/2010
X10C9400232			ATN-0240	DRUMSS55		4/27/1971		3028	Floors 3 & 4	7/6/2010
X10C9400242			ATN-0527	DRUMSS55		7/19/1972		9204-3		7/6/2010

Attachment 8 - Waste Containers

Waste Stream OR-ISTP-CH-HET

Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9400243			ATN-1582	DRUMSS55		3/31/1978		3033A, 3047	Rm 222 (3047)	7/6/2010
X10C9400246			ATN-2325	DRUMSS55		9/27/1982		3038		7/6/2010
X10C9400258			ATN-1521	DRUMSS55		10/20/1977		3028		7/6/2010
X10C9400277			ATN-1530	DRUMSS55		11/7/1977		3038	AHF	7/6/2010
X10C9400283			ATN-2328	DRUMSS55		10/18/1982		3028		7/6/2010
X10C9400373				DRUMSS55		6/11/1992		3038	IRML	7/6/2010
X10C9400399			ATN-3322	DRUMSS55		6/10/1995		3028	Cm cells	7/6/2010
X10C9400400			ATN-3323	DRUMSS55		6/17/1995		3028	Cm cells	7/6/2010
X10C9801421				DRUMSS55		6/16/1997		3038	AHF	7/6/2010
X10C9902186			ATN-3126	DRUMSS55		10/11/1990		3033A, 3047, 3038	Room 110 (3047), IRML (3038)	7/6/2010
X10C9902198			ATN-2904	DRUMSS55		4/20/1987		3047	Rm 212	7/6/2010
X10C9902200			ATN-2791	DRUMSS55		7/2/1987		3027, 3038	AHF	7/6/2010
X10C9902206			ATN-3040	DRUMSS55		10/11/1990		3038, 3047	IRML (3038), Rm 110 (3047)	7/6/2010
X10CSATN02824			ATN-2824	DRUMSS55		1/24/1994		3038	AHF	7/6/2010
X10CSATN03195			ATN-3195	DRUMSS55		1/25/1994		3038	AHF	7/6/2010
X10CSATN03551			ATN-3551	DRUMSS55		1/24/1994		3038	AHF	7/6/2010
X10C9309217A	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217AA	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217AB	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217AC	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217AD	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217AE	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217AF	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217AG	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217AH	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217AI	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217B	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217C	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217D	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217E	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217F	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217G	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217H	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217I	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217J	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217K	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217L	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010

Attachment 8 - Waste Containers
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Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9309217M	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217N	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217O	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217P	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/17/2010	3038	AHF	7/13/2010
X10C9309217Q	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217R	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217S	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217T	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217U	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217V	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217X	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217Y	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217Z	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9309217Z	X10C9309217		ATN-3161	55-Gal Drum	BD	12/30/1991	2/22/2010	3038	AHF	7/13/2010
X10C9602104A	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104AA	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9602104AB	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9602104B	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104C	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104D	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104E	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104F	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104G	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104H	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104I	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104J	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104K	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104L	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104M	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104N	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104O	X10C9602104			55-Gal Drum	BD	8/10/1999	5/13/2010	3047	Rm 110	7/13/2010
X10C9602104P	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9602104Q	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9602104R	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9602104S	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9602104T	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9602104U	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9602104V	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010

Attachment 8 - Waste Containers

Waste Stream OR-ISTP-CH-HET

Container ID	Parent ID	Grandparent ID	ATN	Container Type	Repack Box Daughter	Generation Date	Repack Date	Generation Building	Generation Area/Room	Date Added to AK
X10C9602104X	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9602104Y	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9602104Z	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9602104Z	X10C9602104			55-Gal Drum	BD	8/10/1999	5/14/2010	3047	Rm 110	7/13/2010
X10C9311206A	X10C9311206			55-Gal Drum	R	1/26/1983	1/2/2010	3047	Rm 110	9/8/2010
X10C9312853A	X10C9312853		ATN-3696	55-Gal Drum	R	8/25/1971	1/22/2010	9204-3		11/30/2010
X10CSATN03194A	X10CSATN03194		ATN-3194	55-Gal Drum	R	10/27/1993	1/27/2011	3038	AHF	2/22/2011
X10CSATN03194B	X10CSATN03194		ATN-3194	55-Gal Drum	R	10/27/1993	1/27/2011	3038	AHF	2/22/2011

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: M197
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☑ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title of Source Document: Evaluation of Additional Drums for Waste Stream OR-ISTP-CH-HET	
Source Document Reference Information (author(s), document and revision number, date, publisher): Jeff Harrison, Lisa Watson, Jason Montoya, Christopher Chancellor, NA, NA, Various, NA	

AK # [a]	Source Doc. Page #[b]	AK Information Summary
PR3, PR4, PR6, PR7, PR8, WS1, WS2, WS3, WS4, WS6, WS8, WS9, WS11, WS12, S16	Throughout	2-22-2010 Waste container information has been reviewed for 2 55-gallon drums to verify that the container is bounded by the existing AK Summary Report, CCP-AK-ORNL-008, Revision 0, (ORNL-008 AK) for the OR-ISTP-CH-HET (HET) waste stream. The drums are daughter drums from the repackaging of waste contained in drum X10CSATN03194. The daughter drums are traceable to their parent drum by the letter appended to the drum number. Information reviewed for the parent drum consisted primarily of the ORNL UCN-2109/UCN-2822 container paperwork forms and other data attached to these forms (Reference M191). The TWPC Contact Handled Waste Repackaging Data Form was reviewed for the daughter drums (Reference M187). X10CSATN03194 A-B 11/30/2010 Waste container information has been reviewed for 1 55-gallon drum to verify that the container is bounded by the existing AK Summary Report, CCP-AK-ORNL-008, Revision 0, (ORNL-008 AK) for the OR-ISTP-CH-HET (HET) waste stream. The drum is a daughter drum from the repackaging of waste contained in drum X10C9312853. The daughter drum is traceable to its parent drum by the letter appended to the drum number. 09/08/2010 Waste container information has been reviewed for 1 55-gallon drum to verify that the container is bounded by the existing AK Summary Report, CCP-AK-ORNL-008, Revision 0, (ORNL-008 AK) for the OR-ISTP-CH-HET (HET) waste stream. The drum is a daughter drum from the repackaging of waste contained in drum X10C9311206. The daughter drum is traceable to its parent drum by the letter appended to the drum number. Information reviewed for the parent drum consisted primarily of the ORNL UCN-2109/UCN-2822

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Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: M197
AK # [a]	Source Doc. Page # [b]	AK Information Summary
		container paperwork forms and other data attached to these forms (Reference M191). The TWPC Contact Handled Waste Repackaging Data Form was reviewed for the daughter drums (Reference M187). 7/13/2010 Waste container information has been reviewed for 63 55-gallon drums to verify that the containers are bounded by the existing AK Summary Report, CCP-AK-ORNL-008, Revision 0, (ORNL-008 AK) for the OR-ISTP-CH-HET (HET) waste stream. These 63 drums are daughter drums from the repackaging of waste contained in boxes X10C9309217 and X10C9602104. The daughter drums are traceable to their parent box by the letter appended to the drum number. Information reviewed for the boxes consisted primarily of the ORNL UCN-2109/UCN-2822 container paperwork forms and other data attached to these forms (Reference M191). The TWPC Contact Handled Waste Repackaging Data Form was reviewed for each of the 63 daughter drums (Reference M187). Waste Generation Location And Process According to the ORNL-008 AK, the HET waste stream originated in the following Isotopes Programs facilities: Buildings 3028, 3029, 3030, 3031, 3032, 3033A, 3038, 3047 and 9204-3. TRU waste from these Isotopes Programs facilities was generated from the production and distribution of isotopes used in nuclear medicine, radiation processing, industrial controls, and other applications as well as research in every scientific and engineering discipline. As it specifically related to the generation of TRU waste, these facilities produced and distributed "Other Special Materials," or OSM, which are radioactive isotopes with atomic numbers 84 (polonium) and above, sometimes referred to as "heavy elements" (Sections 4.1, 4.2, and 5.1). The UCN-2109 and the Waste Container Log Sheet and Waste Stream Profile Sheet attached to the UCN-2109 indicates box X10C9602104 originated in Building 3047, Room 110. The waste description on these forms indicates that this box contains a piece of equipment called an ante-chamber that was used to introduce and remove alpha materials from the alpha cell. As it relates specifically to Building 3047, the ORNL-008 AK indicates that the IRML carried out activities primarily in the water-shielded manipulator alpha cell in Room 110. Therefore, the 28 daughter drums from this box are bounded by the HET waste stream. The UCN-2822 and the log sheet attached to the UCN-2822 indicates box X10C9309217 originated in Building 5505. However, it has been determined that this box contains equipment that originated in Building 3038, was transferred to Building 5505 but never used there, and then it was declared waste and packaged in Building 5505 (see DR025). The waste description on the UCN-2822 form and log sheet indicates that this box contains an evaporator and glovebox. As it relates specifically to Building 3038, the ORNL-008 AK indicates that evaporation was one of the many activities performed in the alpha-handling facility. Therefore, the 35 daughter drums from this box are bounded by the HET waste stream. Time Period Of Generation The ORNL-008 AK covers waste generated from November 1970 to June 2004. Repackaging of this waste stream at the TWPC began in 2006 and will continue. These facilities have been deactivated, but TRU waste may be generated in the future from final D&D in these buildings. No estimates have been made of the volume of TRU waste to be generated from final D&D. However, there are 3 more boxes of TRU waste from these facilities that require repackaging at the TWPC which will generate additional drums of TRU waste (Section 5.2). Box X10C9309217 was generated 12/30/1991 and box X10C9602104 was generated 8/10/1999.

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: M197
AK # [a]	Source Doc. Page #[b]	AK Information Summary
		Both of these dates are within the specified time period of generation. The daughter drums were generated from 2/17/2010 to 5/14/2010. Therefore, these 63 daughter drums are bounded by the HET waste stream. Physical Form Waste stream OR-ISTP-CH-HET is comprised primarily of organic and inorganic debris waste items and generally consists of cellulosics, plastic, rubber, glass, ceramic, graphite, and metal. Specific waste items include iron-based metals (e.g., alkaline batteries, banding, cables, capped pipe nipples, caps, conduit, containers, discs, drain traps, dust pans, electrical boxes, fittings, flanges, gauges, glovebox floor sweepings, hand tools, hardware, labware, lids, light fixtures, needles, pans, pins, piping, planchets, portal covers, rebar, rods, saw blades, scrap metal, sealed radiation sources, sleeves, strapping, tool bits, tubing, valves, weights, welding fixtures, wire mesh, and wire), aluminum-based metals (e.g., cages, cans, foil, glove portal inserts, pans, piping, respirator cartridges, rods, scrap, and screen), other metals (e.g., beryllium, brass, copper, lead, tantalum, plutonium, and uranium), other inorganic materials (e.g., actinide oxide powder, absorbent, asbestos insulation, ceramics, concrete, filter media, glassware and broken glass, graphite, mortar/pestle, and paint chips), cellulosics (e.g., absorbent pads, brooms, brushes, cardboard, cloth, containers, cork, cotton swabs, fiberboard, gauze, leather gloves, masking tape, paper, sponges, and wood), plastics (e.g., bags, caps, containers, electrical cord, fittings, foam, Herculite® industrial fabric, hose, ion-exchange resin, labware, Lexan®, liner remnants, nylon rope, plexiglass, pipe, sheeting, sleeves, styrofoam, suits, syringes, tape, tie straps, tubing, and Velcro®), rubber (e.g., aspirators, belts, gasket material, gloves, grommets, hoods, hose, manipulator boots, o-rings, respirators, shoe covers, stoppers, and suits), electrical devices and equipment, metal-framed and wood-framed HEPA filters with inorganic filter media, and small amounts of homogenous materials such as grease and absorbed liquids (Sections 2.1 and 5.4.1). The waste stream consists of the waste material parameters iron-based metals/alloys, aluminum-based metals/alloys, other metals, other inorganic materials, cellulosics, plastics, rubber, inorganic matrix, and organic matrix. Due to the high degree of variability in this waste, Waste Matrix Code S5400, Heterogeneous Debris, is applied to this waste stream. This category includes waste that is at least 50 percent, by volume, debris materials. (Sections 5.4.1.1 and 5.4.1.2). The UCN-2109, Waste Container Log Sheet, and Waste Stream Profile Sheet attached to the UCN-2109 indicates box X10C9602104 contains an ante-chamber. The UCN-2822 and the log sheet attached to the UCN-2822 indicates box X10C9309217 contains an evaporator and glovebox. Review of the TWPC Contact Handled Waste Repackaging Data Form for each of the daughter drums indicates that in addition to the scrap metal from size-reduction of the glovebox and equipment, there are numerous other waste items, including secondary waste generated during the size-reduction and repackaging operations. Waste items include absorbent pads, cardboard, cloth (e.g., cotton glove liners, rags), leather gloves, paper, smears, tape, wipes, wood, booties, bubble hoods and suits, ear plugs, electrical cord, flashlight, Herculite, knee pads, nylon belts and gloves, plastic (e.g., bags, bottles, buckets), plexiglass, skull caps, Tyvek suits, rubber (i.e., gaskets, gloves, hose, o-rings), alkaline batteries, aluminum (e.g., block, covers), cable, copper tubing, electrical wire, hand tools (e.g., knife), hardware (e.g., nuts, bolts, clamps, screws, valves), lead bricks, lead-lined bucket, respirator filters, saw blades, stainless steel tubing, glass, fluorescent light bulbs, equipment (i.e., band saw, pump housing, saw-z-all, vacuum), and absorbent (i.e., NOCHAR, Solid-a-Sorb). These waste items are consistent with the HET waste stream. Chemical Content The HET waste stream is assigned EPA hazardous waste numbers D005, D006, D007, D008,

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: M197
AK # [a]	Source Doc. Page #[b]	AK Information Summary
		D009, D011, D019, D022, F002, and F005 (Section 5.4.3). The UCN-2822 waste disposal form for X10C9309217 identifies D008 (lead). The UCN-2109 for X10C9602104 does not indicate any EPA hazardous waste numbers. Based on a review of the TWPC Contact Handled Waste Repackaging Data Form for each of the 63 daughter drums, hazardous waste items were identified. Specifically, alkaline batteries and fluorescent light bulbs containing mercury (D009), lead bricks and lead-lined buckets (D008), and equipment that may contain lead (D008) or silver (D011) solder. Therefore, these 63 daughter drums are bounded by the HET waste stream. Radionuclides As shown in Table 5-2 of the ORNL-008 AK, all 10 WIPP required radionuclides are expected to be present in this waste stream. For the waste stream as a whole, the two most prevalent radionuclides, by mass, overall are Th-232 and U-238, and the two most prevalent TRU radionuclides, by mass, are Np-237 and Pu-239. According to the UCN-2822, the waste in box X10C9309217 is contaminated with Np-237, U 233, U-234, U-236. By mass, U-233 is the most prevalent and Np-237 is the second most prevalent. According to the UCN-2109, the waste in box X10C9602104 is contaminated with Am-241, Cm-244, Cm-245, Cs-137, Eu-152. By mass, Cm-244 is the most prevalent and Am-241 is the second most prevalent. Although the two most prevalent nuclides is not consistent with the ORNL-008 AK, all of these nuclides are consistent with the AK. Therefore, these 63 daughter drums are bounded by the HET waste stream. Prohibited Items Review of the UCN-2109 forms for the boxes, and the TWPC Contact Handled Waste Repackaging Data Forms for the 63 daughter drums did not reveal the presence of prohibited items. Conclusion The existing ORNL-008 AK bounds all 63 additional 55-gallon drums evaluated. These drums are therefore eligible to be included in the HET waste stream. The inclusion of these drums will not alter the waste matrix code, EPA hazardous waste numbers, or the expected radionuclides (including the two most prevalent radionuclides) for the HET waste stream. The inclusion of these drums will not necessitate additional operator training.

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: M197
Source Document Data Limitations (if any): 1. None.	
Acceptable Knowlege Expert: Jason P. Montoya / [signature] Date: 2/22/11 Print /Sign	
[a] Obtain from Acceptable Knowledge Documentation Checklist [b] For microfilm or microfiche, identify box, tape, reel number and location.	

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Waste container information has been reviewed for 63 55-gallon drums to verify that the containers are bounded by the existing AK Summary Report, CCP-AK-ORNL-008, Revision 0, (ORNL-008 AK) for the OR-ISTP-CH-HET (HET) waste stream. These 63 drums are daughter drums from the repackaging of waste contained in boxes X10C9309217 and X10C9602104. The daughter drums are traceable to their parent box by the letter appended to the drum number.

Information reviewed for the boxes consisted primarily of the ORNL UCN-2109/UCN-2822 container paperwork forms and other data attached to these forms (Reference M191). The TWPC *Contact Handled Waste Repackaging Data Form* was reviewed for each of the 63 daughter drums (Reference M187).

Waste Generation Location And Process

According to the ORNL-008 AK, the HET waste stream originated in the following Isotopes Programs facilities: Buildings 3028, 3029, 3030, 3031, 3032, 3033A, 3038, 3047 and 9204-3. TRU waste from these Isotopes Programs facilities was generated from the production and distribution of isotopes used in nuclear medicine, radiation processing, industrial controls, and other applications as well as research in every scientific and engineering discipline. As it specifically related to the generation of TRU waste, these facilities produced and distributed "Other Special Materials," or OSM, which are radioactive isotopes with atomic numbers 84 (polonium) and above, sometimes referred to as "heavy elements" (Sections 4.1, 4.2, and 5.1).

The UCN-2109 and the Waste Container Log Sheet and Waste Stream Profile Sheet attached to the UCN-2109 indicates box X10C9602104 originated in Building 3047, Room 110. The waste description on these forms indicates that this box contains a piece of equipment called an ante-chamber that was used to introduce and remove alpha materials from the alpha cell. As it relates specifically to Building 3047, the ORNL-008 AK indicates that the IRML carried out activities primarily in the water-shielded manipulator alpha cell in Room 110. Therefore, the 28 daughter drums from this box are bounded by the HET waste stream.

The UCN-2822 and the log sheet attached to the UCN-2822 indicates box X10C9309217 originated in Building 5505. However, it has been determined that this box contains equipment that originated in Building 3038, was transferred to Building 5505 but never used there, and then it was declared waste and packaged in Building 5505 (see DR025). The waste description on the UCN-2822 form and log sheet indicates that this box contains an evaporator and glovebox. As it relates specifically to Building 3038, the ORNL-008 AK indicates that evaporation was one of the many activities performed in the alpha-handling facility. Therefore, the 35 daughter drums from this box are bounded by the HET waste stream.

Time Period Of Generation

The ORNL-008 AK covers waste generated from November 1970 to June 2004. Repackaging of this waste stream at the TWPC began in 2006 and will continue. These facilities have been deactivated, but TRU waste may be generated in the future from final D&D in these buildings.

No estimates have been made of the volume of TRU waste to be generated from final D&D. However, there are 3 more boxes of TRU waste from these facilities that require repackaging at the TWPC which will generate additional drums of TRU waste (Section 5.2).

Box X10C9309217 was generated 12/30/1991 and box X10C9602104 was generated 8/10/1999. Both of these dates are within the specified time period of generation. The daughter drums were generated from 2/17/2010 to 5/14/2010. Therefore, these 63 daughter drums are bounded by the HET waste stream.

Physical Form

Waste stream OR-ISTP-CH-HET is comprised primarily of organic and inorganic debris waste items and generally consists of cellulosics, plastic, rubber, glass, ceramic, graphite, and metal. Specific waste items include iron-based metals (e.g., alkaline batteries, banding, cables, capped pipe nipples, caps, conduit, containers, discs, drain traps, dust pans, electrical boxes, fittings, flanges, gauges, glovebox floor sweepings, hand tools, hardware, labware, lids, light fixtures, needles, pans, pins, piping, planchets, portal covers, rebar, rods, saw blades, scrap metal, sealed radiation sources, sleeves, strapping, tool bits, tubing, valves, weights, welding fixtures, wire mesh, and wire), aluminum-based metals (e.g., cages, cans, foil, glove portal inserts, pans, piping, respirator cartridges, rods, scrap, and screen), other metals (e.g., beryllium, brass, copper, lead, tantalum, plutonium, and uranium), other inorganic materials (e.g., actinide oxide powder, absorbent, asbestos insulation, ceramics, concrete, filter media, glassware and broken glass, graphite, mortar/pestle, and paint chips), cellulosics (e.g., absorbent pads, brooms, brushes, cardboard, cloth, containers, cork, cotton swabs, fiberboard, gauze, leather gloves, masking tape, paper, sponges, and wood), plastics (e.g., bags, caps, containers, electrical cord, fittings, foam, Herculite® industrial fabric, hose, ion-exchange resin, labware, Lexan®, liner remnants, nylon rope, plexiglass, pipe, sheeting, sleeves, styrofoam, suits, syringes, tape, tie straps, tubing, and Velcro®), rubber (e.g., aspirators, belts, gasket material, gloves, grommets, hoods, hose, manipulator boots, o-rings, respirators, shoe covers, stoppers, and suits), electrical devices and equipment, metal-framed and wood-framed HEPA filters with inorganic filter media, and small amounts of homogenous materials such as grease and absorbed liquids (Sections 2.1 and 5.4.1).

The waste stream consists of the waste material parameters iron-based metals/alloys, aluminum-based metals/alloys, other metals, other inorganic materials, cellulosics, plastics, rubber, inorganic matrix, and organic matrix. Due to the high degree of variability in this waste, Waste Matrix Code S5400, Heterogeneous Debris, is applied to this waste stream. This category includes waste that is at least 50 percent, by volume, debris materials. (Sections 5.4.1.1 and 5.4.1.2).

The UCN-2109, Waste Container Log Sheet, and Waste Stream Profile Sheet attached to the UCN-2109 indicates box X10C9602104 contains an ante-chamber. The UCN-2822 and the log sheet attached to the UCN-2822 indicates box X10C9309217 contains an evaporator and glovebox. Review of the TWPC *Contact Handled Waste Repackaging Data Form* for each of the

daughter drums indicates that in addition to the scrap metal from size-reduction of the glovebox and equipment, there are numerous other waste items, including secondary waste generated during the size-reduction and repackaging operations. Waste items include absorbent pads, cardboard, cloth (e.g., cotton glove liners, rags), leather gloves, paper, smears, tape, wipes, wood, booties, bubble hoods and suits, ear plugs, electrical cord, flashlight, Herculite, knee pads, nylon belts and gloves, plastic (e.g., bags, bottles, buckets), plexiglass, skull caps, Tyvek suits, rubber (i.e., gaskets, gloves, hose, o-rings), alkaline batteries, aluminum (e.g., block, covers), cable, copper tubing, electrical wire, hand tools (e.g., knife), hardware (e.g., nuts, bolts, clamps, screws, valves), lead bricks, lead-lined bucket, respirator filters, saw blades, stainless steel tubing, glass, fluorescent light bulbs, equipment (i.e., band saw, pump housing, saw-z-all, vacuum), and absorbent (i.e., NOCHAR, Solid-a-Sorb). These waste items are consistent with the HET waste stream.

Chemical Content

The HET waste stream is assigned EPA hazardous waste numbers D005, D006, D007, D008, D009, D011, D019, D022, F002, and F005 (Section 5.4.3).

The UCN-2822 waste disposal form for X10C9309217 identifies D008 (lead). The UCN-2109 for X10C9602104 does not indicate any EPA hazardous waste numbers. Based on a review of the TWPC *Contact Handled Waste Repackaging Data Form* for each of the 63 daughter drums, hazardous waste items were identified. Specifically, alkaline batteries and fluorescent light bulbs containing mercury (D009), lead bricks and lead-lined buckets (D008), and equipment that may contain lead (D008) or silver (D011) solder. Therefore, these 63 daughter drums are bounded by the HET waste stream.

Radionuclides

As shown in Table 5-2 of the ORNL-008 AK, all 10 WIPP required radionuclides are expected to be present in this waste stream. For the waste stream as a whole, the two most prevalent radionuclides, by mass, overall are Th-232 and U-238, and the two most prevalent TRU radionuclides, by mass, are Np-237 and Pu-239.

According to the UCN-2822, the waste in box X10C9309217 is contaminated with Np-237, U-233, U-234, U-236. By mass, U-233 is the most prevalent and Np-237 is the second most prevalent. According to the UCN-2109, the waste in box X10C9602104 is contaminated with Am-241, Cm-244, Cm-245, Cs-137, Eu-152. By mass, Cm-244 is the most prevalent and Am-241 is the second most prevalent. Although the two most prevalent nuclides is not consistent with the ORNL-008 AK, all of these nuclides are consistent with the AK. Therefore, these 63 daughter drums are bounded by the HET waste stream.

Prohibited Items

Review of the UCN-2109 forms for the boxes, and the TWPC *Contact Handled Waste Repackaging Data Forms* for the 63 daughter drums did not reveal the presence of prohibited items.

Conclusion

The existing ORNL-008 AK bounds all 63 additional 55-gallon drums evaluated. These drums are therefore eligible to be included in the HET waste stream. The inclusion of these drums will not alter the waste matrix code, EPA hazardous waste numbers, or the expected radionuclides (including the two most prevalent radionuclides) for the HET waste stream. The inclusion of these drums will not necessitate additional operator training.

Waste container information has been reviewed for 1 55-gallon drum to verify that the container is bounded by the existing AK Summary Report, CCP-AK-ORNL-008, Revision 0, (ORNL-008 AK) for the OR-ISTP-CH-HET (HET) waste stream. The drum is a daughter drum from the repackaging of waste contained in drum X10C9311206. The daughter drum is traceable to its parent drum by the letter appended to the drum number.

Information reviewed for the parent drum consisted primarily of the ORNL UCN-2109/UCN-2822 container paperwork forms and other data attached to these forms (Reference M191). The TWPC *Contact Handled Waste Repackaging Data Form* was reviewed for the daughter drums (Reference M187).

Waste Generation Location And Process

According to the ORNL-008 AK, the HET waste stream originated in the following Isotopes Programs facilities: Buildings 3028, 3029, 3030, 3031, 3032, 3033A, 3038, 3047 and 9204-3. TRU waste from these Isotopes Programs facilities was generated from the production and distribution of isotopes used in nuclear medicine, radiation processing, industrial controls, and other applications as well as research in every scientific and engineering discipline. As it specifically related to the generation of TRU waste, these facilities produced and distributed "Other Special Materials," or OSM, which are radioactive isotopes with atomic numbers 84 (polonium) and above, sometimes referred to as "heavy elements" (Sections 4.1, 4.2, and 5.1).

The UCN-2822 and the log sheet attached to the UCN-2822 indicates drum X10C9311206 originated in Building 3047. TRU waste was generated in RDL glovebox and hot cell operations in Rooms 110, 211, and 212 alpha handling laboratories. The NMIT form, which is included as part of the UCN-2109/UCN-2822 container paperwork states the waste was transferred from 3047C. However, no additional information identifying the significance of the C appended to the end of the building number is provided. Building 3047 includes a Hot Cell C, but source documentation indicates that Hot Cell C was dedicated to work with high-level beta/gamma sources (Reference P101), which would not include U-233. U-233 is listed as the principal isotope in the UCN-2109/UCN-2822 container paperwork. Source documentation indicates that Hot Cell C was performing development work with separation of Gd-153 from irradiated europium targets before and after drum X10C9311206 was generated (Reference P1351). Additional source documentation indicates that the principle isotopes in Hot Cells A through D included Gd-153 and Europium isotopes. U-233 is listed as a principle isotope for Room 110, and is the only room in Building 3047 that includes U-233 as a principal isotope (Reference P876). It is therefore assumed that drum X10C9311206 originated in Room 110 and its daughter drum is bounded by the HET waste stream.

Time Period Of Generation

The ORNL-008 AK covers waste generated from November 1970 to June 2004. Repackaging of this waste stream at the TWPC began in 2006 and will continue. These facilities have been deactivated, but TRU waste may be generated in the future from final D&D in these buildings.

No estimates have been made of the volume of TRU waste to be generated from final D&D. (Section 5.2).

Drum X10C9311206 was generated on 1/26/1983. This date was within the specified time period of generation. The daughter drum was generated on 1/2/2010. Therefore, this daughter drum is bounded by the HET waste stream.

Physical Form

Waste stream OR-ISTP-CH-HET is comprised primarily of organic and inorganic debris waste items and generally consists of cellulosics, plastic, rubber, glass, ceramic, graphite, and metal. Specific waste items include iron-based metals (e.g., alkaline batteries, banding, cables, capped pipe nipples, caps, conduit, containers, discs, drain traps, dust pans, electrical boxes, fittings, flanges, gauges, glovebox floor sweepings, hand tools, hardware, labware, lids, light fixtures, needles, pans, pins, piping, planchets, portal covers, rebar, rods, saw blades, scrap metal, sealed radiation sources, sleeves, strapping, tool bits, tubing, valves, weights, welding fixtures, wire mesh, and wire), aluminum-based metals (e.g., cages, cans, foil, glove portal inserts, pans, piping, respirator cartridges, rods, scrap, and screen), other metals (e.g., beryllium, brass, copper, lead, tantalum, plutonium, and uranium), other inorganic materials (e.g., actinide oxide powder, absorbent, asbestos insulation, ceramics, concrete, filter media, glassware and broken glass, graphite, mortar/pestle, and paint chips), cellulosics (e.g., absorbent pads, brooms, brushes, cardboard, cloth, containers, cork, cotton swabs, fiberboard, gauze, leather gloves, masking tape, paper, sponges, and wood), plastics (e.g., bags, caps, containers, electrical cord, fittings, foam, Herculite® industrial fabric, hose, ion-exchange resin, labware, Lexan®, liner remnants, nylon rope, plexiglass, pipe, sheeting, sleeves, styrofoam, suits, syringes, tape, tie straps, tubing, and Velcro®), rubber (e.g., aspirators, belts, gasket material, gloves, grommets, hoods, hose, manipulator boots, o-rings, respirators, shoe covers, stoppers, and suits), electrical devices and equipment, metal-framed and wood-framed HEPA filters with inorganic filter media, and small amounts of homogenous materials such as grease and absorbed liquids (Sections 2.1 and 5.4.1).

The waste stream consists of the waste material parameters iron-based metals/alloys, aluminum-based metals/alloys, other metals, other inorganic materials, cellulosics, plastics, rubber, inorganic matrix, and organic matrix. Due to the high degree of variability in this waste, Waste Matrix Code S5400, Heterogeneous Debris, is applied to this waste stream. This category includes waste that is at least 50 percent, by volume, debris materials. (Sections 5.4.1.1 and 5.4.1.2).

The UCN-2109, Waste Container Log Sheet, and Waste Stream Profile Sheet attached to the UCN-2109 and the UCN-2822 indicates drum X10C9311206 contains decontamination debris. Review of the TWPC *Contact Handled Waste Repackaging Data Form* for the daughter drum indicates specific waste items include plastic, red rags, tape, No Char, glovebox gloves, o-rings, gauze, rubber gloves, metal buckets, manipulator sleeves, metal labware, leather gloves, safety knives, glass beakers, broken glass, electrical cords, metal cans, plastic jars, plastic lids, metal

allen screws, screwdrivers, electrical tape, rubber plugs, copper tubing, paint brushes, plastic funnels, portable light with cord and plug, glass labware, and vacuum bags. These waste items are consistent with the HET waste stream.

Chemical Content

The HET waste stream is assigned EPA hazardous waste numbers D005, D006, D007, D008, D009, D011, D019, D022, F002, and F005 (Section 5.4.3).

The container paperwork for X10C9311206 does not indicate any specific EPA hazardous waste numbers. Based on a review of the TWPC *Contact Handled Waste Repackaging Data Form* for the daughter drum, no hazardous waste items were identified. It is assumed that the debris will be contaminated with the RCRA hazardous constituents identified in the AK record for waste materials in this stream. Therefore, the daughter drum is bounded by the HET waste stream.

Radionuclides

As shown in Table 5-2 of the ORNL-008 AK, all 10 WIPP required radionuclides are expected to be present in this waste stream. For the waste stream as a whole, the two most prevalent radionuclides, by mass, overall are Th-232 and U-238, and the two most prevalent TRU radionuclides, by mass, are Np-237 and Pu-239.

The radionuclide reported in container paperwork for parent container X10C9311206 is U-233. U-233 is listed in Table 5-2 of the ORNL-008 AK, but this isotope is not TRU. The UCN-2822 lists the principle isotopes in the waste, but does not necessarily list all isotopes that may be in the waste. U-233 was historically managed as a TRU waste so it is possible the waste also contains TRU isotopes not reported by the generator. Therefore, this drum will be added to waste stream OR-RF-CH-HET and will be assayed to verify its TRU content.

Prohibited Items

Review of the UCN-2109 forms for the parent drum, and the TWPC *Contact Handled Waste Repackaging Data Forms* for the daughter drum did not reveal the presence of prohibited items.

Conclusion

The existing ORNL-008 AK bounds the daughter 55-gallon drums evaluated. This drum is therefore eligible to be included in the HET waste stream. The inclusion of this drum will not alter the waste matrix code, EPA hazardous waste numbers, or the expected radionuclides (including the two most prevalent radionuclides) for the HET waste stream. The inclusion of this drum will not necessitate additional operator training.

Waste container information has been reviewed for 1 55-gallon drum to verify that the container is bounded by the existing AK Summary Report, CCP-AK-ORNL-008, Revision 0, (ORNL-008 AK) for the OR-ISTP-CH-HET (HET) waste stream. The drum is a daughter drum from the repackaging of waste contained in drum X10C9312853. The daughter drum is traceable to its parent drum by the letter appended to the drum number.

Information reviewed for the parent drum consisted primarily of the ORNL UCN-2109/UCN-2822 container paperwork forms and other data attached to these forms (Reference M191). The TWPC *Contact Handled Waste Repackaging Data Form* was reviewed for the daughter drum (Reference M187).

Waste Generation Location And Process

According to the ORNL-008 AK, the HET waste stream originated in the following Isotopes Programs facilities: Buildings 3028, 3029, 3030, 3031, 3032, 3033A, 3038, 3047 and 9204-3. TRU waste from these Isotopes Programs facilities was generated from the production and distribution of isotopes used in nuclear medicine, radiation processing, industrial controls, and other applications as well as research in every scientific and engineering discipline. As it specifically related to the generation of TRU waste, these facilities produced and distributed "Other Special Materials," or OSM, which are radioactive isotopes with atomic numbers 84 (polonium) and above, sometimes referred to as "heavy elements" (Sections 4.1, 4.2, and 5.1).

The UCN-2822 and the log sheet attached to the UCN-2822 indicates drum X10C9312853 originated in Building 9204-3. The waste description on the UCN-2822 form and log sheet indicates that this drum contains dry solids. Therefore, the daughter drum from this drum is bounded by the HET waste stream.

Time Period Of Generation

The ORNL-008 AK covers waste generated from November 1970 to June 2004. Repackaging of this waste stream at the TWPC began in 2006 and will continue. These facilities have been deactivated, but TRU waste may be generated in the future from final D&D in these buildings. No estimates have been made of the volume of TRU waste to be generated from final D&D. (Section 5.2).

Drum X10C9312853 was generated on 8/25/1971. This date was within the specified time period of generation. The daughter drum was generated on 1/22/2010. Therefore, this daughter drum is bounded by the HET waste stream.

Physical Form

Waste stream OR-ISTP-CH-HET is comprised primarily of organic and inorganic debris waste items and generally consists of cellulosics, plastic, rubber, glass, ceramic, graphite, and metal. Specific waste items include iron-based metals (e.g., alkaline batteries, banding, cables, capped

pipe nipples, caps, conduit, containers, discs, drain traps, dust pans, electrical boxes, fittings, flanges, gauges, glovebox floor sweepings, hand tools, hardware, labware, lids, light fixtures, needles, pans, pins, piping, planchets, portal covers, rebar, rods, saw blades, scrap metal, sealed radiation sources, sleeves, strapping, tool bits, tubing, valves, weights, welding fixtures, wire mesh, and wire), aluminum-based metals (e.g., cages, cans, foil, glove portal inserts, pans, piping, respirator cartridges, rods, scrap, and screen), other metals (e.g., beryllium, brass, copper, lead, tantalum, plutonium, and uranium), other inorganic materials (e.g., actinide oxide powder, absorbent, asbestos insulation, ceramics, concrete, filter media, glassware and broken glass, graphite, mortar/pestle, and paint chips), cellulosics (e.g., absorbent pads, brooms, brushes, cardboard, cloth, containers, cork, cotton swabs, fiberboard, gauze, leather gloves, masking tape, paper, sponges, and wood), plastics (e.g., bags, caps, containers, electrical cord, fittings, foam, Herculite® industrial fabric, hose, ion-exchange resin, labware, Lexan®, liner remnants, nylon rope, plexiglass, pipe, sheeting, sleeves, styrofoam, suits, syringes, tape, tie straps, tubing, and Velcro®), rubber (e.g., aspirators, belts, gasket material, gloves, grommets, hoods, hose, manipulator boots, o-rings, respirators, shoe covers, stoppers, and suits), electrical devices and equipment, metal-framed and wood-framed HEPA filters with inorganic filter media, and small amounts of homogenous materials such as grease and absorbed liquids (Sections 2.1 and 5.4.1).

The waste stream consists of the waste material parameters iron-based metals/alloys, aluminum-based metals/alloys, other metals, other inorganic materials, cellulosics, plastics, rubber, inorganic matrix, and organic matrix. Due to the high degree of variability in this waste, Waste Matrix Code S5400, Heterogeneous Debris, is applied to this waste stream. This category includes waste that is at least 50 percent, by volume, debris materials (Sections 5.4.1.1 and 5.4.1.2).

The description of the waste items included on the TWPC *Contact Handled Waste Repackaging Data Form* for daughter drum X10C9312853A is physically similar to and consistent with the waste stream description in the ORNL-008 AK Summary.

Chemical Content

The HET waste stream is assigned EPA hazardous waste numbers D005, D006, D007, D008, D009, D011, D019, D022, F002, and F005 (Section 5.4.3).

The container paperwork for X10C932853 does not indicate any specific EPA hazardous waste numbers. Based on a review of the TWPC *Contact Handled Waste Repackaging Data Form* for the daughter drum, no hazardous waste items were identified. It is assumed that the debris will be contaminated with the RCRA hazardous constituents identified in the AK record for waste materials in this stream. Therefore, the daughter drum is bounded by the HET waste stream.

Radionuclides

As shown in Table 5-2 of the ORNL-008 AK, all 10 WIPP required radionuclides are expected to be present in this waste stream. For the waste stream as a whole, the two most prevalent radionuclides, by mass, overall are Th-232 and U-238, and the two most prevalent TRU radionuclides, by mass, are Np-237 and Pu-239.

The radionuclide reported in container paperwork for parent container X10C9311206 is U-233. U-233 is listed in Table 5-2 of the ORNL-008 AK, but this isotope is not TRU. The UCN-2822 lists the principle isotopes in the waste, but does not necessarily list all isotopes that may be in the waste. U-233 was historically managed as a TRU waste so it is possible the waste also contains TRU isotopes not reported by the generator. Therefore, this drum will be added to waste stream OR-RF-CH-HET and will be assayed to verify its TRU content.

Prohibited Items

Review of the UCN-2109 forms for the parent drum, and the TWPC *Contact Handled Waste Repackaging Data Forms* for the daughter drum did not reveal the presence of prohibited items.

Conclusion

The existing ORNL-008 AK bounds the daughter drum evaluated. This drum is therefore eligible to be included in the HET waste stream. The inclusion of this drum will not alter the waste matrix code, EPA hazardous waste numbers, or the expected radionuclides (including the two most prevalent radionuclides) for the HET waste stream. The inclusion of drum X10C9312853A will not necessitate additional operator training.

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Waste container information has been reviewed for 2 55-gallon drums to verify that the container is bounded by the existing AK Summary Report, CCP-AK-ORNL-008, Revision 0, (ORNL-008 AK) for the OR-ISTP-CH-HET (HET) waste stream. The drums are daughter drums from the repackaging of waste contained in drum X10CSATN03194. The daughter drums are traceable to their parent drum by the letter appended to the drum number.

Information reviewed for the parent drum consisted primarily of the ORNL UCN-2109/UCN-2822 container paperwork forms and other data attached to these forms (Reference M191). The TWPC *Contact Handled Waste Repackaging Data Form* was reviewed for the daughter drums (Reference M187).

Waste Generation Location And Process

According to the ORNL-008 AK, the HET waste stream originated in the following Isotopes Programs facilities: Buildings 3028, 3029, 3030, 3031, 3032, 3033A, 3038, 3047 and 9204-3. TRU waste from these Isotopes Programs facilities was generated from the production and distribution of isotopes used in nuclear medicine, radiation processing, industrial controls, and other applications as well as research in every scientific and engineering discipline. As it specifically related to the generation of TRU waste, these facilities produced and distributed "Other Special Materials," or OSM, which are radioactive isotopes with atomic numbers 84 (polonium) and above, sometimes referred to as "heavy elements" (Sections 4.1, 4.2, and 5.1).

In eMWaste, X10CSATN03194 is identified as being generated in Building 3088, but the UCN-2109 includes a log sheet that says the waste is from Building 3038. Table 3-4 of the Trabalka Report (U038) acknowledges this typographical error for the associated ATN number 3194. Therefore, the daughter drums from this drum are bounded by the HET waste stream.

Time Period Of Generation

The ORNL-008 AK covers waste generated from November 1970 to June 2004. Repackaging of this waste stream at the TWPC began in 2006 and will continue. These facilities have been deactivated, but TRU waste may be generated in the future from final D&D in these buildings. No estimates have been made of the volume of TRU waste to be generated from final D&D. (Section 5.2).

Drum X10CSATN03194 was generated on 10/27/1993. This date was within the specified time period of generation. The daughter drums were generated on 1/27/2011. Therefore, these daughter drums are bounded by the HET waste stream.

Physical Form

Waste stream OR-ISTP-CH-HET is comprised primarily of organic and inorganic debris waste items and generally consists of cellulosics, plastic, rubber, glass, ceramic, graphite, and metal. Specific waste items include iron-based metals (e.g., alkaline batteries, banding, cables, capped

pipe nipples, caps, conduit, containers, discs, drain traps, dust pans, electrical boxes, fittings, flanges, gauges, glovebox floor sweepings, hand tools, hardware, labware, lids, light fixtures, needles, pans, pins, piping, planchets, portal covers, rebar, rods, saw blades, scrap metal, sealed radiation sources, sleeves, strapping, tool bits, tubing, valves, weights, welding fixtures, wire mesh, and wire), aluminum-based metals (e.g., cages, cans, foil, glove portal inserts, pans, piping, respirator cartridges, rods, scrap, and screen), other metals (e.g., beryllium, brass, copper, lead, tantalum, plutonium, and uranium), other inorganic materials (e.g., actinide oxide powder, absorbent, asbestos insulation, ceramics, concrete, filter media, glassware and broken glass, graphite, mortar/pestle, and paint chips), cellulosics (e.g., absorbent pads, brooms, brushes, cardboard, cloth, containers, cork, cotton swabs, fiberboard, gauze, leather gloves, masking tape, paper, sponges, and wood), plastics (e.g., bags, caps, containers, electrical cord, fittings, foam, Herculite® industrial fabric, hose, ion-exchange resin, labware, Lexan®, liner remnants, nylon rope, plexiglass, pipe, sheeting, sleeves, styrofoam, suits, syringes, tape, tie straps, tubing, and Velcro®), rubber (e.g., aspirators, belts, gasket material, gloves, grommets, hoods, hose, manipulator boots, o-rings, respirators, shoe covers, stoppers, and suits), electrical devices and equipment, metal-framed and wood-framed HEPA filters with inorganic filter media, and small amounts of homogenous materials such as grease and absorbed liquids (Sections 2.1 and 5.4.1).

The waste stream consists of the waste material parameters iron-based metals/alloys, aluminum-based metals/alloys, other metals, other inorganic materials, cellulosics, plastics, rubber, inorganic matrix, and organic matrix. Due to the high degree of variability in this waste, Waste Matrix Code S5400, Heterogeneous Debris, is applied to this waste stream. This category includes waste that is at least 50 percent, by volume, debris materials (Sections 5.4.1.1 and 5.4.1.2).

The description of the waste items included on the TWPC *Contact Handled Waste Repackaging Data Form* for daughter drums X10CSATN03194 A-B is physically similar to and consistent with the waste stream description in the ORNL-008 AK Summary.

Chemical Content

The HET waste stream is assigned EPA hazardous waste numbers D005, D006, D007, D008, D009, D011, D019, D022, F002, and F005 (Section 5.4.3).

The container paperwork for X10CSATN03194 does not indicate any specific EPA hazardous waste numbers. Based on a review of the TWPC *Contact Handled Waste Repackaging Data Form* for the daughter drums, no hazardous waste items were identified. It is assumed that the debris will be contaminated with the RCRA hazardous constituents identified in the AK record for waste materials in this stream. Therefore, the daughter drums are bounded by the HET waste stream.

Radionuclides

As shown in Table 5-2 of the ORNL-008 AK, all 10 WIPP required radionuclides are expected to be present in this waste stream. For the waste stream as a whole, the two most prevalent radionuclides, by mass, overall are Th-232 and U-238, and the two most prevalent TRU radionuclides, by mass, are Np-237 and Pu-239.

The radionuclide reported in container paperwork for parent container X10CSATN03194 is Pu-238. Pu-238 is listed in Table 5-2 of the ORNL-008 AK. The UCN-2822 lists the principle isotopes in the waste, but does not necessarily list all isotopes that may be in the waste. Therefore, the daughter drums are bounded by the HET waste stream.

Prohibited Items

Review of the UCN-2109 forms for the parent drum, and the TWPC *Contact Handled Waste Repackaging Data Forms* for the daughter drums did not reveal the presence of prohibited items.

Conclusion

The existing ORNL-008 AK bounds the daughter drums evaluated. These drums are therefore eligible to be included in the HET waste stream. The inclusion of these drums will not alter the waste matrix code, EPA hazardous waste numbers, or the expected radionuclides (including the two most prevalent radionuclides) for the HET waste stream. The inclusion of drums X10CSATN03194 A-B will not necessitate additional operator training.

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Attachment 8 - Waste Containers List

Site(s):	Oak Ridge National Laboratory	
Waste Stream Number(s):	OR-NFS-CH-HET, OR-NFS-CH-HET-A, OR-NFS-CH-SOIL, OR-NFS-CH-HOM-A	
Waste Stream Description:	Heterogeneous debris waste, soil, and homogeneous solids from Nuclear Fuel Services, Inc.	
Number of Waste Containers in Waste Stream:	OR-NFS-CH-HET:	112 55-gallon drums
	OR-NFS-CH-HET-A:	733 55-gallon drums
	OR-NFS-CH-SOIL:	545 55-gallon drums
	OR-NFS-CH-HOM-A:	38 55-gallon drums
Total Existing Volume (m^3):	OR-NFS-CH-HET:	23.30 m3
	OR-NFS-CH-HET-A:	152.46 m3
	OR-NFS-CH-SOIL:	113.36 m3
	OR-NFS-CH-HOM-A:	7.90 m3
Is waste expected to be generated in the future?	Yes and No	
If yes, Estimated Future Volume (m^3):	Waste streams OR-NFS-CH-HET, OR-NFS-CH-HET-A, and OR-NFS-CH-HOM-A will not be generated in the future. However, the waste stream volume may increase due to repackaging at the TWPC. Waste stream OR-NFS-CH-SOIL will be generated in the future. NFS projects 4300 drums thru FY2018.	
Assumptions:	See AK Summary Report	
Acceptable Knowledge Expert:	Jeff Harrison (Print) / Jeff Harrison (Sign)	12/5/2013 (Date)

Waste Stream Container Evaluation Memo(s) for Added Containers: M076, M128, M129, M130, M131, M132, M133, M216

Container Identification Number	Generation Date	Generation Point
N/A	CP 12/14/13	
See Attached Waste Containers List		
N/A	CP 12/14/13	

NTPC RECORDS ORIGINAL
DATE REC'D 1/3/14 SP

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0501101	X10C0506132	OR-NFS-CH-HET	55-GAL DRUM	BD	8/27/2002	12/22/2005	9/25/2007
X10C0501109	X10C0506017	OR-NFS-CH-HET	55-GAL DRUM	R	4/3/2003	2/22/2006	9/25/2007
X10C0501111	X10C0506035	OR-NFS-CH-HET	55-GAL DRUM	R	4/11/2001	2/23/2006	9/25/2007
X10C0501112	X10C0506029	OR-NFS-CH-HET	55-GAL DRUM	R	4/18/2001	2/24/2006	9/25/2007
X10C0501118	X10C0506155	OR-NFS-CH-HET	55-GAL DRUM	BD	7/29/2002	12/29/2005	9/25/2007
X10C0501121	X10C0506155	OR-NFS-CH-HET	55-GAL DRUM	BD	7/29/2002	12/30/2005	9/25/2007
X10C0501123	X10C0506155	OR-NFS-CH-HET	55-GAL DRUM	BD	7/29/2002	1/3/2006	9/25/2007
X10C0501129	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/4/2006	9/25/2007
X10C0501130	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/4/2006	9/25/2007
X10C0501132	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/5/2006	9/25/2007
X10C0501144	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/16/2006	9/25/2007
X10C0501146	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/16/2006	9/25/2007
X10C0501147	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/16/2006	9/25/2007
X10C0501148	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/16/2006	9/25/2007
X10C0501150	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/17/2006	9/25/2007
X10C0501151	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/17/2006	9/25/2007
X10C0501163	X10C0506133	OR-NFS-CH-HET	55-GAL DRUM	BD	6/12/2003	1/19/2006	9/25/2007
X10C0501173	X10C0506139	OR-NFS-CH-HET	55-GAL DRUM	BD	9/11/2003	1/23/2006	9/25/2007
X10C0501174	X10C0506139	OR-NFS-CH-HET	55-GAL DRUM	BD	9/11/2003	1/23/2006	9/25/2007
X10C0501179	X10C0506134	OR-NFS-CH-HET	55-GAL DRUM	BD	3/31/2003	1/25/2006	9/25/2007
X10C0501180	X10C0506134	OR-NFS-CH-HET	55-GAL DRUM	BD	3/31/2003	1/25/2006	9/25/2007
X10C0501187	X10C0506134	OR-NFS-CH-HET	55-GAL DRUM	BD	3/31/2003	1/25/2006	9/25/2007
X10C0501188	X10C0506134	OR-NFS-CH-HET	55-GAL DRUM	BD	3/31/2003	1/25/2006	9/25/2007
X10C0501189	X10C0506134	OR-NFS-CH-HET	55-GAL DRUM	BD	3/31/2003	1/26/2006	9/25/2007
X10C0501192	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501193	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501194	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501196	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501197	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501199	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501200	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501208	X10C0506127	OR-NFS-CH-HET	55-GAL DRUM	BD	3/25/2002	1/30/2006	9/25/2007
X10C0501223	X10C0506137	OR-NFS-CH-HET	55-GAL DRUM	BD	?	2/2/2006	9/25/2007
X10C0501229	X10C0506137	OR-NFS-CH-HET	55-GAL DRUM	BD	?	2/2/2006	9/25/2007
X10C0501241	X10C0506135	OR-NFS-CH-HET	55-GAL DRUM	BD	3/28/2003	2/6/2006	9/25/2007
X10C0501242	X10C0506135	OR-NFS-CH-HET	55-GAL DRUM	BD	3/28/2003	2/6/2006	9/25/2007
X10C0501253	X10C0506131	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	2/9/2006	9/25/2007
X10C0501263	X10C0505997	OR-NFS-CH-HET	55-GAL DRUM	R	7/24/2001	2/27/2006	9/25/2007
X10C0501266	X10C0506013	OR-NFS-CH-HET	55-GAL DRUM	R	10/15/2002	2/27/2006	9/25/2007
X10C0501267	X10C0505978	OR-NFS-CH-HET	55-GAL DRUM	R	6/11/2003	2/27/2006	9/25/2007
X10C0501269	X10C0506018	OR-NFS-CH-HET	55-GAL DRUM	R	8/1/2001	2/28/2006	9/25/2007
X10C0501270	X10C0506019	OR-NFS-CH-HET	55-GAL DRUM	R	8/1/2001	2/28/2006	9/25/2007
X10C0501271	X10C0506021	OR-NFS-CH-HET	55-GAL DRUM	R	8/1/2001	2/28/2006	9/25/2007
X10C0501272	X10C0506039	OR-NFS-CH-HET	55-GAL DRUM	R	8/1/2001	2/28/2006	9/25/2007
X10C0501273	X10C0506032	OR-NFS-CH-HET	55-GAL DRUM	R	4/17/2001	3/1/2006	9/25/2007
X10C0501274	X10C0506031	OR-NFS-CH-HET	55-GAL DRUM	R	4/18/2001	3/1/2006	9/25/2007
X10C0501278	X10C0506037	OR-NFS-CH-HET	55-GAL DRUM	R	5/14/2001	3/1/2006	9/25/2007
X10C0501279	X10C0506041	OR-NFS-CH-HET	55-GAL DRUM	R	10/3/2001	3/2/2006	9/25/2007
X10C0501281	X10C0505994	OR-NFS-CH-HET	55-GAL DRUM	R	?	3/2/2006	9/25/2007
X10C0501282	X10C0506005	OR-NFS-CH-HET	55-GAL DRUM	R	7/26/2001	3/2/2006	9/25/2007
X10C0501283	X10C0506026	OR-NFS-CH-HET	55-GAL DRUM	R	7/30/2001	3/3/2006	9/25/2007
X10C0501289	X10C0505982	OR-NFS-CH-HET	55-GAL DRUM	R	10/3/2001	3/5/2006	9/25/2007
X10C0501290	X10C0505961	OR-NFS-CH-HET	55-GAL DRUM	R	5/31/2001	3/6/2006	9/25/2007

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0501293	X10C0506007	OR-NFS-CH-HET	55-GAL DRUM	R	7/10/2001	3/6/2006	9/25/2007
X10C0501295	X10C0506122	OR-NFS-CH-HET	55-GAL DRUM	R	2/24/2003	3/6/2006	9/25/2007
X10C0501306	X10C0506008	OR-NFS-CH-HET	55-GAL DRUM	R	10/17/2001	3/7/2006	9/25/2007
X10C0501308	X10C0506073	OR-NFS-CH-HET	55-GAL DRUM	R	2/12/2003	3/7/2006	9/25/2007
X10C0501310	X10C0506060	OR-NFS-CH-HET	55-GAL DRUM	R	4/23/2001	3/8/2006	9/25/2007
X10C0501326	X10C0506072	OR-NFS-CH-HET	55-GAL DRUM	R	5/9/2001	4/17/2006	9/25/2007
X10C0501327	X10C0506058	OR-NFS-CH-HET	55-GAL DRUM	R	6/22/2001	3/20/2006	9/25/2007
X10C0501329	X10C0505964	OR-NFS-CH-HET	55-GAL DRUM	R	1/17/2002	4/13/2006	9/25/2007
X10C0501331	X10C0506130	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	3/22/2006	9/25/2007
X10C0501336	X10C0506130	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	3/22/2006	9/25/2007
X10C0501338	X10C0506130	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	3/22/2006	9/25/2007
X10C0501350	X10C0506129	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	3/29/2006	9/25/2007
X10C0501351	X10C0506129	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	3/29/2006	9/25/2007
X10C0501356	X10C0506126	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	3/30/2006	9/25/2007
X10C0501359	X10C0506126	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	3/30/2006	9/25/2007
X10C0501360	X10C0506129	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	4/3/2006	9/25/2007
X10C0501363	X10C0506129	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	4/3/2006	9/25/2007
X10C0501366	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	4/4/2006	9/25/2007
X10C0501367	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	4/4/2006	9/25/2007
X10C0501368	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	4/4/2006	9/25/2007
X10C0501369	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	4/6/2006	9/25/2007
X10C0501370	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	4/6/2006	9/25/2007
X10C0501371A	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	11/26/2007	9/25/2007
X10C0501377	X10C0506144	OR-NFS-CH-HET	55-GAL DRUM	BD	5/20/2003	4/10/2006	9/25/2007
X10C0501378	X10C0506144	OR-NFS-CH-HET	55-GAL DRUM	BD	5/20/2003	4/10/2006	9/25/2007
X10C0501379	X10C0506144	OR-NFS-CH-HET	55-GAL DRUM	BD	5/20/2003	4/10/2006	9/25/2007
X10C0501381	X10C0506144	OR-NFS-CH-HET	55-GAL DRUM	BD	5/20/2003	4/10/2006	9/25/2007
X10C0501382	X10C0506144	OR-NFS-CH-HET	55-GAL DRUM	BD	5/20/2003	4/10/2006	9/25/2007
X10C0501391	X10C0506050	OR-NFS-CH-HET	55-GAL DRUM	R	6/6/2001	4/13/2006	9/25/2007
X10C0501392	X10C0506068	OR-NFS-CH-HET	55-GAL DRUM	R	5/9/2001	4/13/2006	9/25/2007
X10C0501393	X10C0506049	OR-NFS-CH-HET	55-GAL DRUM	R	6/28/2001	4/13/2006	9/25/2007
X10C0501394	X10C0506046	OR-NFS-CH-HET	55-GAL DRUM	R	6/28/2001	4/17/2006	9/25/2007
X10C0501395	X10C0506067	OR-NFS-CH-HET	55-GAL DRUM	R	5/14/2001	4/18/2006	9/25/2007
X10C0501396	X10C0506061	OR-NFS-CH-HET	55-GAL DRUM	R	7/2/2001	4/18/2006	9/25/2007
X10C0501397	X10C0505984	OR-NFS-CH-HET	55-GAL DRUM	R	12/7/2001	4/18/2006	9/25/2007
X10C0501398	X10C0505988	OR-NFS-CH-HET	55-GAL DRUM	R	12/1/2001	4/18/2006	9/25/2007
X10C0501399	X10C0505992	OR-NFS-CH-HET	55-GAL DRUM	R	11/19/2001	4/18/2006	9/25/2007
X10C0501400	X10C0505987	OR-NFS-CH-HET	55-GAL DRUM	R	12/1/2001	4/18/2006	9/25/2007
X10C0501401	X10C0505972	OR-NFS-CH-HET	55-GAL DRUM	R	9/17/2001	4/19/2006	9/25/2007
X10C0501402	X10C0505975	OR-NFS-CH-HET	55-GAL DRUM	R	7/26/2001	4/19/2006	9/25/2007
X10C0501403A	X10C0505963	OR-NFS-CH-HET	55-GAL DRUM	R	7/20/2001	3/13/2008	9/25/2007
X10C0501404	X10C0505971	OR-NFS-CH-HET	55-GAL DRUM	R	7/26/2001	4/19/2006	9/25/2007
X10C0501405	X10C0506074	OR-NFS-CH-HET	55-GAL DRUM	R	7/2/2001	4/20/2006	9/25/2007
X10C0501406	X10C0506083	OR-NFS-CH-HET	55-GAL DRUM	R	2/24/2003	5/1/2006	9/25/2007
X10C0501407	X10C0506053	OR-NFS-CH-HET	55-GAL DRUM	R	7/26/2001	5/1/2006	9/25/2007
X10C0501408	X10C0506051	OR-NFS-CH-HET	55-GAL DRUM	R	6/12/2001	4/20/2006	9/25/2007
X10C0501409	X10C0506075	OR-NFS-CH-HET	55-GAL DRUM	R	7/20/2001	5/1/2006	9/25/2007
X10C0505966		OR-NFS-CH-HET	55-GAL DRUM		9/26/2001		9/25/2007
X10C0505968		OR-NFS-CH-HET	55-GAL DRUM		5/14/2001		9/25/2007
X10C0505977		OR-NFS-CH-HET	55-GAL DRUM		7/30/2001		9/25/2007
X10C0505985		OR-NFS-CH-HET	55-GAL DRUM		1/10/2002		9/25/2007
X10C0505990		OR-NFS-CH-HET	55-GAL DRUM		5/16/2001		9/25/2007
X10C0505991		OR-NFS-CH-HET	55-GAL DRUM		6/22/2001		9/25/2007

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0505998A	X10C0505998	OR-NFS-CH-HET	55-GAL DRUM		7/9/2001	3/17/2008	9/25/2007
X10C0505999		OR-NFS-CH-HET	55-GAL DRUM		7/9/2001		9/25/2007
X10C0506001		OR-NFS-CH-HET	55-GAL DRUM		7/9/2001		9/25/2007
X10C0506022A	X10C0506022	OR-NFS-CH-HET	55-GAL DRUM	R	5/9/2001	5/22/2007	9/25/2007
X10C0506048		OR-NFS-CH-HET	55-GAL DRUM		9/26/2001		9/25/2007
X10C0506080		OR-NFS-CH-HET	55-GAL DRUM		7/26/2001		9/25/2007
X10C0501120	X10C0506155	OR-NFS-CH-HET-A	55-GAL DRUM	BD	7/29/2002	1/3/2006	9/25/2007
X10C0501134	X10C0506136	OR-NFS-CH-HET-A	55-GAL DRUM	BD	2/28/2003	1/5/2006	9/25/2007
X10C0501181	X10C0506134	OR-NFS-CH-HET-A	55-GAL DRUM	BD	3/31/2003	1/25/2006	9/25/2007
X10C0501191	X10C0506128	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501210	X10C0506127	OR-NFS-CH-HET-A	55-GAL DRUM	BD	3/25/2002	1/30/2006	9/25/2007
X10C0501230	X10C0506137	OR-NFS-CH-HET-A	55-GAL DRUM	BD	?	2/2/2006	9/25/2007
X10C0501236	X10C0506130	OR-NFS-CH-HET-A	55-GAL DRUM	BD	5/21/2003	2/3/2006	9/25/2007
X10C0501244	X10C0506135	OR-NFS-CH-HET-A	55-GAL DRUM	BD	3/28/2003	2/6/2006	9/25/2007
X10C0501264	X10C0506030	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/26/2001	2/27/2006	9/25/2007
X10C0501276	X10C0506036	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/14/2001	3/1/2006	9/25/2007
X10C0501277	X10C0506015	OR-NFS-CH-HET-A	55-GAL DRUM	R	6/11/2003	3/1/2006	9/25/2007
X10C0501280	X10C0505980	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/3/2001	3/2/2006	9/25/2007
X10C0501285	X10C0506038	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/25/2001	3/3/2006	9/25/2007
X10C0501287	X10C0505960	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/30/2001	3/5/2006	9/25/2007
X10C0501288	X10C0505981	OR-NFS-CH-HET-A	55-GAL DRUM	R	6/11/2003	3/5/2006	9/25/2007
X10C0501291	X10C0505953	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/16/2001	3/6/2006	9/25/2007
X10C0501292	X10C0506125	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/9/2002	3/6/2006	9/25/2007
X10C0501294	X10C0506006	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/3/2001	3/6/2006	9/25/2007
X10C0501410	X10C0506076	OR-NFS-CH-HET-A	55-GAL DRUM	R	6/22/2001	5/1/2006	9/25/2007
X10C0505962		OR-NFS-CH-HET-A	55-GAL DRUM		10/23/2001		9/25/2007
X10C0505969		OR-NFS-CH-HET-A	55-GAL DRUM		9/17/2001		9/25/2007
X10C0505970		OR-NFS-CH-HET-A	55-GAL DRUM		7/26/2001		9/25/2007
X10C0505973		OR-NFS-CH-HET-A	55-GAL DRUM		12/1/2001		9/25/2007
X10C0505976		OR-NFS-CH-HET-A	55-GAL DRUM		9/17/2001		9/25/2007
X10C0505989		OR-NFS-CH-HET-A	55-GAL DRUM		12/1/2001		9/25/2007
X10C0505993		OR-NFS-CH-HET-A	55-GAL DRUM		7/30/2001		9/25/2007
X10C0506000		OR-NFS-CH-HET-A	55-GAL DRUM		7/9/2001		9/25/2007
X10C0506059		OR-NFS-CH-HET-A	55-GAL DRUM		7/20/2001		9/25/2007
X10C0506077		OR-NFS-CH-HET-A	55-GAL DRUM		8/30/2001		9/25/2007
X10C0506079		OR-NFS-CH-HET-A	55-GAL DRUM		7/9/2001		9/25/2007
X10C0506081		OR-NFS-CH-HET-A	55-GAL DRUM		9/6/2001		9/25/2007
X10C0506082		OR-NFS-CH-HET-A	55-GAL DRUM		10/17/2001		9/25/2007
NFS0113		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0114		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0115		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0116		OR-NFS-CH-HET-A	55-GAL DRUM		5/20/1994		11/30/2007
NFS0117		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0354		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0357		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0358		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0359		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0361		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0368		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0369		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0370		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0371		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0372		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0373		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0374		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0375		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0376		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0377		OR-NFS-CH-HET-A	55-GAL DRUM		12/11/1993		11/30/2007
NFS0378		OR-NFS-CH-HET-A	55-GAL DRUM		12/11/1993		11/30/2007
NFS0379		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0380		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0381		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0382		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0383		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0384		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0385		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0386		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0387		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0388		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0389		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0390		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0391		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0392		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0393		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0394		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0395		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0396		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0397		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0398		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0399		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0400		OR-NFS-CH-HET-A	55-GAL DRUM		12/11/1993		11/30/2007
NFS0401		OR-NFS-CH-HET-A	55-GAL DRUM		12/11/1993		11/30/2007
NFS0402		OR-NFS-CH-HET-A	55-GAL DRUM		12/11/1993		11/30/2007
NFS0403		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0404		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0405		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0406		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0407		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0408		OR-NFS-CH-HET-A	55-GAL DRUM		3/29/1994		11/30/2007
NFS0409		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0410		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0411		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0412		OR-NFS-CH-HET-A	55-GAL DRUM		3/29/1994		11/30/2007
NFS0413		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0414		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0415		OR-NFS-CH-HET-A	55-GAL DRUM		3/29/1994		11/30/2007
NFS0416		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0417		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0418		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0419		OR-NFS-CH-HET-A	55-GAL DRUM		3/30/1994		11/30/2007
NFS0420		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0421		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0422		OR-NFS-CH-HET-A	55-GAL DRUM		3/30/1994		11/30/2007
NFS0423		OR-NFS-CH-HET-A	55-GAL DRUM		3/31/1994		11/30/2007
NFS0425		OR-NFS-CH-HET-A	55-GAL DRUM		3/31/1994		11/30/2007
NFS0426		OR-NFS-CH-HET-A	55-GAL DRUM		3/31/1994		11/30/2007

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0427		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0428		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0429		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0430		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0431		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0432		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0433		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0434		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0435		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0436		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0437		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0501		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0502		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0503		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0504		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0505		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0509		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0510		OR-NFS-CH-HET-A	55-GAL DRUM		8/22/1993		11/30/2007
NFS0511		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0512		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0513		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0514		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0515		OR-NFS-CH-HET-A	55-GAL DRUM		8/22/1993		11/30/2007
NFS0516		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0524		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0525		OR-NFS-CH-HET-A	55-GAL DRUM		8/25/1993		11/30/2007
NFS0526		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0527		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0528		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0529		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0538		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0539		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0540		OR-NFS-CH-HET-A	55-GAL DRUM		5/26/1994		11/30/2007
NFS0541		OR-NFS-CH-HET-A	55-GAL DRUM		3/25/1994		11/30/2007
NFS0542		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0543		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0571		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0572		OR-NFS-CH-HET-A	55-GAL DRUM		9/30/1993		11/30/2007
NFS0573		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0574		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0575		OR-NFS-CH-HET-A	55-GAL DRUM		9/30/1993		11/30/2007
NFS0576		OR-NFS-CH-HET-A	55-GAL DRUM		9/30/1993		11/30/2007
NFS0577		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0578		OR-NFS-CH-HET-A	55-GAL DRUM		9/30/1993		11/30/2007
NFS0579		OR-NFS-CH-HET-A	55-GAL DRUM		9/30/1993		11/30/2007
NFS0580		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0581		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0582		OR-NFS-CH-HET-A	55-GAL DRUM		10/7/1993		11/30/2007
NFS0583		OR-NFS-CH-HET-A	55-GAL DRUM		9/14/1993		11/30/2007
NFS0756		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0783		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0784		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0785		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0831		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0832		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0833		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0834		OR-NFS-CH-HET-A	55-GAL DRUM		5/26/1994		11/30/2007
NFS0835		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0920		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0921		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0922		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0928		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
X10C0506143B	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143C	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143D	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143E	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143F	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143G	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143H	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143I	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143J	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143K	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143L	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143M	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143N	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143S	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/5/2007	4/30/2008
X10C0506143T	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/5/2007	4/30/2008
X10C0506153A	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/29/2008	4/30/2008
X10C0506153B	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/30/2008	4/30/2008
X10C0506153C	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/30/2008	4/30/2008
X10C0506153D	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/30/2008	4/30/2008
X10C0506153E	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/30/2008	4/30/2008
X10C0506153F	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/30/2008	4/30/2008
X10C0506153G	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/31/2008	4/30/2008
X10C0506153H	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/31/2008	4/30/2008
X10C0506069		OR-NFS-CH-HET-A	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506148D	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/8/2008
X10C0506148E	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/8/2008
X10C0506148F	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/8/2008
X10C0506148G	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/8/2008
X10C0506148H	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/8/2008
X10C0506149A	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/23/2008	9/8/2008
X10C0506149F	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149G	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149H	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149I	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149J	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149K	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149L	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506150D	X10C0506150	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/31/2008	9/8/2008
X10C0506150E	X10C0506150	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/31/2008	9/8/2008
X10C0506150F	X10C0506150	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/31/2008	9/8/2008
X10C0506150G	X10C0506150	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/31/2008	9/8/2008
X10C0506150H	X10C0506150	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/31/2008	9/8/2008
X10C0506151A	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/4/2008	9/8/2008
X10C0506151F	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0506151G	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008
X10C0506151H	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008
X10C0506151I	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008
X10C0506151J	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008
X10C0506151K	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008
X10C0506152E	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506152F	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506152G	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506152H	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506152I	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506152J	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506148I	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506148J	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506148K	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506148L	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506148M	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506148N	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506154AA	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154B	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154BB	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154C	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154CC	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154DD	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154E	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154F	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154H	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154K	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154L	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154M	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154N	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154O	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154P	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154Q	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154R	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154S	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154T	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154U	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154V	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154W	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154X	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154Y	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154Z	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
NFS0821		OR-NFS-CH-HET-A	55-GAL DRUM		9/25/1993		1/8/2009
NFS0839		OR-NFS-CH-HET-A	55-GAL DRUM		9/28/1993		1/8/2009
NFS0840		OR-NFS-CH-HET-A	55-GAL DRUM		9/24/1993		1/8/2009
NFS0927		OR-NFS-CH-HET-A	55-GAL DRUM		9/25/1993		1/8/2009
X10C0506140A	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/9/2010	4/19/2010
X10C0506140B	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/12/2010	4/19/2010
X10C0506140C	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/12/2010	4/19/2010
X10C0506140D	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/13/2010	4/19/2010
X10C0506140E	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/13/2010	4/19/2010
X10C0506140F	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/13/2010	4/19/2010
X10C0506140G	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/13/2010	4/19/2010

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0506140H	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/13/2010	4/19/2010
X10C0506140I	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140J	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140K	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140L	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140M	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140N	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140O	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140P	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140Q	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140R	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140S	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140T	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506138A	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/14/2010	4/22/2010
X10C0506138B	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/14/2010	4/22/2010
X10C0506138C	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/15/2010	4/22/2010
X10C0506138D	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/15/2010	4/22/2010
X10C0506138E	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/15/2010	4/22/2010
X10C0506138F	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/15/2010	4/22/2010
X10C0506138G	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138H	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138I	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138J	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138K	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138L	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138M	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138N	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138O	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138P	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138Q	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138R	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138S	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138T	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138U	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138V	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506141A	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/21/2010	4/29/2010
X10C0506141B	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/21/2010	4/29/2010
X10C0506141C	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141D	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141E	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141F	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141G	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141H	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141I	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141J	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141K	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141L	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141M	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141N	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141O	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141P	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/23/2010	4/29/2010
X10C0506141Q	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141R	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0506141S	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141T	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141U	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141V	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141W	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141X	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141Y	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141Z	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506142A	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/27/2010	5/12/2010
X10C0506142B	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/27/2010	5/12/2010
X10C0506142C	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/27/2010	5/12/2010
X10C0506142D	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142E	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142F	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142G	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142H	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142I	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142J	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142K	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142L	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142M	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142N	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142O	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142P	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142Q	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142R	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142S	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142T	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142U	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
NFS0355		OR-NFS-CH-HET-A	55-GAL DRUM		1/22/1993		9/16/2010
NFS0075A	NFS0075	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/22/2013	10/7/2013
NFS0075B	NFS0075	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/22/2013	10/7/2013
NFS0075C	NFS0075	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/22/2013	10/7/2013
NFS0076A	NFS0076	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/14/2013	10/7/2013
NFS0076B	NFS0076	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/14/2013	10/7/2013
NFS0076C	NFS0076	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/14/2013	10/7/2013
NFS0077A	NFS0077	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/24/2013	10/7/2013
NFS0077B	NFS0077	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/24/2013	10/7/2013
NFS0077C	NFS0077	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/24/2013	10/7/2013
NFS0078A	NFS0078	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/15/2013	10/7/2013
NFS0078B	NFS0078	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/15/2013	10/7/2013
NFS0078C	NFS0078	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/15/2013	10/7/2013
NFS0079A	NFS0079	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/29/2013	10/7/2013
NFS0079B	NFS0079	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/29/2013	10/7/2013
NFS0079C	NFS0079	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/29/2013	10/7/2013
NFS0083A	NFS0083	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/26/2013	10/7/2013
NFS0083B	NFS0083	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/26/2013	10/7/2013
NFS0083C	NFS0083	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/26/2013	10/7/2013
NFS0084A	NFS0084	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013
NFS0084B	NFS0084	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013
NFS0084C	NFS0084	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013
NFS0085A	NFS0085	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013
NFS0085B	NFS0085	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0085C	NFS0085	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013
NFS0086A	NFS0086	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	3/1/2013	10/7/2013
NFS0086B	NFS0086	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	3/1/2013	10/7/2013
NFS0086C	NFS0086	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	3/1/2013	10/7/2013
NFS0087A	NFS0087	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/24/2013	10/7/2013
NFS0087B	NFS0087	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/24/2013	10/7/2013
NFS0087C	NFS0087	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/24/2013	10/7/2013
NFS0088A	NFS0088	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/25/2013	10/7/2013
NFS0088B	NFS0088	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/25/2013	10/7/2013
NFS0088C	NFS0088	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/25/2013	10/7/2013
NFS0089A	NFS0089	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0089B	NFS0089	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0089C	NFS0089	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0090A	NFS0090	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0090B	NFS0090	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0090C	NFS0090	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0091A	NFS0091	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0091B	NFS0091	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0091C	NFS0091	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0092A	NFS0092	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/14/2013	10/7/2013
NFS0092B	NFS0092	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/14/2013	10/7/2013
NFS0092C	NFS0092	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/14/2013	10/7/2013
NFS0093A	NFS0093	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0093B	NFS0093	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0093C	NFS0093	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0094A	NFS0094	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/18/2013	10/7/2013
NFS0094B	NFS0094	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/18/2013	10/7/2013
NFS0094C	NFS0094	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/18/2013	10/7/2013
NFS0095A	NFS0095	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/8/2013	10/7/2013
NFS0095B	NFS0095	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/8/2013	10/7/2013
NFS0095C	NFS0095	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/8/2013	10/7/2013
NFS0096A	NFS0096	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/16/2013	10/7/2013
NFS0096B	NFS0096	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/16/2013	10/7/2013
NFS0096C	NFS0096	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/16/2013	10/7/2013
NFS0097A	NFS0097	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/25/2013	10/7/2013
NFS0097B	NFS0097	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/25/2013	10/7/2013
NFS0097C	NFS0097	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/25/2013	10/7/2013
NFS0098A	NFS0098	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/24/2013	10/7/2013
NFS0098B	NFS0098	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/24/2013	10/7/2013
NFS0098C	NFS0098	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/24/2013	10/7/2013
NFS0099A	NFS0099	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0099B	NFS0099	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0099C	NFS0099	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0100A	NFS0100	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/27/2013	10/7/2013
NFS0100B	NFS0100	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/27/2013	10/7/2013
NFS0100C	NFS0100	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/27/2013	10/7/2013
NFS0101A	NFS0101	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0101B	NFS0101	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0101C	NFS0101	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0102A	NFS0102	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/28/2013	10/7/2013
NFS0102B	NFS0102	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/28/2013	10/7/2013
NFS0102C	NFS0102	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/28/2013	10/7/2013
NFS0597A	NFS0597	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	3/4/2013	10/7/2013

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0597B	NFS0597	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	3/4/2013	10/7/2013
NFS0597C	NFS0597	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	3/4/2013	10/7/2013
NFS0598A	NFS0598	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0598B	NFS0598	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0598C	NFS0598	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0599A	NFS0599	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	2/26/2013	10/7/2013
NFS0599B	NFS0599	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	2/26/2013	10/7/2013
NFS0599C	NFS0599	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	2/26/2013	10/7/2013
NFS0600A	NFS0600	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/20/2013	10/7/2013
NFS0600B	NFS0600	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/20/2013	10/7/2013
NFS0600C	NFS0600	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/20/2013	10/7/2013
NFS0601A	NFS0601	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/15/2013	10/7/2013
NFS0601B	NFS0601	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/15/2013	10/7/2013
NFS0601C	NFS0601	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/15/2013	10/7/2013
NFS0602A	NFS0602	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/3/2013	10/7/2013
NFS0602B	NFS0602	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/3/2013	10/7/2013
NFS0602C	NFS0602	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/3/2013	10/7/2013
NFS0603A	NFS0603	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0603B	NFS0603	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0603C	NFS0603	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0604A	NFS0604	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/1/2013	10/7/2013
NFS0604B	NFS0604	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/1/2013	10/7/2013
NFS0604C	NFS0604	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/1/2013	10/7/2013
NFS0605A	NFS0605	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/27/2012	10/7/2013
NFS0605B	NFS0605	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/27/2012	10/7/2013
NFS0605C	NFS0605	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/27/2012	10/7/2013
NFS0606A	NFS0606	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/29/2012	10/7/2013
NFS0606B	NFS0606	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/29/2012	10/7/2013
NFS0606C	NFS0606	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/29/2012	10/7/2013
NFS0607A	NFS0607	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	4/24/2013	10/7/2013
NFS0607B	NFS0607	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	4/24/2013	10/7/2013
NFS0607C	NFS0607	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	4/24/2013	10/7/2013
NFS0608A	NFS0608	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/26/2013	10/7/2013
NFS0608B	NFS0608	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/26/2013	10/7/2013
NFS0608C	NFS0608	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/26/2013	10/7/2013
NFS0609A	NFS0609	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/7/2013	10/7/2013
NFS0609B	NFS0609	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/7/2013	10/7/2013
NFS0609C	NFS0609	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/7/2013	10/7/2013
NFS0610A	NFS0610	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/28/2012	10/7/2013
NFS0610B	NFS0610	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/28/2012	10/7/2013
NFS0610C	NFS0610	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/28/2012	10/7/2013
NFS0611A	NFS0611	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/9/2013	10/7/2013
NFS0611B	NFS0611	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/9/2013	10/7/2013
NFS0611C	NFS0611	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/9/2013	10/7/2013
NFS0612A	NFS0612	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/13/2013	10/7/2013
NFS0612B	NFS0612	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/13/2013	10/7/2013
NFS0612C	NFS0612	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/13/2013	10/7/2013
NFS0613A	NFS0613	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013
NFS0613B	NFS0613	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013
NFS0613C	NFS0613	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013
NFS0614A	NFS0614	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013
NFS0614B	NFS0614	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013
NFS0614C	NFS0614	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0615A	NFS0615	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/8/2013	10/7/2013
NFS0615B	NFS0615	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/8/2013	10/7/2013
NFS0615C	NFS0615	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/8/2013	10/7/2013
NFS0616A	NFS0616	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/24/2013	10/7/2013
NFS0616B	NFS0616	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/24/2013	10/7/2013
NFS0616C	NFS0616	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/24/2013	10/7/2013
NFS0617A	NFS0617	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/23/2013	10/7/2013
NFS0617B	NFS0617	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/23/2013	10/7/2013
NFS0617C	NFS0617	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/23/2013	10/7/2013
NFS0618A	NFS0618	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/30/2013	10/7/2013
NFS0618B	NFS0618	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/30/2013	10/7/2013
NFS0618C	NFS0618	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/30/2013	10/7/2013
NFS0619A	NFS0619	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/7/2013	10/7/2013
NFS0619B	NFS0619	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/7/2013	10/7/2013
NFS0619C	NFS0619	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/7/2013	10/7/2013
NFS0620A	NFS0620	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/15/2013	10/7/2013
NFS0620B	NFS0620	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/15/2013	10/7/2013
NFS0620C	NFS0620	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/15/2013	10/7/2013
NFS0621A	NFS0621	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0621B	NFS0621	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0621C	NFS0621	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0622A	NFS0622	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/7/2013	10/7/2013
NFS0622B	NFS0622	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/7/2013	10/7/2013
NFS0622C	NFS0622	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/7/2013	10/7/2013
NFS0623A	NFS0623	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/5/2013	10/7/2013
NFS0623B	NFS0623	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/5/2013	10/7/2013
NFS0623C	NFS0623	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/5/2013	10/7/2013
NFS0624A	NFS0624	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0624B	NFS0624	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0624C	NFS0624	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0625A	NFS0625	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/16/2013	10/7/2013
NFS0625B	NFS0625	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/16/2013	10/7/2013
NFS0625C	NFS0625	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/16/2013	10/7/2013
NFS0626A	NFS0626	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013
NFS0626B	NFS0626	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013
NFS0626C	NFS0626	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013
NFS0627A	NFS0627	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0627B	NFS0627	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0627C	NFS0627	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0628A	NFS0628	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/16/2013	10/7/2013
NFS0628B	NFS0628	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/16/2013	10/7/2013
NFS0628C	NFS0628	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/16/2013	10/7/2013
NFS0629A	NFS0629	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/2/2013	10/7/2013
NFS0629B	NFS0629	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/2/2013	10/7/2013
NFS0629C	NFS0629	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/2/2013	10/7/2013
NFS0630A	NFS0630	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0630B	NFS0630	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0630C	NFS0630	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0631A	NFS0631	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/20/2013	10/7/2013
NFS0631B	NFS0631	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/20/2013	10/7/2013
NFS0631C	NFS0631	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/20/2013	10/7/2013
NFS0632A	NFS0632	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013
NFS0632B	NFS0632	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0632C	NFS0632	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013
NFS0633A	NFS0633	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0633B	NFS0633	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0633C	NFS0633	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0634A	NFS0634	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/14/2013	10/7/2013
NFS0634B	NFS0634	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/14/2013	10/7/2013
NFS0634C	NFS0634	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/14/2013	10/7/2013
NFS0635A	NFS0635	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0635B	NFS0635	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0635C	NFS0635	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0636A	NFS0636	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0636B	NFS0636	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0636C	NFS0636	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0637A	NFS0637	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/16/2013	10/7/2013
NFS0637B	NFS0637	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/16/2013	10/7/2013
NFS0637C	NFS0637	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/16/2013	10/7/2013
NFS0638A	NFS0638	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/6/2013	10/7/2013
NFS0638B	NFS0638	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/6/2013	10/7/2013
NFS0638C	NFS0638	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/6/2013	10/7/2013
NFS0639A	NFS0639	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/2/2013	10/7/2013
NFS0639B	NFS0639	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/2/2013	10/7/2013
NFS0639C	NFS0639	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/2/2013	10/7/2013
NFS0640A	NFS0640	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	2/26/2013	10/7/2013
NFS0640B	NFS0640	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	2/26/2013	10/7/2013
NFS0640C	NFS0640	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	2/26/2013	10/7/2013
NFS0641A	NFS0641	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0641B	NFS0641	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0641C	NFS0641	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0643A	NFS0643	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/15/1993	5/16/2013	10/7/2013
NFS0643B	NFS0643	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/15/1993	5/16/2013	10/7/2013
NFS0643C	NFS0643	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/15/1993	5/16/2013	10/7/2013
NFS0644A	NFS0644	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/1/2013	10/7/2013
NFS0644B	NFS0644	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/1/2013	10/7/2013
NFS0644C	NFS0644	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/1/2013	10/7/2013
NFS0645A	NFS0645	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/29/2013	10/7/2013
NFS0645B	NFS0645	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/29/2013	10/7/2013
NFS0645C	NFS0645	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/29/2013	10/7/2013
NFS0646A	NFS0646	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/2/2013	10/7/2013
NFS0646B	NFS0646	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/2/2013	10/7/2013
NFS0646C	NFS0646	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/2/2013	10/7/2013
NFS0647A	NFS0647	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/6/2013	10/7/2013
NFS0647B	NFS0647	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/6/2013	10/7/2013
NFS0647C	NFS0647	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/6/2013	10/7/2013
NFS0648A	NFS0648	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/25/2013	10/7/2013
NFS0648B	NFS0648	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/25/2013	10/7/2013
NFS0648C	NFS0648	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/25/2013	10/7/2013
NFS0649A	NFS0649	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/15/2013	10/7/2013
NFS0649B	NFS0649	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/15/2013	10/7/2013
NFS0649C	NFS0649	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/15/2013	10/7/2013
NFS0650A	NFS0650	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	3/4/2013	10/7/2013
NFS0650B	NFS0650	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	3/4/2013	10/7/2013
NFS0650C	NFS0650	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	3/4/2013	10/7/2013
NFS0651A	NFS0651	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/23/2013	10/7/2013

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0651B	NFS0651	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/23/2013	10/7/2013
NFS0651C	NFS0651	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/23/2013	10/7/2013
NFS0652A	NFS0652	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	5/5/2013	10/7/2013
NFS0652B	NFS0652	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	5/5/2013	10/7/2013
NFS0652C	NFS0652	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	5/5/2013	10/7/2013
NFS0653A	NFS0653	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/18/2013	10/7/2013
NFS0653B	NFS0653	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/18/2013	10/7/2013
NFS0653C	NFS0653	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/18/2013	10/7/2013
NFS0853A	NFS0853	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/20/1994	4/18/2013	10/7/2013
NFS0853B	NFS0853	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/20/1994	4/18/2013	10/7/2013
NFS0853C	NFS0853	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/20/1994	4/18/2013	10/7/2013
NFS0854A	NFS0854	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/5/2013	10/7/2013
NFS0854B	NFS0854	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/5/2013	10/7/2013
NFS0854C	NFS0854	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/5/2013	10/7/2013
NFS0855A	NFS0855	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0855B	NFS0855	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0855C	NFS0855	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0856A	NFS0856	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0856B	NFS0856	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0856C	NFS0856	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0857A	NFS0857	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0857B	NFS0857	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0857C	NFS0857	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0858A	NFS0858	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0858B	NFS0858	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0858C	NFS0858	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0859A	NFS0859	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	4/19/2013	10/7/2013
NFS0859B1	NFS0859	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/21/2013	10/7/2013
NFS0859C	NFS0859	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	4/19/2013	10/7/2013
NFS0860A	NFS0860	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/25/2013	10/7/2013
NFS0860B	NFS0860	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/25/2013	10/7/2013
NFS0860C	NFS0860	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/25/2013	10/7/2013
NFS0861A	NFS0861	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/11/1994	5/15/2013	10/7/2013
NFS0861B	NFS0861	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/11/1994	5/15/2013	10/7/2013
NFS0861C	NFS0861	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/11/1994	5/15/2013	10/7/2013
NFS0863A	NFS0863	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/8/2013	10/7/2013
NFS0863B	NFS0863	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/8/2013	10/7/2013
NFS0863C	NFS0863	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/8/2013	10/7/2013
NFS0864A	NFS0864	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	2/25/2013	10/7/2013
NFS0864B	NFS0864	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	2/25/2013	10/7/2013
NFS0864C	NFS0864	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	2/25/2013	10/7/2013
NFS0881A	NFS0881	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	12/5/2011	10/7/2013
NFS0881B	NFS0881	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	12/5/2011	10/7/2013
NFS0881C	NFS0881	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	12/5/2011	10/7/2013
NFS0882A	NFS0882	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0882B	NFS0882	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0882C	NFS0882	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0883A	NFS0883	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0883B	NFS0883	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0883C	NFS0883	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0884A	NFS0884	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/24/2013	10/7/2013
NFS0884B	NFS0884	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/24/2013	10/7/2013
NFS0884C	NFS0884	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/24/2013	10/7/2013

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0885A	NFS0885	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0885B	NFS0885	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0885C	NFS0885	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0886A	NFS0886	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0886B	NFS0886	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0886C	NFS0886	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0887A	NFS0887	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0887B	NFS0887	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0887C	NFS0887	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0888A	NFS0888	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/15/2013	10/7/2013
NFS0888B	NFS0888	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/15/2013	10/7/2013
NFS0888C	NFS0888	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/15/2013	10/7/2013
NFS0889A	NFS0889	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0889B	NFS0889	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0889C	NFS0889	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0890A	NFS0890	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0890B	NFS0890	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0890C	NFS0890	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0891A	NFS0891	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/23/2013	10/7/2013
NFS0891B	NFS0891	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/23/2013	10/7/2013
NFS0891C	NFS0891	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/23/2013	10/7/2013
NFS0892A	NFS0892	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/12/2013	10/7/2013
NFS0892B	NFS0892	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/12/2013	10/7/2013
NFS0892C	NFS0892	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/12/2013	10/7/2013
NFS0893A	NFS0893	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/25/2013	10/7/2013
NFS0893B	NFS0893	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/25/2013	10/7/2013
NFS0893C	NFS0893	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/25/2013	10/7/2013
NFS0894A	NFS0894	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0894B	NFS0894	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0894C	NFS0894	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0895A	NFS0895	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/12/2013	10/7/2013
NFS0895B	NFS0895	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/12/2013	10/7/2013
NFS0895C	NFS0895	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/12/2013	10/7/2013
NFS0896A	NFS0896	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/10/2013	10/7/2013
NFS0896B	NFS0896	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/10/2013	10/7/2013
NFS0896C	NFS0896	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/10/2013	10/7/2013
NFS0897A	NFS0897	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0897B	NFS0897	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0897C	NFS0897	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0898A	NFS0898	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	2/28/2013	10/7/2013
NFS0898B	NFS0898	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	2/28/2013	10/7/2013
NFS0898C	NFS0898	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	2/28/2013	10/7/2013
NFS0899A	NFS0899	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	3/7/2013	10/7/2013
NFS0899B	NFS0899	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	3/7/2013	10/7/2013
NFS0899C	NFS0899	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	3/7/2013	10/7/2013
NFS0900A	NFS0900	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0900B	NFS0900	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0900C	NFS0900	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0901A	NFS0901	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/13/2013	10/7/2013
NFS0901B	NFS0901	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/13/2013	10/7/2013
NFS0901C	NFS0901	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/13/2013	10/7/2013
NFS0902A	NFS0902	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/10/2013	10/7/2013
NFS0902B	NFS0902	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/10/2013	10/7/2013

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0902C	NFS0902	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/10/2013	10/7/2013
NFS0903A	NFS0903	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/28/2013	10/7/2013
NFS0903B	NFS0903	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/28/2013	10/7/2013
NFS0903C	NFS0903	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/28/2013	10/7/2013
NFS0904A	NFS0904	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/26/2013	10/7/2013
NFS0904B	NFS0904	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/26/2013	10/7/2013
NFS0904C	NFS0904	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/26/2013	10/7/2013
NFS0905A	NFS0905	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/16/2013	10/7/2013
NFS0905B	NFS0905	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/16/2013	10/7/2013
NFS0905C	NFS0905	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/16/2013	10/7/2013
NFS0906A	NFS0906	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/16/2013	10/7/2013
NFS0906B	NFS0906	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/16/2013	10/7/2013
NFS0906C	NFS0906	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/16/2013	10/7/2013
NFS0907A	NFS0907	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/15/2013	10/7/2013
NFS0907B	NFS0907	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/15/2013	10/7/2013
NFS0907C	NFS0907	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/15/2013	10/7/2013
NFS0908A	NFS0908	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0908B	NFS0908	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0908C	NFS0908	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0909A	NFS0909	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/23/2013	10/7/2013
NFS0909B	NFS0909	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/23/2013	10/7/2013
NFS0909C	NFS0909	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/23/2013	10/7/2013
NFS0910A	NFS0910	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/1/2013	10/7/2013
NFS0910B	NFS0910	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/1/2013	10/7/2013
NFS0910C	NFS0910	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/1/2013	10/7/2013
NFS0911A	NFS0911	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/17/2013	10/7/2013
NFS0911B	NFS0911	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/17/2013	10/7/2013
NFS0911C	NFS0911	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/17/2013	10/7/2013
NFS0912A	NFS0912	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0912B	NFS0912	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0912C	NFS0912	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0913A	NFS0913	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/14/2013	10/7/2013
NFS0913B	NFS0913	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/14/2013	10/7/2013
NFS0914A	NFS0914	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/1/2013	10/7/2013
NFS0914B	NFS0914	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/1/2013	10/7/2013
NFS0915A	NFS0915	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/5/2013	10/7/2013
NFS0915B	NFS0915	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/5/2013	10/7/2013
NFS0915C	NFS0915	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/5/2013	10/7/2013
NFS0916A	NFS0916	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	4/10/2013	10/7/2013
NFS0916B	NFS0916	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	4/10/2013	10/7/2013
NFS0916C	NFS0916	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	4/10/2013	10/7/2013
NFS0917A	NFS0917	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/2/2013	10/7/2013
NFS0917B	NFS0917	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/2/2013	10/7/2013
NFS0917C	NFS0917	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/2/2013	10/7/2013
NFS0918A	NFS0918	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/7/2013	10/7/2013
NFS0918B	NFS0918	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/7/2013	10/7/2013
NFS0918C	NFS0918	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/7/2013	10/7/2013
NFS0919A	NFS0919	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/16/2013	10/7/2013
NFS0919B	NFS0919	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/16/2013	10/7/2013
NFS0919C	NFS0919	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/16/2013	10/7/2013
NFS0107		OR-NFS-CH-HOM-A	55-GAL DRUM		9/21/1993		12/8/2010
NFS0148		OR-NFS-CH-HOM-A	55-GAL DRUM		8/13/1993		12/8/2010
NFS0149		OR-NFS-CH-HOM-A	55-GAL DRUM		8/13/1993		12/8/2010

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0150		OR-NFS-CH-HOM-A	55-GAL DRUM		8/13/1993		12/8/2010
NFS0151		OR-NFS-CH-HOM-A	55-GAL DRUM		8/13/1993		12/8/2010
NFS0478		OR-NFS-CH-HOM-A	55-GAL DRUM		7/9/1993		12/8/2010
NFS0479		OR-NFS-CH-HOM-A	55-GAL DRUM		7/9/1993		12/8/2010
NFS0481		OR-NFS-CH-HOM-A	55-GAL DRUM		7/9/1993		12/8/2010
NFS0506		OR-NFS-CH-HOM-A	55-GAL DRUM		8/15/1993		12/8/2010
NFS0507		OR-NFS-CH-HOM-A	55-GAL DRUM		8/15/1993		12/8/2010
NFS0508		OR-NFS-CH-HOM-A	55-GAL DRUM		8/15/1993		12/8/2010
NFS0591		OR-NFS-CH-HOM-A	55-GAL DRUM		8/31/1993		12/8/2010
NFS0592		OR-NFS-CH-HOM-A	55-GAL DRUM		8/31/1993		12/8/2010
NFS0593		OR-NFS-CH-HOM-A	55-GAL DRUM		8/31/1993		12/8/2010
NFS0594		OR-NFS-CH-HOM-A	55-GAL DRUM		8/31/1993		12/8/2010
NFS0673		OR-NFS-CH-HOM-A	55-GAL DRUM		9/3/1993		12/8/2010
NFS0674		OR-NFS-CH-HOM-A	55-GAL DRUM		9/3/1993		12/8/2010
NFS0753		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0754		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0755		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0757		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0758		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0759		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0776		OR-NFS-CH-HOM-A	55-GAL DRUM		9/18/1993		12/8/2010
NFS0777		OR-NFS-CH-HOM-A	55-GAL DRUM		9/18/1993		12/8/2010
NFS0786		OR-NFS-CH-HOM-A	55-GAL DRUM		9/19/1993		12/8/2010
NFS0787		OR-NFS-CH-HOM-A	55-GAL DRUM		9/19/1993		12/8/2010
NFS0788		OR-NFS-CH-HOM-A	55-GAL DRUM		9/30/1993		12/8/2010
NFS0789		OR-NFS-CH-HOM-A	55-GAL DRUM		9/20/1993		12/8/2010
NFS0804		OR-NFS-CH-HOM-A	55-GAL DRUM		9/18/1993		12/8/2010
NFS0805		OR-NFS-CH-HOM-A	55-GAL DRUM		9/18/1993		12/8/2010
NFS0806		OR-NFS-CH-HOM-A	55-GAL DRUM		9/18/1993		12/8/2010
NFS0808		OR-NFS-CH-HOM-A	55-GAL DRUM		9/24/1993		12/8/2010
NFS0865		OR-NFS-CH-HOM-A	55-GAL DRUM		7/9/1993		12/8/2010
NFS0879		OR-NFS-CH-HOM-A	55-GAL DRUM		3/10/1994		12/8/2010
NFS0880		OR-NFS-CH-HOM-A	55-GAL DRUM		3/21/1994		12/8/2010
NFS0926		OR-NFS-CH-HOM-A	55-GAL DRUM		9/24/1993		12/8/2010
NFS0929		OR-NFS-CH-HOM-A	55-GAL DRUM		3/10/1994		12/8/2010
NFS0103		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0104		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0105		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0106		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0108		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0109		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0110		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0111		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0112		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0118		OR-NFS-CH-SOIL	55-GAL DRUM		8/18/1993		6/25/2008
NFS0119		OR-NFS-CH-SOIL	55-GAL DRUM		8/18/1993		6/25/2008
NFS0120		OR-NFS-CH-SOIL	55-GAL DRUM		8/18/1993		6/25/2008
NFS0121		OR-NFS-CH-SOIL	55-GAL DRUM		8/18/1993		6/25/2008
NFS0122		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008
NFS0123		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008
NFS0124		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008
NFS0125		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008
NFS0126		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0127		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008
NFS0128		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0129		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0130		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0131		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0132		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0133		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0134		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0135		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0136		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0137		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0138		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0139		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0140		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0141		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0142		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0143		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0144		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0145		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0146		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0147		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0152		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0153		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0154		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0155		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0156		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0157		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0158		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0159		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0160		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0161		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0162		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0163		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0164		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0165		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0166		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0167		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0168		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0169		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0170		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0171		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0172		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0173		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0174		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0175		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0176		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0177		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0178		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0179		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0180		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0181		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0183		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0184		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0185		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0186		OR-NFS-CH-SOIL	55-GAL DRUM		8/6/1993		6/25/2008
NFS0187		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0188		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0189		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0190		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0191		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0192		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0193		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0194		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0195		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0196		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0197		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0198		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0199		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0200		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0201		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0202		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0203		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0204		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0205		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0206		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0207		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0208		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0209		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0210		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0211		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0212		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0213		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0214		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0215		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0216		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0217		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0218		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0219		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0220		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0221		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0222		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0223		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0224		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0225		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0226		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0227		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0228		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0229		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0230		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0231		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0232		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0233		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0234		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0235		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0236		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0237		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0238		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0239		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0240		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0241		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0242		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0243		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0244		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0245		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0246		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0247		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0248		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0249		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0250		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0251		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0252		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0253		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0254		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0255		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0256		OR-NFS-CH-SOIL	55-GAL DRUM		7/23/1993		6/25/2008
NFS0257		OR-NFS-CH-SOIL	55-GAL DRUM		7/23/1993		6/25/2008
NFS0258		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0260		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0262		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0263		OR-NFS-CH-SOIL	55-GAL DRUM		7/23/1993		6/25/2008
NFS0264		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0265		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0266		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0267		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0268		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0269		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0270		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0271		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0272		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0273		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0274		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0275		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0276		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0277		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0278		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0279		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0280		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0281		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0282		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0283		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0284		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0285		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0286		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0287		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0288		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0289		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0290		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0291		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0292		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0293		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0294		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0295		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0296		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0297		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0298		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0299		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0300		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0301		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0302		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0303		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0304		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0305		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0306		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0307		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0308		OR-NFS-CH-SOIL	55-GAL DRUM		7/19/1993		6/25/2008
NFS0309		OR-NFS-CH-SOIL	55-GAL DRUM		7/19/1993		6/25/2008
NFS0310		OR-NFS-CH-SOIL	55-GAL DRUM		7/19/1993		6/25/2008
NFS0311		OR-NFS-CH-SOIL	55-GAL DRUM		7/17/1993		6/25/2008
NFS0312		OR-NFS-CH-SOIL	55-GAL DRUM		7/17/1993		6/25/2008
NFS0313		OR-NFS-CH-SOIL	55-GAL DRUM		7/17/1993		6/25/2008
NFS0314		OR-NFS-CH-SOIL	55-GAL DRUM		7/17/1993		6/25/2008
NFS0315		OR-NFS-CH-SOIL	55-GAL DRUM		7/17/1993		6/25/2008
NFS0316		OR-NFS-CH-SOIL	55-GAL DRUM		7/16/1993		6/25/2008
NFS0317		OR-NFS-CH-SOIL	55-GAL DRUM		7/16/1993		6/25/2008
NFS0318		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0319		OR-NFS-CH-SOIL	55-GAL DRUM		7/16/1993		6/25/2008
NFS0320		OR-NFS-CH-SOIL	55-GAL DRUM		7/16/1993		6/25/2008
NFS0321		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0322		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0323		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0324		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0325		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0326		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0327		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0329		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0330		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0331		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0332		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0333		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0334		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0335		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0336		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0337		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0338		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0339		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0340		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0341		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0342		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0343		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0344		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0345		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0346		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0347		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0348		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0349		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0350		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0438		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0439		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0440		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0441		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0442		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0443		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0444		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0445		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0446		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0447		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0449		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0451		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0452		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0453		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0454		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0455		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0456		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0457		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0458		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0459		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0460		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0461		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0463		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0464		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0465		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0466		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0467		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0468		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0469		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0471		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0472		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0473		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0474		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0475		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0476		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0477		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0483		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0484		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0485		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0486		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0487		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0488		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0489		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0490		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0491		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0492		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0493		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0494		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0495		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0496		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0497		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0498		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0499		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0500		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0517		OR-NFS-CH-SOIL	55-GAL DRUM		8/24/1993		6/25/2008
NFS0518		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0519		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0520		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0521		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0522		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0523		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0530		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0531		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0532		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0533		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0534		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0535		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0536		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0537		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0544		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0545		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0546		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0547		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0548		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0549		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0550		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0551		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0552		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0553		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0554		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0555		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0556		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0557		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0558		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0559		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0560		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0561		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0562		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0563		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0564		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0565		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0566		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0567		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0568		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0569		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0570		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0584		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0585		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0586		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0587		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0588		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0589		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0590		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0595		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0596		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0655		OR-NFS-CH-SOIL	55-GAL DRUM		9/2/1993		6/25/2008
NFS0656		OR-NFS-CH-SOIL	55-GAL DRUM		9/2/1993		6/25/2008
NFS0657		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0658		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0659		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0660		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0661		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0662		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0663		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0664		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0665		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0666		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0667		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0668		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0669		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0670		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0671		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0672		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0675		OR-NFS-CH-SOIL	55-GAL DRUM		9/4/1993		6/25/2008
NFS0676		OR-NFS-CH-SOIL	55-GAL DRUM		9/4/1993		6/25/2008
NFS0677		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0678		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0679		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0680		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0681		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0682		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0683		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0684		OR-NFS-CH-SOIL	55-GAL DRUM		9/6/1993		6/25/2008
NFS0685		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0686		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0687		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0688		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0689		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0690		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0691		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0692		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0693		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0694		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0695		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0696		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0697		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0698		OR-NFS-CH-SOIL	55-GAL DRUM		9/8/1993		6/25/2008
NFS0699		OR-NFS-CH-SOIL	55-GAL DRUM		9/8/1993		6/25/2008
NFS0700		OR-NFS-CH-SOIL	55-GAL DRUM		9/8/1993		6/25/2008
NFS0701		OR-NFS-CH-SOIL	55-GAL DRUM		9/8/1993		6/25/2008
NFS0702		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0703		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0704		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0705		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0706		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0707		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0708		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0709		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0710		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0711		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0712		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0713		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0714		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0715		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0716		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0717		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0718		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0719		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0720		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0721		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0722		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0723		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0724		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0725		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0726		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0727		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0728		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0729		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0730		OR-NFS-CH-SOIL	55-GAL DRUM		9/12/1993		6/25/2008
NFS0731		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0732		OR-NFS-CH-SOIL	55-GAL DRUM		9/12/1993		6/25/2008
NFS0733		OR-NFS-CH-SOIL	55-GAL DRUM		9/12/1993		6/25/2008
NFS0734		OR-NFS-CH-SOIL	55-GAL DRUM		9/12/1993		6/25/2008
NFS0735		OR-NFS-CH-SOIL	55-GAL DRUM		9/12/1993		6/25/2008
NFS0736		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0737		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0738		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0739		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0741		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0742		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0743		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0744		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0745		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0746		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0747		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0748		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0749		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0750		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0751		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0760		OR-NFS-CH-SOIL	55-GAL DRUM		9/17/1993		6/25/2008
NFS0761		OR-NFS-CH-SOIL	55-GAL DRUM		9/17/1993		6/25/2008
NFS0762		OR-NFS-CH-SOIL	55-GAL DRUM		9/17/1993		6/25/2008
NFS0763		OR-NFS-CH-SOIL	55-GAL DRUM		9/17/1993		6/25/2008
NFS0764		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0765		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0767		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0768		OR-NFS-CH-SOIL	55-GAL DRUM		9/17/1993		6/25/2008
NFS0769		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0770		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0771		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0772		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0773		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0774		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0775		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0778		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0779		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0780		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0781		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0782		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0790		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0791		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0792		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0794		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0795		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0796		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0797		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0798		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0799		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0800		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0801		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0802		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0803		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0809		OR-NFS-CH-SOIL	55-GAL DRUM		9/24/1993		6/25/2008
NFS0810		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0811		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0812		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0813		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0818		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0819		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0820		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0822		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0823		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0824		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0825		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0826		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0827		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0828		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0829		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0830		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0836		OR-NFS-CH-SOIL	55-GAL DRUM		9/28/1993		6/25/2008
NFS0837		OR-NFS-CH-SOIL	55-GAL DRUM		9/28/1993		6/25/2008
NFS0838		OR-NFS-CH-SOIL	55-GAL DRUM		9/28/1993		6/25/2008
NFS0841		OR-NFS-CH-SOIL	55-GAL DRUM		9/28/1993		6/25/2008
NFS0842		OR-NFS-CH-SOIL	55-GAL DRUM		9/28/1993		6/25/2008
NFS0844		OR-NFS-CH-SOIL	55-GAL DRUM		9/29/1993		6/25/2008
NFS0845		OR-NFS-CH-SOIL	55-GAL DRUM		9/29/1993		6/25/2008
NFS0846		OR-NFS-CH-SOIL	55-GAL DRUM		10/3/1993		6/25/2008
NFS0847		OR-NFS-CH-SOIL	55-GAL DRUM		10/4/1993		6/25/2008
NFS0848		OR-NFS-CH-SOIL	55-GAL DRUM		10/4/1993		6/25/2008
NFS0849		OR-NFS-CH-SOIL	55-GAL DRUM		10/4/1993		6/25/2008
NFS0850		OR-NFS-CH-SOIL	55-GAL DRUM		10/4/1993		6/25/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0851		OR-NFS-CH-SOIL	55-GAL DRUM		10/4/1993		6/25/2008
NFS0852		OR-NFS-CH-SOIL	55-GAL DRUM		10/7/1993		6/25/2008
NFS0862		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0866		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0867		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0923		OR-NFS-CH-SOIL	55-GAL DRUM		7/23/1993		6/25/2008
NFS0924		OR-NFS-CH-SOIL	55-GAL DRUM		7/23/1993		6/25/2008
NFS0925		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0930		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1994		6/25/2008
NFS0931		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1994		6/25/2008
X10C0506042		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506043		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506044		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506045		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506054		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506055		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506056		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506057		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506062		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506063		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506064		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506065		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506066		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506070		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506071		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506148A	X10C0506148	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/5/2008
X10C0506148B	X10C0506148	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/5/2008
X10C0506148C	X10C0506148	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/5/2008
X10C0506149B	X10C0506149	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/5/2008
X10C0506149C	X10C0506149	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/28/2008	9/5/2008
X10C0506149D	X10C0506149	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/28/2008	9/5/2008
X10C0506149E	X10C0506149	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/28/2008	9/5/2008
X10C0506150A	X10C0506150	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/30/2008	9/5/2008
X10C0506150B	X10C0506150	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/30/2008	9/5/2008
X10C0506150C	X10C0506150	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/30/2008	9/5/2008
X10C0506151B	X10C0506151	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/4/2008	9/5/2008
X10C0506151C	X10C0506151	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/5/2008
X10C0506151D	X10C0506151	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/4/2008	9/5/2008
X10C0506151E	X10C0506151	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/4/2008	9/5/2008
X10C0506152A	X10C0506152	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/5/2008
X10C0506152B	X10C0506152	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/5/2008
X10C0506152C	X10C0506152	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/5/2008
X10C0506152D	X10C0506152	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/5/2008
X10C0506154A	X10C0506154	OR-NFS-CH-SOIL	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154D	X10C0506154	OR-NFS-CH-SOIL	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154G	X10C0506154	OR-NFS-CH-SOIL	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154I	X10C0506154	OR-NFS-CH-SOIL	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154J	X10C0506154	OR-NFS-CH-SOIL	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506047		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		3/8/2010
NFS0815		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		7/7/2010

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Attachment 8 - Waste Containers List

Site(s):	Oak Ridge National Laboratory	
Waste Stream Number(s):	OR-NFS-CH-HET, OR-NFS-CH-HET-A, OR-NFS-CH-SOIL, OR-NFS-CH-HOM-A	
Waste Stream Description:	Heterogeneous debris waste, soil, and homogeneous solids from Nuclear Fuel Services, Inc.	
Number of Waste Containers in Waste Stream:	OR-NFS-CH-HET:	112 55-gallon drums
	OR-NFS-CH-HET-A:	733 55-gallon drums
	OR-NFS-CH-SOIL:	545 55-gallon drums
	OR-NFS-CH-HOM-A:	38 55-gallon drums
Total Existing Volume (m^3):	OR-NFS-CH-HET:	23.30 m3
	OR-NFS-CH-HET-A:	152.46 m3
	OR-NFS-CH-SOIL:	113.36 m3
	OR-NFS-CH-HOM-A:	7.90 m3
Is waste expected to be generated in the future?	Yes and No	
If yes, Estimated Future Volume (m^3):	Waste streams OR-NFS-CH-HET, OR-NFS-CH-HET-A, and OR-NFS-CH-HOM-A will not be generated in the future. However, the waste stream volume may increase due to repackaging at the TWPC. Waste stream OR-NFS-CH-SOIL will be generated in the future. NFS projects 4300 drums thru FY2018.	
Assumptions:	See AK Summary Report	
Acceptable Knowledge Expert:	Jeff Harrison (Print) / Jeff Harrison (Sign)	12/5/2013 (Date)

Waste Stream Container Evaluation Memo(s) for Added Containers: M076, M128, M129, M130, M131, M132, M133, M216

Container Identification Number	Generation Date	Generation Point
	N/A JP 12/14/13	
	See Attached Waste Containers List	
	N/A JP 12/14/13	

NTPC RECORDS ORIGINAL
DATE REC'D 1/3/14 SP

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0501101	X10C0506132	OR-NFS-CH-HET	55-GAL DRUM	BD	8/27/2002	12/22/2005	9/25/2007
X10C0501109	X10C0506017	OR-NFS-CH-HET	55-GAL DRUM	R	4/3/2003	2/22/2006	9/25/2007
X10C0501111	X10C0506035	OR-NFS-CH-HET	55-GAL DRUM	R	4/11/2001	2/23/2006	9/25/2007
X10C0501112	X10C0506029	OR-NFS-CH-HET	55-GAL DRUM	R	4/18/2001	2/24/2006	9/25/2007
X10C0501118	X10C0506155	OR-NFS-CH-HET	55-GAL DRUM	BD	7/29/2002	12/29/2005	9/25/2007
X10C0501121	X10C0506155	OR-NFS-CH-HET	55-GAL DRUM	BD	7/29/2002	12/30/2005	9/25/2007
X10C0501123	X10C0506155	OR-NFS-CH-HET	55-GAL DRUM	BD	7/29/2002	1/3/2006	9/25/2007
X10C0501129	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/4/2006	9/25/2007
X10C0501130	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/4/2006	9/25/2007
X10C0501132	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/5/2006	9/25/2007
X10C0501144	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/16/2006	9/25/2007
X10C0501146	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/16/2006	9/25/2007
X10C0501147	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/16/2006	9/25/2007
X10C0501148	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/16/2006	9/25/2007
X10C0501150	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/17/2006	9/25/2007
X10C0501151	X10C0506136	OR-NFS-CH-HET	55-GAL DRUM	BD	2/28/2003	1/17/2006	9/25/2007
X10C0501163	X10C0506133	OR-NFS-CH-HET	55-GAL DRUM	BD	6/12/2003	1/19/2006	9/25/2007
X10C0501173	X10C0506139	OR-NFS-CH-HET	55-GAL DRUM	BD	9/11/2003	1/23/2006	9/25/2007
X10C0501174	X10C0506139	OR-NFS-CH-HET	55-GAL DRUM	BD	9/11/2003	1/23/2006	9/25/2007
X10C0501179	X10C0506134	OR-NFS-CH-HET	55-GAL DRUM	BD	3/31/2003	1/25/2006	9/25/2007
X10C0501180	X10C0506134	OR-NFS-CH-HET	55-GAL DRUM	BD	3/31/2003	1/25/2006	9/25/2007
X10C0501187	X10C0506134	OR-NFS-CH-HET	55-GAL DRUM	BD	3/31/2003	1/25/2006	9/25/2007
X10C0501188	X10C0506134	OR-NFS-CH-HET	55-GAL DRUM	BD	3/31/2003	1/25/2006	9/25/2007
X10C0501189	X10C0506134	OR-NFS-CH-HET	55-GAL DRUM	BD	3/31/2003	1/26/2006	9/25/2007
X10C0501192	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501193	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501194	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501196	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501197	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501199	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501200	X10C0506128	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501208	X10C0506127	OR-NFS-CH-HET	55-GAL DRUM	BD	3/25/2002	1/30/2006	9/25/2007
X10C0501223	X10C0506137	OR-NFS-CH-HET	55-GAL DRUM	BD	?	2/2/2006	9/25/2007
X10C0501229	X10C0506137	OR-NFS-CH-HET	55-GAL DRUM	BD	?	2/2/2006	9/25/2007
X10C0501241	X10C0506135	OR-NFS-CH-HET	55-GAL DRUM	BD	3/28/2003	2/6/2006	9/25/2007
X10C0501242	X10C0506135	OR-NFS-CH-HET	55-GAL DRUM	BD	3/28/2003	2/6/2006	9/25/2007
X10C0501253	X10C0506131	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	2/9/2006	9/25/2007
X10C0501263	X10C0505997	OR-NFS-CH-HET	55-GAL DRUM	R	7/24/2001	2/27/2006	9/25/2007
X10C0501266	X10C0506013	OR-NFS-CH-HET	55-GAL DRUM	R	10/15/2002	2/27/2006	9/25/2007
X10C0501267	X10C0505978	OR-NFS-CH-HET	55-GAL DRUM	R	6/11/2003	2/27/2006	9/25/2007
X10C0501269	X10C0506018	OR-NFS-CH-HET	55-GAL DRUM	R	8/1/2001	2/28/2006	9/25/2007
X10C0501270	X10C0506019	OR-NFS-CH-HET	55-GAL DRUM	R	8/1/2001	2/28/2006	9/25/2007
X10C0501271	X10C0506021	OR-NFS-CH-HET	55-GAL DRUM	R	8/1/2001	2/28/2006	9/25/2007
X10C0501272	X10C0506039	OR-NFS-CH-HET	55-GAL DRUM	R	8/1/2001	2/28/2006	9/25/2007
X10C0501273	X10C0506032	OR-NFS-CH-HET	55-GAL DRUM	R	4/17/2001	3/1/2006	9/25/2007
X10C0501274	X10C0506031	OR-NFS-CH-HET	55-GAL DRUM	R	4/18/2001	3/1/2006	9/25/2007
X10C0501278	X10C0506037	OR-NFS-CH-HET	55-GAL DRUM	R	5/14/2001	3/1/2006	9/25/2007
X10C0501279	X10C0506041	OR-NFS-CH-HET	55-GAL DRUM	R	10/3/2001	3/2/2006	9/25/2007
X10C0501281	X10C0505994	OR-NFS-CH-HET	55-GAL DRUM	R	?	3/2/2006	9/25/2007
X10C0501282	X10C0506005	OR-NFS-CH-HET	55-GAL DRUM	R	7/26/2001	3/2/2006	9/25/2007
X10C0501283	X10C0506026	OR-NFS-CH-HET	55-GAL DRUM	R	7/30/2001	3/3/2006	9/25/2007
X10C0501289	X10C0505982	OR-NFS-CH-HET	55-GAL DRUM	R	10/3/2001	3/5/2006	9/25/2007
X10C0501290	X10C0505961	OR-NFS-CH-HET	55-GAL DRUM	R	5/31/2001	3/6/2006	9/25/2007

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0501293	X10C0506007	OR-NFS-CH-HET	55-GAL DRUM	R	7/10/2001	3/6/2006	9/25/2007
X10C0501295	X10C0506122	OR-NFS-CH-HET	55-GAL DRUM	R	2/24/2003	3/6/2006	9/25/2007
X10C0501306	X10C0506008	OR-NFS-CH-HET	55-GAL DRUM	R	10/17/2001	3/7/2006	9/25/2007
X10C0501308	X10C0506073	OR-NFS-CH-HET	55-GAL DRUM	R	2/12/2003	3/7/2006	9/25/2007
X10C0501310	X10C0506060	OR-NFS-CH-HET	55-GAL DRUM	R	4/23/2001	3/8/2006	9/25/2007
X10C0501326	X10C0506072	OR-NFS-CH-HET	55-GAL DRUM	R	5/9/2001	4/17/2006	9/25/2007
X10C0501327	X10C0506058	OR-NFS-CH-HET	55-GAL DRUM	R	6/22/2001	3/20/2006	9/25/2007
X10C0501329	X10C0505964	OR-NFS-CH-HET	55-GAL DRUM	R	1/17/2002	4/13/2006	9/25/2007
X10C0501331	X10C0506130	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	3/22/2006	9/25/2007
X10C0501336	X10C0506130	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	3/22/2006	9/25/2007
X10C0501338	X10C0506130	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	3/22/2006	9/25/2007
X10C0501350	X10C0506129	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	3/29/2006	9/25/2007
X10C0501351	X10C0506129	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	3/29/2006	9/25/2007
X10C0501356	X10C0506126	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	3/30/2006	9/25/2007
X10C0501359	X10C0506126	OR-NFS-CH-HET	55-GAL DRUM	BD	9/27/2002	3/30/2006	9/25/2007
X10C0501360	X10C0506129	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	4/3/2006	9/25/2007
X10C0501363	X10C0506129	OR-NFS-CH-HET	55-GAL DRUM	BD	5/21/2003	4/3/2006	9/25/2007
X10C0501366	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	4/4/2006	9/25/2007
X10C0501367	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	4/4/2006	9/25/2007
X10C0501368	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	4/4/2006	9/25/2007
X10C0501369	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	4/6/2006	9/25/2007
X10C0501370	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	4/6/2006	9/25/2007
X10C0501371A	X10C0506145	OR-NFS-CH-HET	55-GAL DRUM	BD	8/5/2002	11/26/2007	9/25/2007
X10C0501377	X10C0506144	OR-NFS-CH-HET	55-GAL DRUM	BD	5/20/2003	4/10/2006	9/25/2007
X10C0501378	X10C0506144	OR-NFS-CH-HET	55-GAL DRUM	BD	5/20/2003	4/10/2006	9/25/2007
X10C0501379	X10C0506144	OR-NFS-CH-HET	55-GAL DRUM	BD	5/20/2003	4/10/2006	9/25/2007
X10C0501381	X10C0506144	OR-NFS-CH-HET	55-GAL DRUM	BD	5/20/2003	4/10/2006	9/25/2007
X10C0501382	X10C0506144	OR-NFS-CH-HET	55-GAL DRUM	BD	5/20/2003	4/10/2006	9/25/2007
X10C0501391	X10C0506050	OR-NFS-CH-HET	55-GAL DRUM	R	6/6/2001	4/13/2006	9/25/2007
X10C0501392	X10C0506068	OR-NFS-CH-HET	55-GAL DRUM	R	5/9/2001	4/13/2006	9/25/2007
X10C0501393	X10C0506049	OR-NFS-CH-HET	55-GAL DRUM	R	6/28/2001	4/13/2006	9/25/2007
X10C0501394	X10C0506046	OR-NFS-CH-HET	55-GAL DRUM	R	6/28/2001	4/17/2006	9/25/2007
X10C0501395	X10C0506067	OR-NFS-CH-HET	55-GAL DRUM	R	5/14/2001	4/18/2006	9/25/2007
X10C0501396	X10C0506061	OR-NFS-CH-HET	55-GAL DRUM	R	7/2/2001	4/18/2006	9/25/2007
X10C0501397	X10C0505984	OR-NFS-CH-HET	55-GAL DRUM	R	12/7/2001	4/18/2006	9/25/2007
X10C0501398	X10C0505988	OR-NFS-CH-HET	55-GAL DRUM	R	12/1/2001	4/18/2006	9/25/2007
X10C0501399	X10C0505992	OR-NFS-CH-HET	55-GAL DRUM	R	11/19/2001	4/18/2006	9/25/2007
X10C0501400	X10C0505987	OR-NFS-CH-HET	55-GAL DRUM	R	12/1/2001	4/18/2006	9/25/2007
X10C0501401	X10C0505972	OR-NFS-CH-HET	55-GAL DRUM	R	9/17/2001	4/19/2006	9/25/2007
X10C0501402	X10C0505975	OR-NFS-CH-HET	55-GAL DRUM	R	7/26/2001	4/19/2006	9/25/2007
X10C0501403A	X10C0505963	OR-NFS-CH-HET	55-GAL DRUM	R	7/20/2001	3/13/2008	9/25/2007
X10C0501404	X10C0505971	OR-NFS-CH-HET	55-GAL DRUM	R	7/26/2001	4/19/2006	9/25/2007
X10C0501405	X10C0506074	OR-NFS-CH-HET	55-GAL DRUM	R	7/2/2001	4/20/2006	9/25/2007
X10C0501406	X10C0506083	OR-NFS-CH-HET	55-GAL DRUM	R	2/24/2003	5/1/2006	9/25/2007
X10C0501407	X10C0506053	OR-NFS-CH-HET	55-GAL DRUM	R	7/26/2001	5/1/2006	9/25/2007
X10C0501408	X10C0506051	OR-NFS-CH-HET	55-GAL DRUM	R	6/12/2001	4/20/2006	9/25/2007
X10C0501409	X10C0506075	OR-NFS-CH-HET	55-GAL DRUM	R	7/20/2001	5/1/2006	9/25/2007
X10C0505966		OR-NFS-CH-HET	55-GAL DRUM		9/26/2001		9/25/2007
X10C0505968		OR-NFS-CH-HET	55-GAL DRUM		5/14/2001		9/25/2007
X10C0505977		OR-NFS-CH-HET	55-GAL DRUM		7/30/2001		9/25/2007
X10C0505985		OR-NFS-CH-HET	55-GAL DRUM		1/10/2002		9/25/2007
X10C0505990		OR-NFS-CH-HET	55-GAL DRUM		5/16/2001		9/25/2007
X10C0505991		OR-NFS-CH-HET	55-GAL DRUM		6/22/2001		9/25/2007

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0505998A	X10C0505998	OR-NFS-CH-HET	55-GAL DRUM		7/9/2001	3/17/2008	9/25/2007
X10C0505999		OR-NFS-CH-HET	55-GAL DRUM		7/9/2001		9/25/2007
X10C0506001		OR-NFS-CH-HET	55-GAL DRUM		7/9/2001		9/25/2007
X10C0506022A	X10C0506022	OR-NFS-CH-HET	55-GAL DRUM	R	5/9/2001	5/22/2007	9/25/2007
X10C0506048		OR-NFS-CH-HET	55-GAL DRUM		9/26/2001		9/25/2007
X10C0506080		OR-NFS-CH-HET	55-GAL DRUM		7/26/2001		9/25/2007
X10C0501120	X10C0506155	OR-NFS-CH-HET-A	55-GAL DRUM	BD	7/29/2002	1/3/2006	9/25/2007
X10C0501134	X10C0506136	OR-NFS-CH-HET-A	55-GAL DRUM	BD	2/28/2003	1/5/2006	9/25/2007
X10C0501181	X10C0506134	OR-NFS-CH-HET-A	55-GAL DRUM	BD	3/31/2003	1/25/2006	9/25/2007
X10C0501191	X10C0506128	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2002	1/26/2006	9/25/2007
X10C0501210	X10C0506127	OR-NFS-CH-HET-A	55-GAL DRUM	BD	3/25/2002	1/30/2006	9/25/2007
X10C0501230	X10C0506137	OR-NFS-CH-HET-A	55-GAL DRUM	BD	?	2/2/2006	9/25/2007
X10C0501236	X10C0506130	OR-NFS-CH-HET-A	55-GAL DRUM	BD	5/21/2003	2/3/2006	9/25/2007
X10C0501244	X10C0506135	OR-NFS-CH-HET-A	55-GAL DRUM	BD	3/28/2003	2/6/2006	9/25/2007
X10C0501264	X10C0506030	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/26/2001	2/27/2006	9/25/2007
X10C0501276	X10C0506036	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/14/2001	3/1/2006	9/25/2007
X10C0501277	X10C0506015	OR-NFS-CH-HET-A	55-GAL DRUM	R	6/11/2003	3/1/2006	9/25/2007
X10C0501280	X10C0505980	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/3/2001	3/2/2006	9/25/2007
X10C0501285	X10C0506038	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/25/2001	3/3/2006	9/25/2007
X10C0501287	X10C0505960	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/30/2001	3/5/2006	9/25/2007
X10C0501288	X10C0505981	OR-NFS-CH-HET-A	55-GAL DRUM	R	6/11/2003	3/5/2006	9/25/2007
X10C0501291	X10C0505953	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/16/2001	3/6/2006	9/25/2007
X10C0501292	X10C0506125	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/9/2002	3/6/2006	9/25/2007
X10C0501294	X10C0506006	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/3/2001	3/6/2006	9/25/2007
X10C0501410	X10C0506076	OR-NFS-CH-HET-A	55-GAL DRUM	R	6/22/2001	5/1/2006	9/25/2007
X10C0505962		OR-NFS-CH-HET-A	55-GAL DRUM		10/23/2001		9/25/2007
X10C0505969		OR-NFS-CH-HET-A	55-GAL DRUM		9/17/2001		9/25/2007
X10C0505970		OR-NFS-CH-HET-A	55-GAL DRUM		7/26/2001		9/25/2007
X10C0505973		OR-NFS-CH-HET-A	55-GAL DRUM		12/1/2001		9/25/2007
X10C0505976		OR-NFS-CH-HET-A	55-GAL DRUM		9/17/2001		9/25/2007
X10C0505989		OR-NFS-CH-HET-A	55-GAL DRUM		12/1/2001		9/25/2007
X10C0505993		OR-NFS-CH-HET-A	55-GAL DRUM		7/30/2001		9/25/2007
X10C0506000		OR-NFS-CH-HET-A	55-GAL DRUM		7/9/2001		9/25/2007
X10C0506059		OR-NFS-CH-HET-A	55-GAL DRUM		7/20/2001		9/25/2007
X10C0506077		OR-NFS-CH-HET-A	55-GAL DRUM		8/30/2001		9/25/2007
X10C0506079		OR-NFS-CH-HET-A	55-GAL DRUM		7/9/2001		9/25/2007
X10C0506081		OR-NFS-CH-HET-A	55-GAL DRUM		9/6/2001		9/25/2007
X10C0506082		OR-NFS-CH-HET-A	55-GAL DRUM		10/17/2001		9/25/2007
NFS0113		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0114		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0115		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0116		OR-NFS-CH-HET-A	55-GAL DRUM		5/20/1994		11/30/2007
NFS0117		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0354		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0357		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0358		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0359		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0361		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0368		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0369		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0370		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0371		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0372		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0373		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0374		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0375		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0376		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0377		OR-NFS-CH-HET-A	55-GAL DRUM		12/11/1993		11/30/2007
NFS0378		OR-NFS-CH-HET-A	55-GAL DRUM		12/11/1993		11/30/2007
NFS0379		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0380		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0381		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0382		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0383		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0384		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0385		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0386		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0387		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0388		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0389		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0390		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0391		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0392		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0393		OR-NFS-CH-HET-A	55-GAL DRUM		10/28/1993		11/30/2007
NFS0394		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0395		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0396		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0397		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0398		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0399		OR-NFS-CH-HET-A	55-GAL DRUM		11/1/1993		11/30/2007
NFS0400		OR-NFS-CH-HET-A	55-GAL DRUM		12/11/1993		11/30/2007
NFS0401		OR-NFS-CH-HET-A	55-GAL DRUM		12/11/1993		11/30/2007
NFS0402		OR-NFS-CH-HET-A	55-GAL DRUM		12/11/1993		11/30/2007
NFS0403		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0404		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0405		OR-NFS-CH-HET-A	55-GAL DRUM		11/8/1993		11/30/2007
NFS0406		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0407		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0408		OR-NFS-CH-HET-A	55-GAL DRUM		3/29/1994		11/30/2007
NFS0409		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0410		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0411		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0412		OR-NFS-CH-HET-A	55-GAL DRUM		3/29/1994		11/30/2007
NFS0413		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0414		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0415		OR-NFS-CH-HET-A	55-GAL DRUM		3/29/1994		11/30/2007
NFS0416		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0417		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0418		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0419		OR-NFS-CH-HET-A	55-GAL DRUM		3/30/1994		11/30/2007
NFS0420		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0421		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0422		OR-NFS-CH-HET-A	55-GAL DRUM		3/30/1994		11/30/2007
NFS0423		OR-NFS-CH-HET-A	55-GAL DRUM		3/31/1994		11/30/2007
NFS0425		OR-NFS-CH-HET-A	55-GAL DRUM		3/31/1994		11/30/2007
NFS0426		OR-NFS-CH-HET-A	55-GAL DRUM		3/31/1994		11/30/2007

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0427		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0428		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0429		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0430		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0431		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0432		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0433		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0434		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0435		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0436		OR-NFS-CH-HET-A	55-GAL DRUM		1/5/1994		11/30/2007
NFS0437		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0501		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0502		OR-NFS-CH-HET-A	55-GAL DRUM		8/31/1993		11/30/2007
NFS0503		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0504		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0505		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0509		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0510		OR-NFS-CH-HET-A	55-GAL DRUM		8/22/1993		11/30/2007
NFS0511		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0512		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0513		OR-NFS-CH-HET-A	55-GAL DRUM		9/7/1993		11/30/2007
NFS0514		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0515		OR-NFS-CH-HET-A	55-GAL DRUM		8/22/1993		11/30/2007
NFS0516		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0524		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0525		OR-NFS-CH-HET-A	55-GAL DRUM		8/25/1993		11/30/2007
NFS0526		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0527		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0528		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0529		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0538		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0539		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0540		OR-NFS-CH-HET-A	55-GAL DRUM		5/26/1994		11/30/2007
NFS0541		OR-NFS-CH-HET-A	55-GAL DRUM		3/25/1994		11/30/2007
NFS0542		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
NFS0543		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0571		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0572		OR-NFS-CH-HET-A	55-GAL DRUM		9/30/1993		11/30/2007
NFS0573		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0574		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0575		OR-NFS-CH-HET-A	55-GAL DRUM		9/30/1993		11/30/2007
NFS0576		OR-NFS-CH-HET-A	55-GAL DRUM		9/30/1993		11/30/2007
NFS0577		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0578		OR-NFS-CH-HET-A	55-GAL DRUM		9/30/1993		11/30/2007
NFS0579		OR-NFS-CH-HET-A	55-GAL DRUM		9/30/1993		11/30/2007
NFS0580		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0581		OR-NFS-CH-HET-A	55-GAL DRUM		5/18/1994		11/30/2007
NFS0582		OR-NFS-CH-HET-A	55-GAL DRUM		10/7/1993		11/30/2007
NFS0583		OR-NFS-CH-HET-A	55-GAL DRUM		9/14/1993		11/30/2007
NFS0756		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0783		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0784		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0785		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0831		OR-NFS-CH-HET-A	55-GAL DRUM		1/8/1994		11/30/2007
NFS0832		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0833		OR-NFS-CH-HET-A	55-GAL DRUM		11/10/1993		11/30/2007
NFS0834		OR-NFS-CH-HET-A	55-GAL DRUM		5/26/1994		11/30/2007
NFS0835		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0920		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0921		OR-NFS-CH-HET-A	55-GAL DRUM		5/27/1994		11/30/2007
NFS0922		OR-NFS-CH-HET-A	55-GAL DRUM		12/6/1993		11/30/2007
NFS0928		OR-NFS-CH-HET-A	55-GAL DRUM		5/21/1994		11/30/2007
X10C0506143B	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143C	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143D	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143E	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143F	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143G	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143H	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143I	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143J	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143K	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143L	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143M	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143N	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/4/2007	4/30/2008
X10C0506143S	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/5/2007	4/30/2008
X10C0506143T	X10C0506143	OR-NFS-CH-HET-A	55-GAL DRUM	BD	8/6/2002	12/5/2007	4/30/2008
X10C0506153A	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/29/2008	4/30/2008
X10C0506153B	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/30/2008	4/30/2008
X10C0506153C	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/30/2008	4/30/2008
X10C0506153D	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/30/2008	4/30/2008
X10C0506153E	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/30/2008	4/30/2008
X10C0506153F	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/30/2008	4/30/2008
X10C0506153G	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/31/2008	4/30/2008
X10C0506153H	X10C0506153	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	1/31/2008	4/30/2008
X10C0506069		OR-NFS-CH-HET-A	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506148D	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/8/2008
X10C0506148E	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/8/2008
X10C0506148F	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/8/2008
X10C0506148G	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/8/2008
X10C0506148H	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/8/2008
X10C0506149A	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/23/2008	9/8/2008
X10C0506149F	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149G	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149H	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149I	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149J	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149K	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506149L	X10C0506149	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/29/2008	9/8/2008
X10C0506150D	X10C0506150	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/31/2008	9/8/2008
X10C0506150E	X10C0506150	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/31/2008	9/8/2008
X10C0506150F	X10C0506150	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/31/2008	9/8/2008
X10C0506150G	X10C0506150	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/31/2008	9/8/2008
X10C0506150H	X10C0506150	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/31/2008	9/8/2008
X10C0506151A	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/4/2008	9/8/2008
X10C0506151F	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0506151G	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008
X10C0506151H	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008
X10C0506151I	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008
X10C0506151J	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008
X10C0506151K	X10C0506151	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/8/2008
X10C0506152E	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506152F	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506152G	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506152H	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506152I	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506152J	X10C0506152	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/8/2008
X10C0506148I	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506148J	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506148K	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506148L	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506148M	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506148N	X10C0506148	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/27/2005	7/22/2008	9/15/2008
X10C0506154AA	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154B	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154BB	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154C	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154CC	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154DD	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154E	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154F	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154H	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154K	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154L	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154M	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154N	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154O	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154P	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154Q	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154R	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154S	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154T	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154U	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154V	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154W	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154X	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154Y	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
X10C0506154Z	X10C0506154	OR-NFS-CH-HET-A	55-GAL DRUM	BD	12/12/2001	2/6/2008	9/24/2008
NFS0821		OR-NFS-CH-HET-A	55-GAL DRUM		9/25/1993		1/8/2009
NFS0839		OR-NFS-CH-HET-A	55-GAL DRUM		9/28/1993		1/8/2009
NFS0840		OR-NFS-CH-HET-A	55-GAL DRUM		9/24/1993		1/8/2009
NFS0927		OR-NFS-CH-HET-A	55-GAL DRUM		9/25/1993		1/8/2009
X10C0506140A	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/9/2010	4/19/2010
X10C0506140B	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/12/2010	4/19/2010
X10C0506140C	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/12/2010	4/19/2010
X10C0506140D	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/13/2010	4/19/2010
X10C0506140E	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/13/2010	4/19/2010
X10C0506140F	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/13/2010	4/19/2010
X10C0506140G	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/13/2010	4/19/2010

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0506140H	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/13/2010	4/19/2010
X10C0506140I	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140J	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140K	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140L	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140M	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140N	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140O	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140P	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140Q	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140R	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140S	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506140T	X10C0506140	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/14/2010	4/19/2010
X10C0506138A	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/14/2010	4/22/2010
X10C0506138B	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/14/2010	4/22/2010
X10C0506138C	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/15/2010	4/22/2010
X10C0506138D	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/15/2010	4/22/2010
X10C0506138E	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/15/2010	4/22/2010
X10C0506138F	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/15/2010	4/22/2010
X10C0506138G	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138H	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138I	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138J	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138K	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138L	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138M	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138N	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/19/2010	4/22/2010
X10C0506138O	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138P	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138Q	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138R	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138S	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138T	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138U	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506138V	X10C0506138	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/25/2002	4/20/2010	4/22/2010
X10C0506141A	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/21/2010	4/29/2010
X10C0506141B	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/21/2010	4/29/2010
X10C0506141C	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141D	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141E	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141F	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141G	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141H	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141I	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141J	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141K	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141L	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141M	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141N	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141O	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/22/2010	4/29/2010
X10C0506141P	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/23/2010	4/29/2010
X10C0506141Q	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141R	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
X10C0506141S	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141T	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141U	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141V	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141W	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141X	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141Y	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506141Z	X10C0506141	OR-NFS-CH-HET-A	55-GAL DRUM	BD	10/1/2002	4/26/2010	4/29/2010
X10C0506142A	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/27/2010	5/12/2010
X10C0506142B	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/27/2010	5/12/2010
X10C0506142C	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/27/2010	5/12/2010
X10C0506142D	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142E	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142F	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142G	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142H	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142I	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142J	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142K	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142L	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142M	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142N	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142O	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142P	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142Q	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142R	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142S	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142T	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
X10C0506142U	X10C0506142	OR-NFS-CH-HET-A	55-GAL DRUM	BD	9/23/2005	4/28/2010	5/12/2010
NFS0355		OR-NFS-CH-HET-A	55-GAL DRUM		1/22/1993		9/16/2010
NFS0075A	NFS0075	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/22/2013	10/7/2013
NFS0075B	NFS0075	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/22/2013	10/7/2013
NFS0075C	NFS0075	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/22/2013	10/7/2013
NFS0076A	NFS0076	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/14/2013	10/7/2013
NFS0076B	NFS0076	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/14/2013	10/7/2013
NFS0076C	NFS0076	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/14/2013	10/7/2013
NFS0077A	NFS0077	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/24/2013	10/7/2013
NFS0077B	NFS0077	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/24/2013	10/7/2013
NFS0077C	NFS0077	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/24/2013	10/7/2013
NFS0078A	NFS0078	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/15/2013	10/7/2013
NFS0078B	NFS0078	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/15/2013	10/7/2013
NFS0078C	NFS0078	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	5/15/2013	10/7/2013
NFS0079A	NFS0079	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/29/2013	10/7/2013
NFS0079B	NFS0079	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/29/2013	10/7/2013
NFS0079C	NFS0079	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/8/1993	4/29/2013	10/7/2013
NFS0083A	NFS0083	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/26/2013	10/7/2013
NFS0083B	NFS0083	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/26/2013	10/7/2013
NFS0083C	NFS0083	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/26/2013	10/7/2013
NFS0084A	NFS0084	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013
NFS0084B	NFS0084	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013
NFS0084C	NFS0084	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013
NFS0085A	NFS0085	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013
NFS0085B	NFS0085	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0085C	NFS0085	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	2/28/2013	10/7/2013
NFS0086A	NFS0086	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	3/1/2013	10/7/2013
NFS0086B	NFS0086	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	3/1/2013	10/7/2013
NFS0086C	NFS0086	OR-NFS-CH-HET-A	55-GAL DRUM	R	7/13/1993	3/1/2013	10/7/2013
NFS0087A	NFS0087	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/24/2013	10/7/2013
NFS0087B	NFS0087	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/24/2013	10/7/2013
NFS0087C	NFS0087	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/24/2013	10/7/2013
NFS0088A	NFS0088	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/25/2013	10/7/2013
NFS0088B	NFS0088	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/25/2013	10/7/2013
NFS0088C	NFS0088	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	4/25/2013	10/7/2013
NFS0089A	NFS0089	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0089B	NFS0089	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0089C	NFS0089	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0090A	NFS0090	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0090B	NFS0090	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0090C	NFS0090	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/9/1993	5/13/2013	10/7/2013
NFS0091A	NFS0091	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0091B	NFS0091	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0091C	NFS0091	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0092A	NFS0092	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/14/2013	10/7/2013
NFS0092B	NFS0092	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/14/2013	10/7/2013
NFS0092C	NFS0092	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/14/2013	10/7/2013
NFS0093A	NFS0093	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0093B	NFS0093	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0093C	NFS0093	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/17/2013	10/7/2013
NFS0094A	NFS0094	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/18/2013	10/7/2013
NFS0094B	NFS0094	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/18/2013	10/7/2013
NFS0094C	NFS0094	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/18/2013	10/7/2013
NFS0095A	NFS0095	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/8/2013	10/7/2013
NFS0095B	NFS0095	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/8/2013	10/7/2013
NFS0095C	NFS0095	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	5/8/2013	10/7/2013
NFS0096A	NFS0096	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/16/2013	10/7/2013
NFS0096B	NFS0096	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/16/2013	10/7/2013
NFS0096C	NFS0096	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/16/2013	10/7/2013
NFS0097A	NFS0097	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/25/2013	10/7/2013
NFS0097B	NFS0097	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/25/2013	10/7/2013
NFS0097C	NFS0097	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/25/2013	10/7/2013
NFS0098A	NFS0098	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/24/2013	10/7/2013
NFS0098B	NFS0098	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/24/2013	10/7/2013
NFS0098C	NFS0098	OR-NFS-CH-HET-A	55-GAL DRUM	R	8/18/1993	4/24/2013	10/7/2013
NFS0099A	NFS0099	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0099B	NFS0099	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0099C	NFS0099	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0100A	NFS0100	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/27/2013	10/7/2013
NFS0100B	NFS0100	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/27/2013	10/7/2013
NFS0100C	NFS0100	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/27/2013	10/7/2013
NFS0101A	NFS0101	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0101B	NFS0101	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0101C	NFS0101	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/9/1994	2/27/2013	10/7/2013
NFS0102A	NFS0102	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/28/2013	10/7/2013
NFS0102B	NFS0102	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/28/2013	10/7/2013
NFS0102C	NFS0102	OR-NFS-CH-HET-A	55-GAL DRUM	R	1/8/1994	2/28/2013	10/7/2013
NFS0597A	NFS0597	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	3/4/2013	10/7/2013

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0597B	NFS0597	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	3/4/2013	10/7/2013
NFS0597C	NFS0597	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	3/4/2013	10/7/2013
NFS0598A	NFS0598	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0598B	NFS0598	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0598C	NFS0598	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0599A	NFS0599	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	2/26/2013	10/7/2013
NFS0599B	NFS0599	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	2/26/2013	10/7/2013
NFS0599C	NFS0599	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	2/26/2013	10/7/2013
NFS0600A	NFS0600	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/20/2013	10/7/2013
NFS0600B	NFS0600	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/20/2013	10/7/2013
NFS0600C	NFS0600	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/20/2013	10/7/2013
NFS0601A	NFS0601	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/15/2013	10/7/2013
NFS0601B	NFS0601	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/15/2013	10/7/2013
NFS0601C	NFS0601	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/15/2013	10/7/2013
NFS0602A	NFS0602	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/3/2013	10/7/2013
NFS0602B	NFS0602	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/3/2013	10/7/2013
NFS0602C	NFS0602	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/3/2013	10/7/2013
NFS0603A	NFS0603	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0603B	NFS0603	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0603C	NFS0603	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/14/2013	10/7/2013
NFS0604A	NFS0604	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/1/2013	10/7/2013
NFS0604B	NFS0604	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/1/2013	10/7/2013
NFS0604C	NFS0604	OR-NFS-CH-HET-A	55-GAL DRUM	R	12/2/1993	5/1/2013	10/7/2013
NFS0605A	NFS0605	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/27/2012	10/7/2013
NFS0605B	NFS0605	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/27/2012	10/7/2013
NFS0605C	NFS0605	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/27/2012	10/7/2013
NFS0606A	NFS0606	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/29/2012	10/7/2013
NFS0606B	NFS0606	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/29/2012	10/7/2013
NFS0606C	NFS0606	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/29/2012	10/7/2013
NFS0607A	NFS0607	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	4/24/2013	10/7/2013
NFS0607B	NFS0607	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	4/24/2013	10/7/2013
NFS0607C	NFS0607	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	4/24/2013	10/7/2013
NFS0608A	NFS0608	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/26/2013	10/7/2013
NFS0608B	NFS0608	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/26/2013	10/7/2013
NFS0608C	NFS0608	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/26/2013	10/7/2013
NFS0609A	NFS0609	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/7/2013	10/7/2013
NFS0609B	NFS0609	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/7/2013	10/7/2013
NFS0609C	NFS0609	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/7/2013	10/7/2013
NFS0610A	NFS0610	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/28/2012	10/7/2013
NFS0610B	NFS0610	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/28/2012	10/7/2013
NFS0610C	NFS0610	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	2/28/2012	10/7/2013
NFS0611A	NFS0611	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/9/2013	10/7/2013
NFS0611B	NFS0611	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/9/2013	10/7/2013
NFS0611C	NFS0611	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/9/2013	10/7/2013
NFS0612A	NFS0612	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/13/2013	10/7/2013
NFS0612B	NFS0612	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/13/2013	10/7/2013
NFS0612C	NFS0612	OR-NFS-CH-HET-A	55-GAL DRUM	R	9/27/1993	5/13/2013	10/7/2013
NFS0613A	NFS0613	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013
NFS0613B	NFS0613	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013
NFS0613C	NFS0613	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013
NFS0614A	NFS0614	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013
NFS0614B	NFS0614	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013
NFS0614C	NFS0614	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/25/2013	10/7/2013

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0615A	NFS0615	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/8/2013	10/7/2013
NFS0615B	NFS0615	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/8/2013	10/7/2013
NFS0615C	NFS0615	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/8/2013	10/7/2013
NFS0616A	NFS0616	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/24/2013	10/7/2013
NFS0616B	NFS0616	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/24/2013	10/7/2013
NFS0616C	NFS0616	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/24/2013	10/7/2013
NFS0617A	NFS0617	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/23/2013	10/7/2013
NFS0617B	NFS0617	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/23/2013	10/7/2013
NFS0617C	NFS0617	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/23/2013	10/7/2013
NFS0618A	NFS0618	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/30/2013	10/7/2013
NFS0618B	NFS0618	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/30/2013	10/7/2013
NFS0618C	NFS0618	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/30/2013	10/7/2013
NFS0619A	NFS0619	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/7/2013	10/7/2013
NFS0619B	NFS0619	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/7/2013	10/7/2013
NFS0619C	NFS0619	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/7/2013	10/7/2013
NFS0620A	NFS0620	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/15/2013	10/7/2013
NFS0620B	NFS0620	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/15/2013	10/7/2013
NFS0620C	NFS0620	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	4/15/2013	10/7/2013
NFS0621A	NFS0621	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0621B	NFS0621	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0621C	NFS0621	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0622A	NFS0622	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/7/2013	10/7/2013
NFS0622B	NFS0622	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/7/2013	10/7/2013
NFS0622C	NFS0622	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/7/2013	10/7/2013
NFS0623A	NFS0623	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/5/2013	10/7/2013
NFS0623B	NFS0623	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/5/2013	10/7/2013
NFS0623C	NFS0623	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	3/5/2013	10/7/2013
NFS0624A	NFS0624	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0624B	NFS0624	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0624C	NFS0624	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	2/26/2013	10/7/2013
NFS0625A	NFS0625	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/16/2013	10/7/2013
NFS0625B	NFS0625	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/16/2013	10/7/2013
NFS0625C	NFS0625	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/13/1993	5/16/2013	10/7/2013
NFS0626A	NFS0626	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013
NFS0626B	NFS0626	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013
NFS0626C	NFS0626	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013
NFS0627A	NFS0627	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0627B	NFS0627	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0627C	NFS0627	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0628A	NFS0628	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/16/2013	10/7/2013
NFS0628B	NFS0628	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/16/2013	10/7/2013
NFS0628C	NFS0628	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/16/2013	10/7/2013
NFS0629A	NFS0629	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/2/2013	10/7/2013
NFS0629B	NFS0629	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/2/2013	10/7/2013
NFS0629C	NFS0629	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/2/2013	10/7/2013
NFS0630A	NFS0630	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0630B	NFS0630	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0630C	NFS0630	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0631A	NFS0631	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/20/2013	10/7/2013
NFS0631B	NFS0631	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/20/2013	10/7/2013
NFS0631C	NFS0631	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/20/2013	10/7/2013
NFS0632A	NFS0632	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013
NFS0632B	NFS0632	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0632C	NFS0632	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	3/6/2013	10/7/2013
NFS0633A	NFS0633	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0633B	NFS0633	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0633C	NFS0633	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/17/2013	10/7/2013
NFS0634A	NFS0634	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/14/2013	10/7/2013
NFS0634B	NFS0634	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/14/2013	10/7/2013
NFS0634C	NFS0634	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	5/14/2013	10/7/2013
NFS0635A	NFS0635	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0635B	NFS0635	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0635C	NFS0635	OR-NFS-CH-HET-A	55-GAL DRUM	R	10/22/1993	4/16/2013	10/7/2013
NFS0636A	NFS0636	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0636B	NFS0636	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0636C	NFS0636	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0637A	NFS0637	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/16/2013	10/7/2013
NFS0637B	NFS0637	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/16/2013	10/7/2013
NFS0637C	NFS0637	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/16/2013	10/7/2013
NFS0638A	NFS0638	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/6/2013	10/7/2013
NFS0638B	NFS0638	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/6/2013	10/7/2013
NFS0638C	NFS0638	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/6/2013	10/7/2013
NFS0639A	NFS0639	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/2/2013	10/7/2013
NFS0639B	NFS0639	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/2/2013	10/7/2013
NFS0639C	NFS0639	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	5/2/2013	10/7/2013
NFS0640A	NFS0640	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	2/26/2013	10/7/2013
NFS0640B	NFS0640	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	2/26/2013	10/7/2013
NFS0640C	NFS0640	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	2/26/2013	10/7/2013
NFS0641A	NFS0641	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0641B	NFS0641	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0641C	NFS0641	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/1/1993	3/5/2013	10/7/2013
NFS0643A	NFS0643	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/15/1993	5/16/2013	10/7/2013
NFS0643B	NFS0643	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/15/1993	5/16/2013	10/7/2013
NFS0643C	NFS0643	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/15/1993	5/16/2013	10/7/2013
NFS0644A	NFS0644	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/1/2013	10/7/2013
NFS0644B	NFS0644	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/1/2013	10/7/2013
NFS0644C	NFS0644	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/1/2013	10/7/2013
NFS0645A	NFS0645	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/29/2013	10/7/2013
NFS0645B	NFS0645	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/29/2013	10/7/2013
NFS0645C	NFS0645	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/29/2013	10/7/2013
NFS0646A	NFS0646	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/2/2013	10/7/2013
NFS0646B	NFS0646	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/2/2013	10/7/2013
NFS0646C	NFS0646	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/2/2013	10/7/2013
NFS0647A	NFS0647	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/6/2013	10/7/2013
NFS0647B	NFS0647	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/6/2013	10/7/2013
NFS0647C	NFS0647	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/6/2013	10/7/2013
NFS0648A	NFS0648	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/25/2013	10/7/2013
NFS0648B	NFS0648	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/25/2013	10/7/2013
NFS0648C	NFS0648	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	4/25/2013	10/7/2013
NFS0649A	NFS0649	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/15/2013	10/7/2013
NFS0649B	NFS0649	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/15/2013	10/7/2013
NFS0649C	NFS0649	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/16/1993	5/15/2013	10/7/2013
NFS0650A	NFS0650	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	3/4/2013	10/7/2013
NFS0650B	NFS0650	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	3/4/2013	10/7/2013
NFS0650C	NFS0650	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	3/4/2013	10/7/2013
NFS0651A	NFS0651	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/23/2013	10/7/2013

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0651B	NFS0651	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/23/2013	10/7/2013
NFS0651C	NFS0651	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/23/2013	10/7/2013
NFS0652A	NFS0652	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	5/5/2013	10/7/2013
NFS0652B	NFS0652	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	5/5/2013	10/7/2013
NFS0652C	NFS0652	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	5/5/2013	10/7/2013
NFS0653A	NFS0653	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/18/2013	10/7/2013
NFS0653B	NFS0653	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/18/2013	10/7/2013
NFS0653C	NFS0653	OR-NFS-CH-HET-A	55-GAL DRUM	R	11/22/1993	4/18/2013	10/7/2013
NFS0853A	NFS0853	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/20/1994	4/18/2013	10/7/2013
NFS0853B	NFS0853	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/20/1994	4/18/2013	10/7/2013
NFS0853C	NFS0853	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/20/1994	4/18/2013	10/7/2013
NFS0854A	NFS0854	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/5/2013	10/7/2013
NFS0854B	NFS0854	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/5/2013	10/7/2013
NFS0854C	NFS0854	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/5/2013	10/7/2013
NFS0855A	NFS0855	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0855B	NFS0855	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0855C	NFS0855	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0856A	NFS0856	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0856B	NFS0856	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0856C	NFS0856	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0857A	NFS0857	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0857B	NFS0857	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0857C	NFS0857	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/6/2013	10/7/2013
NFS0858A	NFS0858	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0858B	NFS0858	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0858C	NFS0858	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/20/2013	10/7/2013
NFS0859A	NFS0859	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	4/19/2013	10/7/2013
NFS0859B1	NFS0859	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/21/2013	10/7/2013
NFS0859C	NFS0859	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	4/19/2013	10/7/2013
NFS0860A	NFS0860	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/25/2013	10/7/2013
NFS0860B	NFS0860	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/25/2013	10/7/2013
NFS0860C	NFS0860	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/25/2013	10/7/2013
NFS0861A	NFS0861	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/11/1994	5/15/2013	10/7/2013
NFS0861B	NFS0861	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/11/1994	5/15/2013	10/7/2013
NFS0861C	NFS0861	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/11/1994	5/15/2013	10/7/2013
NFS0863A	NFS0863	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/8/2013	10/7/2013
NFS0863B	NFS0863	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/8/2013	10/7/2013
NFS0863C	NFS0863	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	5/8/2013	10/7/2013
NFS0864A	NFS0864	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	2/25/2013	10/7/2013
NFS0864B	NFS0864	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	2/25/2013	10/7/2013
NFS0864C	NFS0864	OR-NFS-CH-HET-A	55-GAL DRUM	R	3/9/1994	2/25/2013	10/7/2013
NFS0881A	NFS0881	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	12/5/2011	10/7/2013
NFS0881B	NFS0881	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	12/5/2011	10/7/2013
NFS0881C	NFS0881	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	12/5/2011	10/7/2013
NFS0882A	NFS0882	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0882B	NFS0882	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0882C	NFS0882	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0883A	NFS0883	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0883B	NFS0883	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0883C	NFS0883	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0884A	NFS0884	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/24/2013	10/7/2013
NFS0884B	NFS0884	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/24/2013	10/7/2013
NFS0884C	NFS0884	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/24/2013	10/7/2013

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0885A	NFS0885	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0885B	NFS0885	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0885C	NFS0885	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0886A	NFS0886	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0886B	NFS0886	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0886C	NFS0886	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/23/2013	10/7/2013
NFS0887A	NFS0887	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0887B	NFS0887	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0887C	NFS0887	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/14/1994	4/30/2013	10/7/2013
NFS0888A	NFS0888	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/15/2013	10/7/2013
NFS0888B	NFS0888	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/15/2013	10/7/2013
NFS0888C	NFS0888	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/15/2013	10/7/2013
NFS0889A	NFS0889	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0889B	NFS0889	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0889C	NFS0889	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0890A	NFS0890	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0890B	NFS0890	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0890C	NFS0890	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	5/2/2013	10/7/2013
NFS0891A	NFS0891	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/23/2013	10/7/2013
NFS0891B	NFS0891	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/23/2013	10/7/2013
NFS0891C	NFS0891	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/23/2013	10/7/2013
NFS0892A	NFS0892	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/12/2013	10/7/2013
NFS0892B	NFS0892	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/12/2013	10/7/2013
NFS0892C	NFS0892	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/18/1994	4/12/2013	10/7/2013
NFS0893A	NFS0893	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/25/2013	10/7/2013
NFS0893B	NFS0893	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/25/2013	10/7/2013
NFS0893C	NFS0893	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/25/2013	10/7/2013
NFS0894A	NFS0894	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0894B	NFS0894	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0894C	NFS0894	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0895A	NFS0895	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/12/2013	10/7/2013
NFS0895B	NFS0895	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/12/2013	10/7/2013
NFS0895C	NFS0895	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	4/12/2013	10/7/2013
NFS0896A	NFS0896	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/10/2013	10/7/2013
NFS0896B	NFS0896	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/10/2013	10/7/2013
NFS0896C	NFS0896	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/10/2013	10/7/2013
NFS0897A	NFS0897	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0897B	NFS0897	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0897C	NFS0897	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0898A	NFS0898	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	2/28/2013	10/7/2013
NFS0898B	NFS0898	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	2/28/2013	10/7/2013
NFS0898C	NFS0898	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	2/28/2013	10/7/2013
NFS0899A	NFS0899	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	3/7/2013	10/7/2013
NFS0899B	NFS0899	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	3/7/2013	10/7/2013
NFS0899C	NFS0899	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	3/7/2013	10/7/2013
NFS0900A	NFS0900	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0900B	NFS0900	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0900C	NFS0900	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/22/1994	5/7/2013	10/7/2013
NFS0901A	NFS0901	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/13/2013	10/7/2013
NFS0901B	NFS0901	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/13/2013	10/7/2013
NFS0901C	NFS0901	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/13/2013	10/7/2013
NFS0902A	NFS0902	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/10/2013	10/7/2013
NFS0902B	NFS0902	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/10/2013	10/7/2013

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0902C	NFS0902	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	5/10/2013	10/7/2013
NFS0903A	NFS0903	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/28/2013	10/7/2013
NFS0903B	NFS0903	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/28/2013	10/7/2013
NFS0903C	NFS0903	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/28/2013	10/7/2013
NFS0904A	NFS0904	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/26/2013	10/7/2013
NFS0904B	NFS0904	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/26/2013	10/7/2013
NFS0904C	NFS0904	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/25/1994	4/26/2013	10/7/2013
NFS0905A	NFS0905	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/16/2013	10/7/2013
NFS0905B	NFS0905	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/16/2013	10/7/2013
NFS0905C	NFS0905	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/16/2013	10/7/2013
NFS0906A	NFS0906	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/16/2013	10/7/2013
NFS0906B	NFS0906	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/16/2013	10/7/2013
NFS0906C	NFS0906	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/16/2013	10/7/2013
NFS0907A	NFS0907	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/15/2013	10/7/2013
NFS0907B	NFS0907	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/15/2013	10/7/2013
NFS0907C	NFS0907	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/15/2013	10/7/2013
NFS0908A	NFS0908	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0908B	NFS0908	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0908C	NFS0908	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0909A	NFS0909	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/23/2013	10/7/2013
NFS0909B	NFS0909	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/23/2013	10/7/2013
NFS0909C	NFS0909	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/23/2013	10/7/2013
NFS0910A	NFS0910	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/1/2013	10/7/2013
NFS0910B	NFS0910	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/1/2013	10/7/2013
NFS0910C	NFS0910	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	5/1/2013	10/7/2013
NFS0911A	NFS0911	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/17/2013	10/7/2013
NFS0911B	NFS0911	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/17/2013	10/7/2013
NFS0911C	NFS0911	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/17/2013	10/7/2013
NFS0912A	NFS0912	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0912B	NFS0912	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0912C	NFS0912	OR-NFS-CH-HET-A	55-GAL DRUM	R	4/28/1994	4/29/2013	10/7/2013
NFS0913A	NFS0913	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/14/2013	10/7/2013
NFS0913B	NFS0913	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/14/2013	10/7/2013
NFS0914A	NFS0914	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/1/2013	10/7/2013
NFS0914B	NFS0914	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/1/2013	10/7/2013
NFS0915A	NFS0915	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/5/2013	10/7/2013
NFS0915B	NFS0915	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/5/2013	10/7/2013
NFS0915C	NFS0915	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/5/2013	10/7/2013
NFS0916A	NFS0916	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	4/10/2013	10/7/2013
NFS0916B	NFS0916	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	4/10/2013	10/7/2013
NFS0916C	NFS0916	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	4/10/2013	10/7/2013
NFS0917A	NFS0917	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/2/2013	10/7/2013
NFS0917B	NFS0917	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/2/2013	10/7/2013
NFS0917C	NFS0917	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/2/2013	10/7/2013
NFS0918A	NFS0918	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/7/2013	10/7/2013
NFS0918B	NFS0918	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/7/2013	10/7/2013
NFS0918C	NFS0918	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	3/7/2013	10/7/2013
NFS0919A	NFS0919	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/16/2013	10/7/2013
NFS0919B	NFS0919	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/16/2013	10/7/2013
NFS0919C	NFS0919	OR-NFS-CH-HET-A	55-GAL DRUM	R	5/2/1994	5/16/2013	10/7/2013
NFS0107		OR-NFS-CH-HOM-A	55-GAL DRUM		9/21/1993		12/8/2010
NFS0148		OR-NFS-CH-HOM-A	55-GAL DRUM		8/13/1993		12/8/2010
NFS0149		OR-NFS-CH-HOM-A	55-GAL DRUM		8/13/1993		12/8/2010

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0150		OR-NFS-CH-HOM-A	55-GAL DRUM		8/13/1993		12/8/2010
NFS0151		OR-NFS-CH-HOM-A	55-GAL DRUM		8/13/1993		12/8/2010
NFS0478		OR-NFS-CH-HOM-A	55-GAL DRUM		7/9/1993		12/8/2010
NFS0479		OR-NFS-CH-HOM-A	55-GAL DRUM		7/9/1993		12/8/2010
NFS0481		OR-NFS-CH-HOM-A	55-GAL DRUM		7/9/1993		12/8/2010
NFS0506		OR-NFS-CH-HOM-A	55-GAL DRUM		8/15/1993		12/8/2010
NFS0507		OR-NFS-CH-HOM-A	55-GAL DRUM		8/15/1993		12/8/2010
NFS0508		OR-NFS-CH-HOM-A	55-GAL DRUM		8/15/1993		12/8/2010
NFS0591		OR-NFS-CH-HOM-A	55-GAL DRUM		8/31/1993		12/8/2010
NFS0592		OR-NFS-CH-HOM-A	55-GAL DRUM		8/31/1993		12/8/2010
NFS0593		OR-NFS-CH-HOM-A	55-GAL DRUM		8/31/1993		12/8/2010
NFS0594		OR-NFS-CH-HOM-A	55-GAL DRUM		8/31/1993		12/8/2010
NFS0673		OR-NFS-CH-HOM-A	55-GAL DRUM		9/3/1993		12/8/2010
NFS0674		OR-NFS-CH-HOM-A	55-GAL DRUM		9/3/1993		12/8/2010
NFS0753		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0754		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0755		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0757		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0758		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0759		OR-NFS-CH-HOM-A	55-GAL DRUM		9/17/1993		12/8/2010
NFS0776		OR-NFS-CH-HOM-A	55-GAL DRUM		9/18/1993		12/8/2010
NFS0777		OR-NFS-CH-HOM-A	55-GAL DRUM		9/18/1993		12/8/2010
NFS0786		OR-NFS-CH-HOM-A	55-GAL DRUM		9/19/1993		12/8/2010
NFS0787		OR-NFS-CH-HOM-A	55-GAL DRUM		9/19/1993		12/8/2010
NFS0788		OR-NFS-CH-HOM-A	55-GAL DRUM		9/30/1993		12/8/2010
NFS0789		OR-NFS-CH-HOM-A	55-GAL DRUM		9/20/1993		12/8/2010
NFS0804		OR-NFS-CH-HOM-A	55-GAL DRUM		9/18/1993		12/8/2010
NFS0805		OR-NFS-CH-HOM-A	55-GAL DRUM		9/18/1993		12/8/2010
NFS0806		OR-NFS-CH-HOM-A	55-GAL DRUM		9/18/1993		12/8/2010
NFS0808		OR-NFS-CH-HOM-A	55-GAL DRUM		9/24/1993		12/8/2010
NFS0865		OR-NFS-CH-HOM-A	55-GAL DRUM		7/9/1993		12/8/2010
NFS0879		OR-NFS-CH-HOM-A	55-GAL DRUM		3/10/1994		12/8/2010
NFS0880		OR-NFS-CH-HOM-A	55-GAL DRUM		3/21/1994		12/8/2010
NFS0926		OR-NFS-CH-HOM-A	55-GAL DRUM		9/24/1993		12/8/2010
NFS0929		OR-NFS-CH-HOM-A	55-GAL DRUM		3/10/1994		12/8/2010
NFS0103		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0104		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0105		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0106		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0108		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0109		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0110		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0111		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0112		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0118		OR-NFS-CH-SOIL	55-GAL DRUM		8/18/1993		6/25/2008
NFS0119		OR-NFS-CH-SOIL	55-GAL DRUM		8/18/1993		6/25/2008
NFS0120		OR-NFS-CH-SOIL	55-GAL DRUM		8/18/1993		6/25/2008
NFS0121		OR-NFS-CH-SOIL	55-GAL DRUM		8/18/1993		6/25/2008
NFS0122		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008
NFS0123		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008
NFS0124		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008
NFS0125		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008
NFS0126		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0127		OR-NFS-CH-SOIL	55-GAL DRUM		8/17/1993		6/25/2008
NFS0128		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0129		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0130		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0131		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0132		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0133		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0134		OR-NFS-CH-SOIL	55-GAL DRUM		8/15/1993		6/25/2008
NFS0135		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0136		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0137		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0138		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0139		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0140		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0141		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0142		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0143		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0144		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0145		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0146		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0147		OR-NFS-CH-SOIL	55-GAL DRUM		8/14/1993		6/25/2008
NFS0152		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0153		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0154		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0155		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0156		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0157		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0158		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0159		OR-NFS-CH-SOIL	55-GAL DRUM		8/13/1993		6/25/2008
NFS0160		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0161		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0162		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0163		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0164		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0165		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0166		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0167		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0168		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0169		OR-NFS-CH-SOIL	55-GAL DRUM		8/11/1993		6/25/2008
NFS0170		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0171		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0172		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0173		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0174		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0175		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0176		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0177		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0178		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0179		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0180		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0181		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0183		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0184		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0185		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0186		OR-NFS-CH-SOIL	55-GAL DRUM		8/6/1993		6/25/2008
NFS0187		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0188		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0189		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0190		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0191		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0192		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0193		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0194		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0195		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0196		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0197		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0198		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0199		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0200		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0201		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0202		OR-NFS-CH-SOIL	55-GAL DRUM		8/5/1993		6/25/2008
NFS0203		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0204		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0205		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0206		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0207		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0208		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0209		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0210		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0211		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0212		OR-NFS-CH-SOIL	55-GAL DRUM		8/3/1993		6/25/2008
NFS0213		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0214		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0215		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0216		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0217		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0218		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0219		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0220		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0221		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0222		OR-NFS-CH-SOIL	55-GAL DRUM		7/30/1993		6/25/2008
NFS0223		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0224		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0225		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0226		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0227		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0228		OR-NFS-CH-SOIL	55-GAL DRUM		7/29/1993		6/25/2008
NFS0229		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0230		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0231		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0232		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0233		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0234		OR-NFS-CH-SOIL	55-GAL DRUM		7/28/1993		6/25/2008
NFS0235		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0236		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0237		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0238		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0239		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0240		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0241		OR-NFS-CH-SOIL	55-GAL DRUM		7/27/1993		6/25/2008
NFS0242		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0243		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0244		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0245		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0246		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0247		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0248		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0249		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0250		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0251		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0252		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0253		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0254		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0255		OR-NFS-CH-SOIL	55-GAL DRUM		7/26/1993		6/25/2008
NFS0256		OR-NFS-CH-SOIL	55-GAL DRUM		7/23/1993		6/25/2008
NFS0257		OR-NFS-CH-SOIL	55-GAL DRUM		7/23/1993		6/25/2008
NFS0258		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0260		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0262		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0263		OR-NFS-CH-SOIL	55-GAL DRUM		7/23/1993		6/25/2008
NFS0264		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0265		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0266		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0267		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0268		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0269		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0270		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0271		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0272		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0273		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0274		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0275		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0276		OR-NFS-CH-SOIL	55-GAL DRUM		7/22/1993		6/25/2008
NFS0277		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0278		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0279		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0280		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0281		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0282		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0283		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0284		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0285		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0286		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0287		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0288		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0289		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0290		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0291		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0292		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0293		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0294		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0295		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0296		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0297		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0298		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0299		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0300		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0301		OR-NFS-CH-SOIL	55-GAL DRUM		7/21/1993		6/25/2008
NFS0302		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0303		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0304		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0305		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0306		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0307		OR-NFS-CH-SOIL	55-GAL DRUM		7/20/1993		6/25/2008
NFS0308		OR-NFS-CH-SOIL	55-GAL DRUM		7/19/1993		6/25/2008
NFS0309		OR-NFS-CH-SOIL	55-GAL DRUM		7/19/1993		6/25/2008
NFS0310		OR-NFS-CH-SOIL	55-GAL DRUM		7/19/1993		6/25/2008
NFS0311		OR-NFS-CH-SOIL	55-GAL DRUM		7/17/1993		6/25/2008
NFS0312		OR-NFS-CH-SOIL	55-GAL DRUM		7/17/1993		6/25/2008
NFS0313		OR-NFS-CH-SOIL	55-GAL DRUM		7/17/1993		6/25/2008
NFS0314		OR-NFS-CH-SOIL	55-GAL DRUM		7/17/1993		6/25/2008
NFS0315		OR-NFS-CH-SOIL	55-GAL DRUM		7/17/1993		6/25/2008
NFS0316		OR-NFS-CH-SOIL	55-GAL DRUM		7/16/1993		6/25/2008
NFS0317		OR-NFS-CH-SOIL	55-GAL DRUM		7/16/1993		6/25/2008
NFS0318		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0319		OR-NFS-CH-SOIL	55-GAL DRUM		7/16/1993		6/25/2008
NFS0320		OR-NFS-CH-SOIL	55-GAL DRUM		7/16/1993		6/25/2008
NFS0321		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0322		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0323		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0324		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0325		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0326		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0327		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0329		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0330		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0331		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0332		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0333		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0334		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0335		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0336		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0337		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0338		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0339		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0340		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0341		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0342		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0343		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0344		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0345		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0346		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0347		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0348		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0349		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0350		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0438		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0439		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0440		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0441		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0442		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0443		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0444		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0445		OR-NFS-CH-SOIL	55-GAL DRUM		2/27/1993		6/25/2008
NFS0446		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0447		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0449		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0451		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0452		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0453		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0454		OR-NFS-CH-SOIL	55-GAL DRUM		3/8/1993		6/25/2008
NFS0455		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0456		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0457		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0458		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0459		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0460		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0461		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0463		OR-NFS-CH-SOIL	55-GAL DRUM		7/7/1993		6/25/2008
NFS0464		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0465		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0466		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0467		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0468		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0469		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0471		OR-NFS-CH-SOIL	55-GAL DRUM		7/8/1993		6/25/2008
NFS0472		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0473		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0474		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0475		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0476		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0477		OR-NFS-CH-SOIL	55-GAL DRUM		7/9/1993		6/25/2008
NFS0483		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0484		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0485		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0486		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0487		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0488		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0489		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0490		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0491		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0492		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0493		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0494		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0495		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0496		OR-NFS-CH-SOIL	55-GAL DRUM		7/13/1993		6/25/2008
NFS0497		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0498		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0499		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0500		OR-NFS-CH-SOIL	55-GAL DRUM		7/14/1993		6/25/2008
NFS0517		OR-NFS-CH-SOIL	55-GAL DRUM		8/24/1993		6/25/2008
NFS0518		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0519		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0520		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0521		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0522		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0523		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0530		OR-NFS-CH-SOIL	55-GAL DRUM		8/25/1993		6/25/2008
NFS0531		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0532		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0533		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0534		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0535		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0536		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0537		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0544		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0545		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0546		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0547		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0548		OR-NFS-CH-SOIL	55-GAL DRUM		8/26/1993		6/25/2008
NFS0549		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0550		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0551		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0552		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0553		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0554		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0555		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0556		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0557		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0558		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0559		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0560		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0561		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0562		OR-NFS-CH-SOIL	55-GAL DRUM		8/27/1993		6/25/2008
NFS0563		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0564		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0565		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0566		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0567		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0568		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0569		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0570		OR-NFS-CH-SOIL	55-GAL DRUM		8/28/1993		6/25/2008
NFS0584		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0585		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0586		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0587		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0588		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0589		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0590		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0595		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0596		OR-NFS-CH-SOIL	55-GAL DRUM		8/31/1993		6/25/2008
NFS0655		OR-NFS-CH-SOIL	55-GAL DRUM		9/2/1993		6/25/2008
NFS0656		OR-NFS-CH-SOIL	55-GAL DRUM		9/2/1993		6/25/2008
NFS0657		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0658		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0659		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0660		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0661		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0662		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0663		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0664		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0665		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0666		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0667		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0668		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0669		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0670		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0671		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0672		OR-NFS-CH-SOIL	55-GAL DRUM		9/3/1993		6/25/2008
NFS0675		OR-NFS-CH-SOIL	55-GAL DRUM		9/4/1993		6/25/2008
NFS0676		OR-NFS-CH-SOIL	55-GAL DRUM		9/4/1993		6/25/2008
NFS0677		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0678		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0679		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0680		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0681		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0682		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0683		OR-NFS-CH-SOIL	55-GAL DRUM		9/5/1993		6/25/2008
NFS0684		OR-NFS-CH-SOIL	55-GAL DRUM		9/6/1993		6/25/2008
NFS0685		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0686		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0687		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0688		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0689		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0690		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0691		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0692		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0693		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0694		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0695		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0696		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0697		OR-NFS-CH-SOIL	55-GAL DRUM		9/7/1993		6/25/2008
NFS0698		OR-NFS-CH-SOIL	55-GAL DRUM		9/8/1993		6/25/2008
NFS0699		OR-NFS-CH-SOIL	55-GAL DRUM		9/8/1993		6/25/2008
NFS0700		OR-NFS-CH-SOIL	55-GAL DRUM		9/8/1993		6/25/2008
NFS0701		OR-NFS-CH-SOIL	55-GAL DRUM		9/8/1993		6/25/2008
NFS0702		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0703		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0704		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0705		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0706		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0707		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0708		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0709		OR-NFS-CH-SOIL	55-GAL DRUM		9/10/1993		6/25/2008
NFS0710		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0711		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0712		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0713		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0714		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0715		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0716		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0717		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0718		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0719		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0720		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0721		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0722		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0723		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0724		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0725		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0726		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0727		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0728		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0729		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0730		OR-NFS-CH-SOIL	55-GAL DRUM		9/12/1993		6/25/2008
NFS0731		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0732		OR-NFS-CH-SOIL	55-GAL DRUM		9/12/1993		6/25/2008
NFS0733		OR-NFS-CH-SOIL	55-GAL DRUM		9/12/1993		6/25/2008
NFS0734		OR-NFS-CH-SOIL	55-GAL DRUM		9/12/1993		6/25/2008
NFS0735		OR-NFS-CH-SOIL	55-GAL DRUM		9/12/1993		6/25/2008
NFS0736		OR-NFS-CH-SOIL	55-GAL DRUM		9/11/1993		6/25/2008
NFS0737		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0738		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0739		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0741		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0742		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0743		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0744		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0745		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0746		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0747		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0748		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0749		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0750		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0751		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0760		OR-NFS-CH-SOIL	55-GAL DRUM		9/17/1993		6/25/2008
NFS0761		OR-NFS-CH-SOIL	55-GAL DRUM		9/17/1993		6/25/2008
NFS0762		OR-NFS-CH-SOIL	55-GAL DRUM		9/17/1993		6/25/2008
NFS0763		OR-NFS-CH-SOIL	55-GAL DRUM		9/17/1993		6/25/2008
NFS0764		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0765		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0767		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0768		OR-NFS-CH-SOIL	55-GAL DRUM		9/17/1993		6/25/2008
NFS0769		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008

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Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0770		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0771		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0772		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0773		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0774		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0775		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0778		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0779		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0780		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0781		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0782		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0790		OR-NFS-CH-SOIL	55-GAL DRUM		9/18/1993		6/25/2008
NFS0791		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0792		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0794		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0795		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0796		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0797		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0798		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0799		OR-NFS-CH-SOIL	55-GAL DRUM		9/20/1993		6/25/2008
NFS0800		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0801		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1993		6/25/2008
NFS0802		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0803		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0809		OR-NFS-CH-SOIL	55-GAL DRUM		9/22/1993		6/25/2008
NFS0810		OR-NFS-CH-SOIL	55-GAL DRUM		9/24/1993		6/25/2008
NFS0811		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0812		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0813		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0818		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0819		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0820		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0822		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0823		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0824		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		6/25/2008
NFS0825		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0826		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0827		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0828		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0829		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0830		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0836		OR-NFS-CH-SOIL	55-GAL DRUM		9/26/1993		6/25/2008
NFS0837		OR-NFS-CH-SOIL	55-GAL DRUM		9/28/1993		6/25/2008
NFS0838		OR-NFS-CH-SOIL	55-GAL DRUM		9/28/1993		6/25/2008
NFS0841		OR-NFS-CH-SOIL	55-GAL DRUM		9/28/1993		6/25/2008
NFS0842		OR-NFS-CH-SOIL	55-GAL DRUM		9/28/1993		6/25/2008
NFS0844		OR-NFS-CH-SOIL	55-GAL DRUM		9/28/1993		6/25/2008
NFS0845		OR-NFS-CH-SOIL	55-GAL DRUM		9/29/1993		6/25/2008
NFS0846		OR-NFS-CH-SOIL	55-GAL DRUM		9/29/1993		6/25/2008
NFS0847		OR-NFS-CH-SOIL	55-GAL DRUM		10/3/1993		6/25/2008
NFS0848		OR-NFS-CH-SOIL	55-GAL DRUM		10/4/1993		6/25/2008
NFS0849		OR-NFS-CH-SOIL	55-GAL DRUM		10/4/1993		6/25/2008
NFS0850		OR-NFS-CH-SOIL	55-GAL DRUM		10/4/1993		6/25/2008

Attachment 8 - Waste Containers

Container ID	Original Container ID	Waste Stream	Container Type	Repack or Box Daughter	Original Closure Date	Date Repackaged	Date Added to AK
NFS0851		OR-NFS-CH-SOIL	55-GAL DRUM		10/4/1993		6/25/2008
NFS0852		OR-NFS-CH-SOIL	55-GAL DRUM		10/7/1993		6/25/2008
NFS0862		OR-NFS-CH-SOIL	55-GAL DRUM		8/10/1993		6/25/2008
NFS0866		OR-NFS-CH-SOIL	55-GAL DRUM		9/13/1993		6/25/2008
NFS0867		OR-NFS-CH-SOIL	55-GAL DRUM		9/14/1993		6/25/2008
NFS0923		OR-NFS-CH-SOIL	55-GAL DRUM		7/23/1993		6/25/2008
NFS0924		OR-NFS-CH-SOIL	55-GAL DRUM		7/23/1993		6/25/2008
NFS0925		OR-NFS-CH-SOIL	55-GAL DRUM		7/15/1993		6/25/2008
NFS0930		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1994		6/25/2008
NFS0931		OR-NFS-CH-SOIL	55-GAL DRUM		9/21/1994		6/25/2008
X10C0506042		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506043		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506044		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506045		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506054		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506055		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506056		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506057		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506062		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506063		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506064		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506065		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506066		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506070		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506071		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		6/25/2008
X10C0506148A	X10C0506148	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/5/2008
X10C0506148B	X10C0506148	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/5/2008
X10C0506148C	X10C0506148	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/5/2008
X10C0506149B	X10C0506149	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/17/2008	9/5/2008
X10C0506149C	X10C0506149	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/28/2008	9/5/2008
X10C0506149D	X10C0506149	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/28/2008	9/5/2008
X10C0506149E	X10C0506149	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/28/2008	9/5/2008
X10C0506150A	X10C0506150	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/30/2008	9/5/2008
X10C0506150B	X10C0506150	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/30/2008	9/5/2008
X10C0506150C	X10C0506150	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	7/30/2008	9/5/2008
X10C0506151B	X10C0506151	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/4/2008	9/5/2008
X10C0506151C	X10C0506151	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/5/2008	9/5/2008
X10C0506151D	X10C0506151	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/4/2008	9/5/2008
X10C0506151E	X10C0506151	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/4/2008	9/5/2008
X10C0506152A	X10C0506152	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/5/2008
X10C0506152B	X10C0506152	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/5/2008
X10C0506152C	X10C0506152	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/5/2008
X10C0506152D	X10C0506152	OR-NFS-CH-SOIL	55-GAL DRUM	BD	9/27/2005	8/7/2008	9/5/2008
X10C0506154A	X10C0506154	OR-NFS-CH-SOIL	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154D	X10C0506154	OR-NFS-CH-SOIL	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154G	X10C0506154	OR-NFS-CH-SOIL	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154I	X10C0506154	OR-NFS-CH-SOIL	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506154J	X10C0506154	OR-NFS-CH-SOIL	55-GAL DRUM	BD	12/12/2001	2/4/2008	9/24/2008
X10C0506047		OR-NFS-CH-SOIL	55-GAL DRUM		9/23/2005		3/8/2010
NFS0815		OR-NFS-CH-SOIL	55-GAL DRUM		9/25/1993		7/7/2010

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: M128
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☑ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL dated September 5, 2008	
Source Document Reference Information (author(s), document and revision number, date, publisher): J. Harrison, M128, NA, 09/05/2008	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
PR2, PR3, PR4, PR6, WS1, WS2, WS3, WS4, WS6, WS7, WS8, WS9, WS11, WS12, S16	Throughout	Waste container information has been reviewed for 54 55-gallon drums to verify that the containers are bounded by the existing CCP-AK-ORNL-001, Rev. 3 AK summary report of the OR-NFS-CH-SOIL waste stream. These are daughter drums from the repackaging of waste in 6 boxes. The daughter drums are traceable to the parent box by the letter appended to the drum number. Information reviewed for the boxes consists of the ORNL UNC-2109 container paperwork forms as well as the original NFS paperwork. The conclusion is that the report bounds only 18 of the 5 daughter drums. The AK will be revised to extend the generation date range to August 2008 and to include concrete block in the waste stream description. These 18 drums are eligible to be included in the SOIL waste stream.

NTPC RECORDS ORIGINAL
DATE REC'D 12/5/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: M128
Source Document Data Limitations (if any): 1. None	
Acceptable Knowlege Expert: TRAVIS SMITH ~~Trey Greenwood~~ Date: 11/14/2013 Print TS 11/14/2013 /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

M128

Waste container information has been reviewed for 54 55-gallon drums to verify that the containers are bounded by the existing CCP-AK-ORNL-001, Rev. 3 AK Summary Report (ORNL-001) for the OR-NFS-CH-SOIL (SOIL) waste stream. These 54 drums are daughter drums from the repackaging of waste in 6 boxes (X10C0506148, X10C0506149, X10C0506150, X10C0506151, X10C0506152, and X10C0506154). The daughter drums are traceable to the parent box by the letter appended to the drum number (e.g., X10C0506148A is a daughter from X10C0506148).

Information reviewed for the boxes consists of the ORNL UCN-2109 container paperwork forms as well as the original NFS paperwork attached to the UCN-2109 (e.g., *Radwaste Package Certification Record*). The TWPC *Contact Handled Waste Repackaging Data Form* was reviewed for each of the daughter drums. The radiological data for these boxes from a 2/29/2008 EM Waste database query were also evaluated.

Waste Generation Location And Process

The ORNL-001 AK indicates the NFS soil waste originated from beneath the Building 234 Wet Chemistry Cell. A few drums of soil are from an area around the Building 110 laboratory underground waste tank. Drums and boxes of soil from NFS are repackaged, as necessary, at the TWPC (Sections 6.1 and 6.3).

The UCN-2109 forms indicate all 6 boxes are from NFS.

The *Radwaste Package Certification Record* for 5 of the 6 boxes (X10C0506148, X10C0506149, X10C0506150, X10C0506151, and X10C0506152) identifies "Metric Compound" as the area generated. According to NFS personnel, the Metric Compound was just a location where they overpacked the legacy HICs into a burial box. The true origin of all this material was Building 234 (see attached e-mail). Therefore, the ORNL-001 AK bounds the generation location and process for these 5 boxes (and 49 daughters).

The *Radwaste Package Certification Record* for X10C0506154 does not identify the area generated, but the Gamma Waste Assay sheet identifies the location as "RBG Trench B." According to Richard Moore at NFS, RBG is the Radioactive Burial Ground, and Trench B designates one of the burial pits. The Radioactive Burial Ground is not discussed in the AK. More information is needed before the 5 daughters from X10C0506154 can be added to the SOIL waste stream. The rest of this evaluation will not discuss X10C0506154.

Time Period Of Generation

The ORNL-001 AK covers waste generated from 1993 to 2001, but also discusses 5 high-density polyethylene High Integrity Containers (packaged in five B25 boxes) containing soil from the same excavation activity that were packaged at NFS in 2005 (Section 6.2).

The *Radwaste Package Certification Record* for the 5 boxes have pack dates of 2005. These are the 5 boxes referred to in Section 6.2 of the AK. The daughters from these 5 boxes were packaged at the TWPC in July and August 2008.

The generation dates of the boxes are bounded by the ORNL-001 AK, but the generation dates of the daughter drums are not bounded. These drums should be included in the waste stream so the ORNL-001 AK will be revised to extend the generation date range to August 2008.

Physical Form

The ORNL-001 AK states that waste from the SOIL waste stream is comprised of soil, rock, and gravel mixed with absorbent. The soil was mixed with RADSORB absorbent powder (cross-linked homopolymer). A RADPAD absorbent pad (cellulosic laminate containing an organic polymer) was placed on top of the soil (Section 6.4.1). The waste stream is assigned waste matrix code is S4100, which is waste estimated to be greater than 95 percent by volume soil, including sand, silt, rock, and gravel, with rock and gravel volumes totaling less than 50 percent of the matrix (Section 6.4.1.1).

Waste material parameter weight estimates are not available for these boxes or daughter drums. The NFS paperwork for the 5 boxes describe the waste as soil. The TWPC repack forms for 18 of the daughter drums from these 5 boxes describe the waste as dirt/soil, concrete, and concrete block. The SOIL waste stream will be revised to identify concrete and concrete block. Therefore, these 18 drums are bounded by the ORNL-001 AK.

The following 31 daughter drums list numerous debris materials but no soil, and therefore, will not be included in the SOIL waste stream:

X10C0506148D	X10C0506149H	X10C0506150G	X10C0506151K
X10C0506148E	X10C0506149I	X10C0506150H	X10C0506152E
X10C0506148F	X10C0506149J	X10C0506151A	X10C0506152F
X10C0506148G	X10C0506149K	X10C0506151F	X10C0506152G
X10C0506148H	X10C0506149L	X10C0506151G	X10C0506152H
X10C0506149A	X10C0506150D	X10C0506151H	X10C0506152I
X10C0506149F	X10C0506150E	X10C0506151I	X10C0506152J
X10C0506149G	X10C0506150F	X10C0506151J	

Chemical Content

The UCN-2109 waste disposal forms do not indicate any EPA hazardous waste numbers assigned to the 5 boxes that are not already identified in the ORNL-001 AK.

Radionuclides

As shown in Table 6-4 of the ORNL-001 AK, U-238 and Pu-239 are the two most prevalent radionuclides, by mass, for the SOIL waste stream at 73.42% and 19.17%, respectively.

The two most prevalent radionuclides, by mass, for the 5 boxes are U-238 and Th-232 at 69.02% and 25.75%, respectively (see attached data from EM Waste). The Th-232 is not consistent with AK; however, the addition of these containers will not alter the two most prevalent radionuclides for the waste stream as a whole.

Prohibited Items

The UCN-2109 forms and *Radwaste Package Certification Record* for the two boxes indicate no prohibited in the waste. The TWPC *Contact Handled Waste Repackaging Data Form* for each of the daughter drums also indicate no prohibited in the waste.

Conclusion

As described above, the existing ORNL-001 AK Summary Report bounds only 18 of the 54 daughter drums evaluated. The ORNL-001 AK will be revised to extend the generation date range to August 2008 and to include concrete and concrete block in the waste stream description. These 18 drums are eligible to be included in the OR-NFS-CH-SOIL waste stream. The inclusion of these drums will not alter the waste matrix code, EPA hazardous waste codes, or the expected radionuclides (including the two most prevalent radionuclides) for the waste stream. The inclusion of these drums will not necessitate additional operator training.

	X10C0506148				X10C0506149				X10C0506150			
Nuclide	*Curies*	*Grams*	*Ci%*	*Wt%*	*Curies*	*Grams*	*Ci%*	*Wt%*	*Curies*	*Grams*	*Ci%*	*Wt%*
AM-241	2.06E-02	5.94E-03	13.38%	0.03%	2.52E-02	7.26E-03	13.39%	0.05%	2.18E-02	6.28E-03	13.41%	0.03%
PU-238	3.51E-03	2.03E-04	2.28%	0.00%	4.29E-03	2.48E-04	2.28%	0.00%	3.70E-03	2.14E-04	2.28%	0.00%
PU-239	4.17E-02	6.63E-01	27.08%	3.01%	5.10E-02	8.11E-01	27.10%	5.91%	4.40E-02	7.00E-01	27.06%	3.32%
PU-240	1.40E-02	6.09E-02	9.09%	0.28%	1.72E-02	7.48E-02	9.14%	0.55%	1.48E-02	6.43E-02	9.10%	0.31%
PU-241	7.37E-02	7.09E-04	47.85%	0.00%	9.01E-02	8.66E-04	47.87%	0.01%	7.77E-02	7.47E-04	47.78%	0.00%
TC-99	1.18E-04	6.94E-03	0.08%	0.03%	1.39E-04	8.18E-03	0.07%	0.06%	1.23E-04	7.24E-03	0.08%	0.03%
TH-228	3.89E-06	4.69E-09	0.00%	0.00%	2.86E-06	3.45E-09	0.00%	0.00%	5.23E-06	6.31E-09	0.00%	0.00%
TH-232	1.93E-07	1.74E+00	0.00%	7.90%	2.08E-07	1.87E+00	0.00%	13.66%	7.75E-07	6.98E+00	0.00%	33.15%
U-232	3.89E-06	1.80E-07	0.00%	0.00%	2.86E-06	1.32E-07	0.00%	0.00%	5.23E-06	2.42E-07	0.00%	0.00%
U-233	3.50E-04	3.59E-02	0.23%	0.16%	2.57E-04	2.63E-02	0.14%	0.19%	4.71E-04	4.83E-02	0.29%	0.23%
U-234	1.83E-05	2.90E-03	0.01%	0.01%	3.99E-06	6.31E-04	0.00%	0.00%	1.55E-05	2.45E-03	0.01%	0.01%
U-235	8.73E-07	3.99E-01	0.00%	1.81%	1.90E-07	8.68E-02	0.00%	0.63%	7.39E-07	3.37E-01	0.00%	1.60%
U-238	6.49E-06	1.91E+01	0.00%	86.76%	3.68E-06	1.08E+01	0.00%	78.93%	4.39E-06	1.29E+01	0.00%	61.31%
	1.54E-01	2.20E+01			1.88E-01	1.37E+01			1.63E-01	2.11E+01		

	X10C0506151				X10C0506152			
Nuclide	*Curies*	*Grams*	*Ci%*	*Wt%*	*Curies*	*Grams*	*Ci%*	*Wt%*
AM-241	3.26E-02	9.39E-03	13.44%	0.02%	2.97E-02	8.56E-03	13.42%	0.04%
PU-238	5.53E-03	3.20E-04	2.28%	0.00%	5.05E-03	2.92E-04	2.28%	0.00%
PU-239	6.58E-02	1.05E+00	27.13%	2.65%	6.00E-02	9.54E-01	27.11%	3.97%
PU-240	2.21E-02	9.61E-02	9.11%	0.24%	2.02E-02	8.78E-02	9.13%	0.37%
PU-241	1.16E-01	1.12E-03	47.83%	0.00%	1.06E-01	1.02E-03	47.90%	0.00%
TC-99	1.74E-04	1.02E-02	0.07%	0.03%	1.61E-04	9.47E-03	0.07%	0.04%
TH-228	2.92E-06	3.52E-09	0.00%	0.00%	1.71E-06	2.06E-09	0.00%	0.00%
TH-232	1.13E-06	1.02E+01	0.00%	25.82%	1.13E-06	1.02E+01	0.00%	42.40%
U-232	2.92E-06	1.35E-07	0.00%	0.00%	1.71E-06	7.92E-08	0.00%	0.00%
U-233	2.62E-04	2.68E-02	0.11%	0.07%	1.54E-04	1.58E-02	0.07%	0.07%
U-234	1.88E-05	2.97E-03	0.01%	0.01%	1.16E-05	1.84E-03	0.01%	0.01%
U-235	8.95E-07	4.09E-01	0.00%	1.04%	5.50E-07	2.51E-01	0.00%	1.05%
U-238	9.40E-06	2.76E+01	0.00%	70.12%	4.25E-06	1.25E+01	0.00%	52.06%
	2.43E-01	3.94E+01			2.21E-01	2.40E+01		

Total Ci	*Total g*	*Ci%*	*Wt%*
1.30E-01	3.74E-02	13.41%	0.03%
2.21E-02	1.28E-03	2.28%	0.00%
2.63E-01	4.17E+00	27.10%	3.47%
8.83E-02	3.84E-01	9.12%	0.32%
4.64E-01	4.46E-03	47.85%	0.00%
7.15E-04	4.21E-02	0.07%	0.03%
1.66E-05	2.00E-08	0.00%	0.00%
3.44E-06	3.10E+01	0.00%	25.75%
1.66E-05	7.69E-07	0.00%	0.00%
1.49E-03	1.53E-01	0.15%	0.13%
6.82E-05	1.08E-02	0.01%	0.01%
3.25E-06	1.48E+00	0.00%	1.23%
2.82E-05	8.30E+01	0.00%	69.02%
9.69E-01	1.20E+02		

Jeff Harrison

From: Jeff Harrison [trash_talk@msn.com]
Sent: Friday, August 01, 2008 4:09 PM
To: 'Coffey, Don'
Subject: RE: PK review of Box containers

Thanks Don.

This answers the NFS soil question.

Did you see my other question on X10C0402975 from REDC?

From: Coffey, Don [mailto:Don.Coffey@truproject.com]
Sent: Friday, August 01, 2008 1:08 PM
To: Jeff Harrison
Subject: FW: PK review of Box containers

Hi Jeff,

This should take care of the question.

Do you concur?

Thanks,

Don

Don E. Coffey, CHMM
don.coffey@truproject.com
865.241.2520 (office)
423.596.0258 (cell)

From: Boss, Daniel A. [mailto:DABoss@nuclearfuelservices.com]
Sent: Friday, August 01, 2008 3:01 PM

To: Coffey, Don
Subject: FW: PK review of Box containers

From: Metcalf, April D.
Sent: Friday, August 01, 2008 2:44 PM
To: Boss, Daniel A.
Subject: RE: PK review of Box containers

Daniel,

The only boxes I ever remember doing in the metric compound were the HICs that we packed into burial boxes. You're statement below is correct.

April

From: Boss, Daniel A.
Sent: Friday, August 01, 2008 11:02 AM
To: Metcalf, April D.
Subject: FW: PK review of Box containers

From: Boss, Daniel A.
Sent: Friday, August 01, 2008 11:01 AM
To: 'Coffey, Don'
Cc: Livingston, J. D.
Subject: RE: PK review of Box containers

Don,

We (JD Livingston and myself) checked box 6545, 6602, 6552, 6644,and 6651 and looked up the inner container history in our NUMAC system and it's origin was the sales order (1537X) for Bldg 234. The Metrix Compound was just a location where they overpacked the legacy HICs into a burial box. The true origin of all this material was Building 234. I have also written to a supervisor present when this was done to verify that my understanding is correct and will let you know when I hear back on that as well....but I am fairly confident this is the case. The Metrix compound (we now refer to this area as the Lauren compound) was never a Pu area but was used as an open area for overpacking.

Daniel

From: Coffey, Don [mailto:Don.Coffey@truproject.com]
Sent: Friday, August 01, 2008 9:44 AM
To: Boss, Daniel A.
Cc: Coffey, Don
Subject: FW: PK review of Box containers

Hi Daniel,

The attached file contains copies of the NFS "RADWASTE PACKAGE CERTIFICATION RECORD" for the 5 NFS boxes that contain the HICs of soil.

I also have included the e-mail from Jeff Harrison with the question about the "Area Generated __Metric Compound__".

When you have had an opportunity to review the info please give me a call.

Thanks for your help.

Don

Don E. Coffey, CHMM
don.coffey@truproject.com
865.241.2520 (office)
423.596.0258 (cell)

From: Jeff Harrison [mailto:trash_talk@msn.com]
Sent: Tuesday, July 29, 2008 9:08 PM
To: Coffey, Don
Subject: RE: PK review of Box containers

Don,

Sorry this took so long. I kind of forgot I had it.

On the 5 NFS soil boxes, there may be a problem. For all of them, the RADWASTE PACKAGE CERTIFICATION RECORD says "Metric Compound" for the Area Generated, and on the checklist for the package contents, instead of "D = Dirt/Soil/Gravel", these are all marked "O = Other (Specify)" with several numbers written in which have no meaning to me. We need to be able to link this soil to either Building 234 or the Building 110 underground waste tank. Otherwise, I can't say they are bounded by the ORNL-001 AK. Can you see if Richard Moore can shed some light on this for us?

X10C9311140, X10C9311152, and X10C9311157 are bounded by CCP-AK-ORNL-003 R0, OR-RADP-CH-HET, and therefore, can be included on the PK list.

I see in EM Waste that X10C0402975 is managed as CH but there is discussion the paperwork about the waste being a glovebox shielded with lead packaged in a cask and something about it being high inventory. Can you give me a little more information on this that explains why it should be CH and not RH.

Thanks. Jeff

From: Coffey, Don [mailto:Don.Coffey@truproject.com]
Sent: Wednesday, July 09, 2008 8:01 AM
To: Jeff Harrison
Cc: Coffey, Don
Subject: PK review of Box containers

Hi Jeff,

Please review the attached 2109 forms for the following box containers for inclusion on the TWPC PK List. The content of the box containers will be repackaged into 55 gallon drums. Once the repackaging is completed, the completed Contact Handled Waste Repackaging Data Forms will be submitted for review and addition to the CCP waste tracking system.

Please note that the electronic copy of X10C0402975 is 21.5 MB and will be sent to you thru "YouSendIt".

CCP-AK-ORNL-001 R2, OR-NFS-CH-SOIL

Box # X10C0506148
Box # X10C0506149
Box # X10C0506150
Box # X10C0506151
Box # X10C0506152

CCP-AK-ORNL-003 R0, OR-RADP-CH-HET

Box # X10C9311140
Box # X10C9311152
Box # X10C9311157
Box # X10C0402975

Please review the attached containers for concurrence that they meet the physical parameters of the respective waste stream.

Please call me if you have questions or need additional information.

Thanks,

Don

Don E. Coffey, CHMM
don.coffey@truproject.com
865.241.2520 (office)
423.596.0258 (cell)

DIVIDER

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: M132
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☑ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a] : Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL dated 9/24/2008	
Source Document Reference Information (author(s), document and revision number, date, publisher): J. Harrison, M132, NA, 09/24/2008	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
PR2, PR3, PR4, PR6, WS1, WS2, WS3, WS4, WS6, WS7, WS8, WS9, WS11, WS12, S16	Throughout	Waste container information was reviewed for 5 55-gallon drums to verify that the containers were bounded by the existing CCP-AK-ORNL-001, Rev. AK summary report. The conclusion was the at the report does not bound these 5 daughter drums because they are from excavation of the RBG Trench B which is not describedin the ORNL-001 AK. The AK will be revised to include this discussion and to extend the generation date range. These 5 drums are therefore eligible to be included in the OR-NFS-CH-SOIL waste stream.

NTPC RECORDS, ORIGINAL
DATE REC'D 12/18/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: M132
Source Document Data Limitations (if any): 1. None.	
Acceptable Knowlege Expert: TRAVIS SMITH ~~Trey Greenwood~~ Date: 11/14/2013 Print TS 11/14/2013 /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

M132

Waste container information has been reviewed for 5 55-gallon drums to verify that the containers are bounded by the existing CCP-AK-ORNL-001, Rev. 3 AK Summary Report (ORNL-001) for the OR-NFS-CH-SOIL (SOIL) waste stream. These 5 drums are daughter drums from the repackaging of waste in box X10C0506154. The daughter drums are traceable to the parent box by the letter appended to the drum number (e.g., X10C0506154A is a daughter from X10C0506154).

Information reviewed for the box consists of the ORNL UCN-2109 container paperwork forms as well as the original NFS paperwork attached to the UCN-2109 (e.g., *Radwaste Package Certification Record*). The TWPC *Contact Handled Waste Repackaging Data Form* was reviewed for each of the daughter drums. The radiological data for the box from a 2/29/2008 EM Waste database query were also evaluated.

Waste Generation Location And Process

The ORNL-001 AK indicates the NFS soil waste originated from beneath the Building 234 Wet Chemistry Cell. A few drums of soil are from an area around the Building 110 laboratory underground waste tank. Drums and boxes of soil from NFS are repackaged, as necessary, at the TWPC (Sections 6.1 and 6.3).

The UCN-2109 forms indicate the box is from NFS. The *Radwaste Package Certification Record* for X10C0506154 does not identify the area generated, but the Gamma Waste Assay sheet identifies the location as "RBG Trench B" which is not discussed in the AK.

Richard Moore at NFS was contacted by phone the morning of 9-18-2008 to discuss RBG Trench B. He indicated that RBG is the Radioactive Burial Ground, and Trench B designates one of the burial pits. He said that NFS buried low-level waste on site from about 1966 to 1970, and Trench B was one of the earliest trenches used in 1966. The burial ground was excavated between 2000 and 2004 and the waste shipped to Envirocare. A couple of trenches had plutonium contamination which was initially a surprise but they found some documentation that said plutonium would be there. Richard has not been able to find this documentation again. Most all plutonium waste went to off-site burial. The trenches were unlined so the soil in this box (X10C0506154) would be from the trench (as opposed to being from somewhere else and buried here). The debris in this box would be from Buildings 110 or 234 because there was no other source for plutonium at NFS. It is possible that some of the debris could have originated from elsewhere at NFS if it was just laying in the trench next to the plutonium contaminated waste, but he remembered that the area of plutonium contamination was a small area at the end of the trench.

Since the excavation of RBG Trench B is not described in the ORNL-001 AK, these 5 drums of soil are not bounded by the SOIL stream. However, since the source of the contamination traces back to Buildings 110 or 234, this waste does belong in the SOIL waste stream. The ORNL-001 AK will be revised to include a discussion of this activity.

Time Period Of Generation

The ORNL-001 AK covers waste generated from 1993 to 2001 (Section 6.2).

The *Radwaste Package Certification Record* for the box has pack date of 2001. The daughters from this box were packaged at the TWPC in February 2008. The generation date of the box is bounded by the ORNL-001 AK, but the generation dates of the daughter drums are not bounded. These drums should be included in the waste stream so the ORNL-001 AK will be revised to extend the generation date range.

Physical Form

The ORNL-001 AK states that waste from the SOIL waste stream is comprised of soil, rock, and gravel mixed with absorbent. The soil was mixed with RADSORB absorbent powder (cross-linked homopolymer). A RADPAD absorbent pad (cellulosic laminate containing an organic polymer) was placed on top of the soil (Section 6.4.1). The waste stream is assigned waste matrix code is S4100, which is waste estimated to be greater than 95 percent by volume soil, including sand, silt, rock, and gravel, with rock and gravel volumes totaling less than 50 percent of the matrix (Section 6.4.1.1).

Waste material parameter weight estimates are not available for the box or daughter drums. The NFS *Radwaste Package Certification Record* for the one box has a waste description checklist with checkmarks next to dirt/soil/gravel, bitumen/asphalt, concrete/solid block, glass/graphite, metals, plastics, and trash. The TWPC *Contact Handled Waste Repackaging Data Forms* for these 5 daughter drums describe the waste as dirt/soil, rock, and absorbent which is consistent with AK (there are 25 more daughter drums from this box that contain debris waste). Therefore, these 5 drums are bounded by the ORNL-001 AK.

Chemical Content

The UCN-2109 waste disposal forms do not indicate any EPA hazardous waste numbers assigned to the one box that are not already identified in the ORNL-001 AK for the SOIL waste stream.

Radionuclides

As shown in Table 6-4 of the ORNL-001 AK, U-238 and Pu-239 are the two most prevalent radionuclides, by mass, for the SOIL waste stream at 73.42% and 19.17%, respectively.

Based on data from EM Waste (see below), the two most prevalent radionuclides, by mass, for box X10C0506154 are U-238 and Th-232 at 54.75% and 43.98%, respectively. The Th-232 is not consistent with AK; however, the addition of these daughter drums is not expected to alter the two most prevalent radionuclides for the waste stream as a whole.

Nuclide	Curies	Grams	Ci%	Wt%
AM-241	6.14E-02	1.77E-02	12.97%	0.00%
PU-238	1.04E-02	6.01E-04	2.20%	0.00%
PU-239	1.24E-01	1.97E+00	26.19%	0.08%
PU-240	4.17E-02	1.81E-01	8.81%	0.01%
PU-241	2.19E-01	2.11E-03	46.26%	0.00%
TC-99	3.34E-04	1.96E-02	0.07%	0.00%
TH-228	1.59E-04	1.92E-07	0.03%	0.00%
TH-232	1.23E-04	1.11E+03	0.03%	43.98%
U-232	1.59E-04	7.36E-06	0.03%	0.00%
U-233	1.43E-02	1.47E+00	3.02%	0.06%
U-234	1.30E-03	2.06E-01	0.27%	0.01%
U-235	6.18E-05	2.82E+01	0.01%	1.12%
U-238	4.69E-04	1.38E+03	0.10%	54.75%

Prohibited Items

The UCN-2109 form and *Radwaste Package Certification Record* for the box indicate no prohibited in the waste. The TWPC *Contact Handled Waste Repackaging Data Form* for each of the 5 daughter drums also indicate no prohibited items in the waste.

Conclusion

As described above, the existing ORNL-001 AK Summary Report does not bound these 5 daughter drums because they are from excavation of RBG Trench B which is not described in the ORNL-001 AK. The AK will be revised to include this discussion and to extend the generation date range. These 5 drums are therefore eligible to be included in the OR-NFS-CH-SOIL waste stream. The inclusion of these drums will not alter the waste matrix code, EPA hazardous waste codes, or the expected radionuclides (including the two most prevalent radionuclides) for the waste stream. The inclusion of these drums will not necessitate additional operator training.

Jeff Harrison		9/24/08
AKE	Signature	Date

DIVIDER PAGE

Attachment 8 – Waste Containers List

Site(s): Oak Ridge National Laboratory

Waste Stream Number(s): OR-REDC-RH-HET

Waste Stream Description: Radiological Engineering Development Center RH TRU Debris

Number of Waste Containers in Waste Stream: Repackaged waste in 55-gal. drums from concrete casks. First drum generated 5/28/2008.

Total Existing Volume (m^3): 21 55-gallon drums (~4.2 m^3) as of 4/14/2009

Is waste expected to be generated in the future?: Yes

If yes, Estimated Future Volume (m^3): 427.4 m^3 (2,055 55-gal. durms) of REDC waste to be repackaged from casks, drums, and boxes. An additional 3.4 m^3 (16 55-gal. drums) are projected to be generated annually (indefinitely) from ongoing operations in the REDC.

Assumptions: It is estimated that as much as 50% of the repackaged waste will be determined to be CH during repackaging. This volume does not include CH drums currently included in corresponding CH Waste Stream OR-REDC-RH-HET determined to be RH during future characterization activities.

Container Identification Number	Generation Date	Generation Point
See Attached Addition of Containers Memorandum for containers included in waste stream OR-REDC-RH-HET.	5/28/2008 - TBD	Bldg. 7920 REDC – Repackaged in Bldg. 7880 TWCP

Acceptable Knowledge Expert: Christopher Chancellor _____ Date: 04/14/2009

Print Sign

MEMORANDUM

To: Larry Porter, CCP SPM

From: Kevin Peters, CCP AKE

Date: May 30, 2008

RE: Addition of Containers ORRH00001, ORRH00002, and ORRH00003 to Waste Stream OR-REDC-RH-HET (Parent Cask X10C0011108)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 55-gallon drums ORRH00001, ORRH00002, and ORRH00003 recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete cask X10C0011108. This evaluation included the review of existing AK for the cask, in addition to review of the VE BDR generated for these drums during packaging.

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Recently, additional cask packaging documentation was provided by ORNL (May 29, 2008) that provides more detailed information relating to the contents and period of generation for the waste in the internal packages in this cask. Attachment 1 summarizes the information obtained during the review of historic waste packaging documentation including; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M120.

Based on this evaluation, the waste contained in this cask is physically and chemically bounded by the description of waste stream OR-REDC-RH-HET in AK Summary Report CCP-AK-ORNL-500. Additionally, based on the review of the packaging dates for the waste items in the cask,(1/28/2001 – 8/11/2002) the radiological characterization will be performed using the "Mark-42/HFIR" radiological distribution described in CCP-AK-ORNL-501.

Based on the cask documentation and a review of the VE BDR (ORRHVE0001) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code

- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00001	5/28/2008	5/28/2008	X10C0011108
ORRH00002	5/29/2008	5/29/2008	X10C0011108
ORRH00003	5/30/2008	5/30/2008	X10C0011108

Attachment 1 **Cask Evaluation - X10C0011108** **May 29, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
Bag 1 (79)	7/26/02 - 8/1/02	7920 Cell Bank	15 cans of melted plastic (3), cellulosics, glass, metal, and misc. debris	mercury (Hg Flo Cell)	Package date for can #8681 (7/26/01) assumed appears to be incorrect and should be 8/6/02
Bag 2 (80)	7/25/02 - 7/28/02	7920 Cell Bank	22 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris	broken light bulbs	
Bag 3 (81)	7/27/02 - 8/3/02	7920 Cell Bank	21 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris	nitric acid, sodium oxalate, 9V batteries	Campaign M9, M10, M11, M13, M14, and M15 waste identified
Bag 4 (82)	7/28/02 - 8/3/02	7920 Cell Bank	14 cans of melted plastic (10), cellulosics, glass, metal, rubber, and misc. debris (scales, mirror frame, air jet)	sodium oxalate, Hyflo Super Cell (filter aid)	Campaign M9, M10, M14, and 72 waste identified
Bag 5 (83)	7/28/02 - 8/7/03	7920 Cell Bank	16 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris (tweezers, mirror, wrenches)	9V battery, light bulbs, lithium chloride, sodium oxalte, red oil	
Bag 6 (84)	1/28/01 - 8/10/02	7920 Cell Bank	15 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (hose and filter)	sodium oxalate, red oil, lithium chloride	Campaign M9 waste identified
Bag 7 (85)	8/9/02 - 8/11/02	7920 Cell Bank	13 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (wrenches, furnace, tubing, detangler, tweezers), grouted resin	sodium oxalate, red oil, lithium chloride	

MEMORANDUM

To: Larry Porter, CCP SPM

From: Kevin Peters, CCP AKE

Date: June 4, 2008

RE: Addition of Containers ORRH00004, ORRH00005, and ORRH00006 to Waste Stream OR-REDC-RH-HET (Parent Cask X10C0011108)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 55-gallon drums ORRH00004, ORRH00005, and ORRH00006 recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete cask X10C0011108. This evaluation included the review of existing AK for the cask, in addition to review of the VE BDR generated for these drums during packaging.

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Recently, additional cask packaging documentation was provided by ORNL (May 29, 2008) that provides more detailed information relating to the contents and period of generation for the waste in the internal packages in this cask. Attachment 1 summarizes the information obtained during the review of historic waste packaging documentation including; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M120.

Based on this evaluation, the waste contained in this cask is physically and chemically bounded by the description of waste stream OR-REDC-RH-HET in AK Summary Report CCP-AK-ORNL-500. Additionally, based on the review of the packaging dates for the waste items in the cask,(1/28/2001 – 8/11/2002) the radiological characterization will be performed using the "Mark-42/HFIR" radiological distribution described in CCP-AK-ORNL-501.

Based on the cask documentation and a review of the VE BDR (ORRHVE0001) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code

- Chemical content
- Prohibited items
- Radionuclides

AMP cans identified in the container paperwork were foundied during repackaging and VE. Based on information provided by the Bob Billet, review of these items determined that they are aluminum cylinders that were opened during repackaging and found to contain small circuitry and no liquids. It was determined that these items are components of dose meters and would not have contained PCBs.

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00004	6/2/2008	6/2/2008	X10C0011108
ORRH00005	6/2/2008	6/2/2008	X10C0011108
ORRH00006	6/3/2008	6/3/2008	X10C0011108

Attachment 1 **Cask Evaluation - X10C0011108** **May 29, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
Bag 1 (79)	7/26/02 - 8/1/02	7920 Cell Bank	15 cans of melted plastic (3), cellulosics, glass, metal, and misc. debris	mercury (Hg Flo Cell)	Package date for can #8681 (7/26/01) assumed appears to be incorrect and should be 8/6/02
Bag 2 (80)	7/25/02 - 7/28/02	7920 Cell Bank	22 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris	broken light bulbs	
Bag 3 (81)	7/27/02 - 8/3/02	7920 Cell Bank	21 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris	nitric acid, sodium oxalate, 9V batteries	Campaign M9, M10, M11, M13, M14, and M15 waste identified
Bag 4 (82)	7/28/02 - 8/3/02	7920 Cell Bank	14 cans of melted plastic (10), cellulosics, glass, metal, rubber, and misc. debris (scales, mirror frame, air jet)	sodium oxalate, Hyflo Super Cell (filter aid)	Campaign M9, M10, M14, and 72 waste identified
Bag 5 (83)	7/28/02 - 8/7/03	7920 Cell Bank	16 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris (tweezers, mirror, wrenches)	9V battery, light bulbs, lithium chloride, sodium oxalte, red oil	
Bag 6 (84)	1/28/01 - 8/10/02	7920 Cell Bank	15 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (hose and filter)	sodium oxalate, red oil, lithium chloride	Campaign M9 waste identified
Bag 7 (85)	8/9/02 - 8/11/02	7920 Cell Bank	13 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (wrenches, furnace, tubing, detangler, tweezers), grouted resin	sodium oxalate, red oil, lithium chloride	

Photograph of amp can

Best Available Copy

MEMORANDUM

To: Larry Porter, CCP SPM

From: Kevin Peters, CCP AKE

Date: June 5, 2008

RE: Addition of Containers ORRH00007, ORRH00008, and ORRH00009 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C0011108 and X10C0601826)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 55-gallon drums ORRH00007, ORRH00008, and ORRH00009 recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete casks X10C0011108 and X10C0601826. This evaluation included the review of existing AK for the casks, in addition to review of the VE BDR generated for these drums during packaging.

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Recently, additional cask packaging documentation was provided by ORNL (May 29, 2008) that provides more detailed information relating to the contents and period of generation for the waste in the internal packages in the casks. Attachment 1 and 2 summarize the information obtained during the review of historic waste packaging documentation including; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M120.

During the review of the packaging documentation for Cask X10C0601826 (M120), discrepancies were identified between this documentation and the initial packaging information on the 2109 form for this cask (M100). The 2109 form only identify six bags all originating from Building 7920, Room 120 (LAA). The packaging logs identified that these six bags contain 56 cans of waste items, in addition to 29 other items (e.g., balances, clamps, PPE, empty bottles, and shielding) listed on the logs. However, based on a review of the more detailed packaging logs it was determined that one item originating from 7930 (Cell C), two items originated from Room 211, and three items (two lead shield and a transition plate) were labeled as "Dreseden." Interviews were conducted with the generators (C600) and a Discrepancy Report (DR600) was prepared. It was determined that the small amount of radiological contamination introduced by these few items will be insignificant to the radiological characterization of the drums generated from this cask and that these items are also physically and chemically bounded by the description of waste stream OR-REDC-RH-HET in AK Summary Report CCP-AK-ORNL-500. Additionally, based on the review of the packaging dates for the

waste items in casks X10C0011108 (1/28/2001 – 8/11/2002) and X10C0601826 (4/12/2000 – 2/6/2007) the radiological characterization will be performed using the "Mark-42/HFIR" radiological distribution described in CCP-AK-ORNL-501.

Based on the cask documentation and a review of the VE BDR (ORRHVE0001) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

AMP cans identified in the container paperwork were found during repackaging and VE. Based on information provided by the Bob Billet (see attached photograph), review of these items determined that they are aluminum cylinders that were opened during repackaging and found to contain small circuitry and no liquids. It was determined that these items are components of dose meters and would not have contained PCBs.

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00007	6/3/2008	6/3/2008	X10C0011108 (25%); X10C0601826 (75%)
ORRH00008	6/4/2008	6/4/2008	X10C0601826
ORRH00009	6/5/2008	6/5/2008	X10C0601826

Attachment 1 **Cask Evaluation - X10C0011108** **May 29, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
Bag 1 (79)	7/26/02 - 8/1/02	7920 Cell Bank	15 cans of melted plastic (3), cellulosics, glass, metal, and misc. debris	mercury (Hg Flo Cell)	Package date for can #8681 (7/26/01) assumed appears to be incorrect and should be 8/6/02
Bag 2 (80)	7/25/02 - 7/28/02	7920 Cell Bank	22 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris	broken light bulbs	
Bag 3 (81)	7/27/02 - 8/3/02	7920 Cell Bank	21 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris	nitric acid, sodium oxalate, 9V batteries	Campaign M9, M10, M11, M13, M14, and M15 waste identified
Bag 4 (82)	7/28/02 - 8/3/02	7920 Cell Bank	14 cans of melted plastic (10), cellulosics, glass, metal, rubber, and misc. debris (scales, mirror frame, air jet)	sodium oxalate, Hyflo Super Cell (filter aid)	Campaign M9, M10, M14, and 72 waste identified
Bag 5 (83)	7/28/02 - 8/7/03	7920 Cell Bank	16 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris (tweezers, mirror, wrenches)	9V battery, light bulbs, lithium chloride, sodium oxalte, red oil	
Bag 6 (84)	1/28/01 - 8/10/02	7920 Cell Bank	15 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (hose and filter)	sodium oxalate, red oil, lithium chloride	Campaign M9 waste identified
Bag 7 (85)	8/9/02 - 8/11/02	7920 Cell Bank	13 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (wrenches, furnace, tubing, detangler, tweezers), grouted resin	sodium oxalate, red oil, lithium chloride	

Attachment 1 **Cask Evaluation - X10C0601826** **June 2, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
106	8/3/02 - 1/28/07	7920 Cell Bank	Bag conataining 14 cans of cellulosics, glass, metal, grouted material, and misc. debris (balances and clamps)	broken light bulbs	EPA Codes D006, D008, D009, and D011 assigned to this cask by the generator.
107	4/12/00 - 12/14/06	7920 Cell Bank	Bag conataining 13 cans of cellulosics, glass, metal, rubber, and misc. debris (balances and clamps)	circuit boards, light bulb sockets	
108	4/12/04 - 12/19/06	7920 Cell Bank	Bag conataining 14 cans of melted plastic (7), cellulosics, glass, metal, and misc. debris		
109	8/11/02 - 12/19/06	7920 Cell Bank	Bag conataining 15 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris		
X430687A & B	8/24/06 - 2/6/07	7920 pipe tunnel Lab 211, and 7930	Consists of 19 items including pipe tunnel waste (PPE, rope), Desden lead shied and transition plate.	lead shields	Identifies one item from 7930 Cell C, WS 6 (8 mR/hr). Includes poly bottles from process development Lab 211, indicated only as Cf glovebox waste.

Photograph of amp can

Best Available Copy

MEMORANDUM

To: Larry Porter, CCP SPM

From: Kevin Peters, CCP AKE

Date: June 11, 2008

RE: Addition of Containers ORRH00010, ORRH00011, and ORRH00012 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C0011108 and X10C0601826)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 55-gallon drums ORRH00010, ORRH00011, and ORRH00012 recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete casks X10C0011108 and X10C0601826. This evaluation included the review of existing AK for the casks, in addition to review of the VE BDR generated for these drums during packaging.

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Recently, additional cask packaging documentation was provided by ORNL (May 29, 2008) that provides more detailed information relating to the contents and period of generation for the waste in the internal packages in the casks. Attachment 1 and 2 summarize the information obtained during the review of historic waste packaging documentation including; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M120.

During the review of the packaging documentation for Cask X10C0601826 (M120), discrepancies were identified between this documentation and the initial packaging information on the 2109 form for this cask (M100). The 2109 form only identify six bags all originating from Building 7920, Room 120 (LAA). The packaging logs identified that these six bags contain 56 cans of waste items, in addition to 29 other items (e.g., balances, clamps, PPE, empty bottles, and shielding) listed on the logs. However, based on a review of the more detailed packaging logs it was determined that one item originating from 7930 (Cell C), two items originated from Room 211, and three items (two lead shield and a transition plate) were labeled as "Dreseden." Interviews were conducted with the generators (C600) and a Discrepancy Report (DR600) was prepared. It was determined that the small amount of radiological contamination introduced by these few items will be insignificant to the radiological characterization of the drums generated from this cask and that these items are also physically and chemically bounded by the description of waste stream OR-REDC-RH-HET in AK Summary Report CCP-AK-ORNL-500. Additionally, based on the review of the packaging dates for the

waste items in casks X10C0011108 (1/28/2001 – 8/11/2002) and X10C0601826 (4/12/2000 – 2/6/2007) the radiological characterization will be performed using the "Mark-42/HFIR" radiological distribution described in CCP-AK-ORNL-501.

Based on the cask documentation and a review of the VE BDR (RHORVE080004) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00010	6/5/2008	6/5/2008	X10C0601826
ORRH00011	6/11/2008	6/11/2008	X10C0601826
ORRH00012	6/11/2008	6/11/2008	X10C0011108 (30%); X10C0601826 (70%)

Attachment 1 **Cask Evaluation - X10C0011108** **May 29, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
Bag 1 (79)	7/26/02 - 8/1/02	7920 Cell Bank	15 cans of melted plastic (3), cellulosics, glass, metal, and misc. debris	mercury (Hg Flo Cell)	Package date for can #8681 (7/26/01) assumed appears to be incorrect and should be 8/6/02
Bag 2 (80)	7/25/02 - 7/28/02	7920 Cell Bank	22 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris	broken light bulbs	
Bag 3 (81)	7/27/02 - 8/3/02	7920 Cell Bank	21 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris	nitric acid, sodium oxalate, 9V batteries	Campaign M9, M10, M11, M13, M14, and M15 waste identified
Bag 4 (82)	7/28/02 - 8/3/02	7920 Cell Bank	14 cans of melted plastic (10), cellulosics, glass, metal, rubber, and misc. debris (scales, mirror frame, air jet)	sodium oxalate, Hyflo Super Cell (filter aid)	Campaign M9, M10, M14, and 72 waste identified
Bag 5 (83)	7/28/02 - 8/7/03	7920 Cell Bank	16 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris (tweezers, mirror, wrenches)	9V battery, light bulbs, lithium chloride, sodium oxalte, red oil	
Bag 6 (84)	1/28/01 - 8/10/02	7920 Cell Bank	15 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (hose and filter)	sodium oxalate, red oil, lithium chloride	Campaign M9 waste identified
Bag 7 (85)	8/9/02 - 8/11/02	7920 Cell Bank	13 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (wrenches, furnace, tubing, detangler, tweezers), grouted resin	sodium oxalate, red oil, lithium chloride	

Attachment 1 **Cask Evaluation - X10C0601826** **June 2, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
106	8/3/02 - 1/28/07	7920 Cell Bank	Bag conataining 14 cans of cellulosics, glass, metal, grouted material, and misc. debris (balances and clamps)	broken light bulbs	EPA Codes D006, D008, D009, and D011 assigned to this cask by the generator.
107	4/12/00 - 12/14/06	7920 Cell Bank	Bag conataining 13 cans of cellulosics, glass, metal, rubber, and misc. debris (balances and clamps)	circuit boards, light bulb sockets	
108	4/12/04 - 12/19/06	7920 Cell Bank	Bag conataining 14 cans of melted plastic (7), cellulosics, glass, metal, and misc. debris		
109	8/11/02 - 12/19/06	7920 Cell Bank	Bag conataining 15 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris		
X430687A & B	8/24/06 - 2/6/07	7920 pipe tunnel Lab 211, and 7930	Consists of 19 items including pipe tunnel waste (PPE, rope), Desden lead shied and transition plate.	lead shields	Identifies one item from 7930 Cell C, WS 6 (8 mR/hr). Includes poly bottles from process development Lab 211, indicated only as Cf glovebox waste.

MEMORANDUM

To: Hillari Neely, CCP SPM

From: Kevin Peters, CCP AKE

Date: June 27, 2008

RE: Addition of Containers ORRH00014, ORRH00015, ORRH00016, and ORRH00017 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C0011108 and X10C0601826)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 55-gallon drums ORRH00014, ORRH00015, ORRH00016, and ORRH00017 recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete casks X10C0011108 and X10C0601826. This evaluation included the review of existing AK for the casks, in addition to review of the VE BDR generated for these drums during packaging.

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Recently, additional cask packaging documentation was provided by ORNL (May 29, 2008) that provides more detailed information relating to the contents and period of generation for the waste in the internal packages in the casks. Attachment 1 and 2 summarize the information obtained during the review of historic waste packaging documentation including; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M120.

During the review of the packaging documentation for Cask X10C0601826 (M120), discrepancies were identified between this documentation and the initial packaging information on the 2109 form for this cask (M100). The 2109 form only identify six bags all originating from Building 7920, Room 120 (LAA). The packaging logs identified that these six bags contain 56 cans of waste items, in addition to 29 other items (e.g., balances, clamps, PPE, empty bottles, and shielding) listed on the logs. However, based on a review of the more detailed packaging logs it was determined that one item originating from 7930 (Cell C), two items originated from Room 211, and three items (two lead shield and a transition plate) were labeled as "Dreseden." Interviews were conducted with the generators (C600) and a Discrepancy Report (DR600) was prepared. It was determined that the small amount of radiological contamination introduced by these few items will be insignificant to the radiological characterization of the drums generated from this cask and that these items are also physically and chemically bounded by the description of waste stream OR-REDC-RH-HET in AK Summary Report

CCP-AK-ORNL-500. Additionally, based on the review of the packaging dates for the waste items in casks X10C0011108 (1/28/2001 – 8/11/2002) and X10C0601826 (4/12/2000 – 2/6/2007) the radiological characterization will be performed using the "Mark-42/HFIR" radiological distribution described in CCP-AK-ORNL-501.

Based on the cask documentation and a review of the VE BDR (RHORVE080006) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00014	7/17/2008	7/17/2008	X10C0011108 (45%); X10C0601826 (55%)
ORRH00015	7/2/2008	7/2/2008	X10C0601826
ORRH00016	7/18/2008	7/18/2008	X10C0011108 (45%); X10C0601826 (55%)
ORRH00017	7/17/2008	7/17/2008	X10C0011108 (45%); X10C0601826 (55%)

Attachment 1 **Cask Evaluation - X10C0011108** **May 29, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
Bag 1 (79)	7/26/02 - 8/1/02	7920 Cell Bank	15 cans of melted plastic (3), cellulosics, glass, metal, and misc. debris	mercury (Hg Flo Cell)	Package date for can #8681 (7/26/01) assumed appears to be incorrect and should be 8/6/02
Bag 2 (80)	7/25/02 - 7/28/02	7920 Cell Bank	22 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris	broken light bulbs	
Bag 3 (81)	7/27/02 - 8/3/02	7920 Cell Bank	21 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris	nitric acid, sodium oxalate, 9V batteries	Campaign M9, M10, M11, M13, M14, and M15 waste identified
Bag 4 (82)	7/28/02 - 8/3/02	7920 Cell Bank	14 cans of melted plastic (10), cellulosics, glass, metal, rubber, and misc. debris (scales, mirror frame, air jet)	sodium oxalate, Hyflo Super Cell (filter aid)	Campaign M9, M10, M14, and 72 waste identified
Bag 5 (83)	7/28/02 - 8/7/03	7920 Cell Bank	16 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris (tweezers, mirror, wrenches)	9V battery, light bulbs, lithium chloride, sodium oxalte, red oil	
Bag 6 (84)	1/28/01 - 8/10/02	7920 Cell Bank	15 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (hose and filter)	sodium oxalate, red oil, lithium chloride	Campaign M9 waste identified
Bag 7 (85)	8/9/02 - 8/11/02	7920 Cell Bank	13 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (wrenches, furnace, tubing, detangler, tweezers), grouted resin	sodium oxalate, red oil, lithium chloride	

Attachment 1 **Cask Evaluation - X10C0601826** **June 2, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
106	8/3/02 - 1/28/07	7920 Cell Bank	Bag conataining 14 cans of cellulosics, glass, metal, grouted material, and misc. debris (balances and clamps)	broken light bulbs	EPA Codes D006, D008, D009, and D011 assigned to this cask by the generator.
107	4/12/00 - 12/14/06	7920 Cell Bank	Bag conataining 13 cans of cellulosics, glass, metal, rubber, and misc. debris (balances and clamps)	circuit boards, light bulb sockets	
108	4/12/04 - 12/19/06	7920 Cell Bank	Bag conataining 14 cans of melted plastic (7), cellulosics, glass, metal, and misc. debris		
109	8/11/02 - 12/19/06	7920 Cell Bank	Bag conataining 15 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris		
X430687A & B	8/24/06 - 2/6/07	7920 pipe tunnel Lab 211, and 7930	Consists of 19 items including pipe tunnel waste (PPE, rope), Desden lead shied and transition plate.	lead shields	Identifies one item from 7930 Cell C, WS 6 (8 mR/hr). Includes poly bottles from process development Lab 211, indicated only as Cf glovebox waste.

MEMORANDUM

To: Hillari Neely, CCP SPM

From: Kevin Peters, CCP AKE

Date: June 27, 2008

RE: Addition of Container ORRH00013 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C0011108 and X10C0601826)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 55-gallon drum ORRH00013 recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete casks X10C0011108 and X10C0601826. This evaluation included the review of existing AK for the casks, in addition to review of the VE BDR generated for these drums during packaging.

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Recently, additional cask packaging documentation was provided by ORNL (May 29, 2008) that provides more detailed information relating to the contents and period of generation for the waste in the internal packages in the casks. Attachment 1 and 2 summarize the information obtained during the review of historic waste packaging documentation including; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M120.

During the review of the packaging documentation for Cask X10C0601826 (M120), discrepancies were identified between this documentation and the initial packaging information on the 2109 form for this cask (M100). The 2109 form only identify six bags all originating from Building 7920, Room 120 (LAA). The packaging logs identified that these six bags contain 56 cans of waste items, in addition to 29 other items (e.g., balances, clamps, PPE, empty bottles, and shielding) listed on the logs. However, based on a review of the more detailed packaging logs it was determined that one item originating from 7930 (Cell C), two items originated from Room 211, and three items (two lead shield and a transition plate) were labeled as "Dreseden." Interviews were conducted with the generators (C600) and a Discrepancy Report (DR600) was prepared. It was determined that the small amount of radiological contamination introduced by these few items will be insignificant to the radiological characterization of the drums generated from this cask and that these items are also physically and chemically bounded by the description of waste stream OR-REDC-RH-HET in AK Summary Report CCP-AK-ORNL-500. Additionally, based on the review of the packaging dates for the waste items in casks X10C0011108 (1/28/2001 – 8/11/2002) and X10C0601826

(4/12/2000 – 2/6/2007) the radiological characterization will be performed using the "Mark-42/HFIR" radiological distribution described in CCP-AK-ORNL-501.

Based on the cask documentation and a review of the VE BDR (RHORVE080005) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00013	6/12/2008	6/12/2008	X10C0011108 (80%); X10C0601826 (20%)

Attachment 1 **Cask Evaluation - X10C0011108** **May 29, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
Bag 1 (79)	7/26/02 - 8/1/02	7920 Cell Bank	15 cans of melted plastic (3), cellulosics, glass, metal, and misc. debris	mercury (Hg Flo Cell)	Package date for can #8681 (7/26/01) assumed appears to be incorrect and should be 8/6/02
Bag 2 (80)	7/25/02 - 7/28/02	7920 Cell Bank	22 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris	broken light bulbs	
Bag 3 (81)	7/27/02 - 8/3/02	7920 Cell Bank	21 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris	nitric acid, sodium oxalate, 9V batteries	Campaign M9, M10, M11, M13, M14, and M15 waste identified
Bag 4 (82)	7/28/02 - 8/3/02	7920 Cell Bank	14 cans of melted plastic (10), cellulosics, glass, metal, rubber, and misc. debris (scales, mirror frame, air jet)	sodium oxalate, Hyflo Super Cell (filter aid)	Campaign M9, M10, M14, and 72 waste identified
Bag 5 (83)	7/28/02 - 8/7/03	7920 Cell Bank	16 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris (tweezers, mirror, wrenches)	9V battery, light bulbs, lithium chloride, sodium oxalte, red oil	
Bag 6 (84)	1/28/01 - 8/10/02	7920 Cell Bank	15 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (hose and filter)	sodium oxalate, red oil, lithium chloride	Campaign M9 waste identified
Bag 7 (85)	8/9/02 - 8/11/02	7920 Cell Bank	13 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (wrenches, furnace, tubing, detangler, tweezers), grouted resin	sodium oxalate, red oil, lithium chloride	

Attachment 1 **Cask Evaluation - X10C0601826** **June 2, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
106	8/3/02 - 1/28/07	7920 Cell Bank	Bag conataining 14 cans of cellulosics, glass, metal, grouted material, and misc. debris (balances and clamps)	broken light bulbs	EPA Codes D006, D008, D009, and D011 assigned to this cask by the generator.
107	4/12/00 - 12/14/06	7920 Cell Bank	Bag conataining 13 cans of cellulosics, glass, metal, rubber, and misc. debris (balances and clamps)	circuit boards, light bulb sockets	
108	4/12/04 - 12/19/06	7920 Cell Bank	Bag conataining 14 cans of melted plastic (7), cellulosics, glass, metal, and misc. debris		
109	8/11/02 - 12/19/06	7920 Cell Bank	Bag conataining 15 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris		
X430687A & B	8/24/06 - 2/6/07	7920 pipe tunnel Lab 211, and 7930	Consists of 19 items including pipe tunnel waste (PPE, rope), Desden lead shied and transition plate.	lead shields	Identifies one item from 7930 Cell C, WS 6 (8 mR/hr). Includes poly bottles from process development Lab 211, indicated only as Cf glovebox waste.

MEMORANDUM

To: Hillari Neely, CCP SPM

From: Kevin Peters, CCP AKE

Date: April 13, 2009

RE: Addition of Containers ORRH00018, ORRH00021, ORRH00022, and ORRH00023 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C0402945 and X10C0402970)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 55-gallon drums ORRH00018, ORRH00021, ORRH00022, and ORRH00023 recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete casks X10C0402945 and X10C0402970. This evaluation included the review of existing AK for the casks, in addition to review of the VE BDRs generated for these drums during packaging. It should be noted that evaluations of CH drums generated from these casks were performed, and these containers were included in the corresponding CH waste stream OR-REDC-CH-HET (CH Evaluations dated 1/20/2009, 1/26/2009, and 1/29/2009 – See AK Sources M138, M139, and M140).

Information reviewed for the casks consisted of the ORNL UCN-2109 container paperwork forms (U100), REDC maintenance logbooks (U502 and U503), and the *Solid Waste Storage Area 5 North TRU Waste Engineering Study for the 22-Trench Area at ORNL* report (P1115). The TWPC *Contact Handled Waste Repackaging Data Form* was reviewed for each of the daughter drums.

Based on the evaluation of the documentation for cask X10C0402945 (performed 8/22/2008), the cask was loaded during the 2/1/77-3/10/77 timeframe. U502 discusses the packaging and transfer of poly buckets to the 6-inch concrete cask during this time frame containing non-burnable cubicle waste. The container documentation in U100 identifies that the cask is full of 63 heat-sealed poly buckets sealed on 3/10/77. The waste is described as "misc. waste materials from cubicles, i.e., plastic tubing, bottles, manipulator boots, glass sample bottles, and discarded equipment parts in metal 1-gal. cans." See Attachment 1.

Based on the evaluation of the documentation for cask X10C0402970 (performed 8/22/2008), the cask was loaded during the 3/21/78-3/23/77 timeframe. U503 discusses the packaging and transfer of the T-4 bags from Cubicles 1 and 9 to the 6-inch concrete cask during this time frame and the loading of the other waste items in to the cask (3/23/78) containing non-burnable cubicle waste. The bags contain paint cans and discarded analytical equipment. The cask also contains 3 fiber drums, 2 plastic bags, bottom section of T-1 bag from the cold loading station, a discarded vacuum pump from

M&C leak detector, and hand control valves (HCVs) from the Chemical Makeup Area (MUA) panel. See Attachment 2.

It should be noted that the original evaluation of Cask X10C0402970 identified a vacuum pump that was a potential PCB item. A pump and electric motor were loaded into drum ORRH00023 and identified on the VE Data Form. Shane Miles was contacted about these items and he confirmed that the pump was a small electric pump without a reservoir and the small electric armature motor that did not contain capacitors. Therefore, these items were not identified as PCB items.

Based on the cask documentation and a review of the VE BDR (RHORVE080009 and RHORVE090010) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00018	12/30/2008	12/30/2008	X10C0402945
ORRH00021	1/15/2009	1/15/2009	X10C0402945
ORRH00022	1/21/2009	1/21/2009	X10C0402970
ORRH00023	1/22/2009	1/22/2009	X10C0402970

Attachment 1 **Cask Evaluation - X10C0402945** **August 22, 2008**

Cask Type	Waste Package Date	Waste Origin	Waste Description	Chemicals/ Compounds	Comments	AK Sources
6"	2/1/1977-3/10/1977	7920 Cell Bank	Nonburnable cubicle waste in 63 heat-sealed poly buckets (ATN 1357). U100 identifies "misc. waste materials from cubicles, i.e., plastic tubing, bottles, manipulator boots, glass sample bottles, and discarded equipment parts in metal 1-gal. cans."	None Identified	Logbook U502 identifies cubicle waste being packaged into this cask beginning in 2/1/1977. The cask was full on 3/7/77 and sealed on 3/8/77.	U100, U502 (pgs. 43-51), P1115 (pg. 55)

Attachment 2 **Cask Evaluation - X10C0402970** **August 22, 2008**

Cask Type	Waste Package Date	Waste Origin	Waste Description	Chemicals/ Compounds	Comments	AK Sources
6"	3/21/1978-3/23/1978	7920 Cell Bank	Miscellaneous non-burnable waste from cubicles in six T-4 bags from cubicle 9 (5 bags) and cubicle 1 (1 bag). The bags contain paint cans and discarded analytical equipment. The cask also contains 3 fiber drums, 2 plastic bags, bottom section of T-1 bag from the cold loading station, a discarded vacuum pump from M&C leak detector, and hand control valves (HCVs) from the Chemical Makeup Area (MUA) panel. ATN 1581	Potential PCB Item Vacuum pump	Logbook U503 identifies the preparation of the cask for the 6 T-4 bags of Cubicle 1 and 9 waste on 3/21/78 and the loading of the cask with the bags on 3/23/78. The bag containing the 6 bags was sealed and the remaining items were placed on top.	U100, U503 (pgs. 41-43), P1115 (pg. 75)

MEMORANDUM

To: Irene Quintana, CCP SPM

From: Kevin Peters, CCP AKE KP

Date: May 19, ~~2008~~ 2009 KP 6/24/09

RE: Addition of Containers ORRH00019, ORRH00020, ORRH00024, ORRH00027, ORRH00028, ORRH00029, ORRH00030, ORRH00031, ORRH00032, and ORRH00034 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C0011108, X10C0601826, X10C9402650, X10C0011088, and repack of drums ORRH00007 and ORRH00010)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 10 55-gallon drums recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete casks X10C0011108, X10C0601826, X10C9402650, and X10C0011088. This evaluation included the review of existing AK for the casks, in addition to review of the VE BDRs generated for these drums during packaging. In addition to the waste directly repackaged into the drums from the casks, waste was also repackaged from RH containers ORRH00007 and ORRH00010 previously added to waste stream OR-REDC-RH-HET (See the 6/5/2008 and 6/11/2008 memoranda to add containers).

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Additional cask packaging documentation was provided by ORNL (May 29, 2008) that provides more detailed information relating to the contents and period of generation for the waste in the internal packages in the casks. Attachments 1 through 4 summarize the information obtained during the review of historic waste packaging documentation including; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M120.

During the review of the packaging documentation for Cask X10C0601826 (M120), discrepancies were identified between this documentation and the initial packaging information on the 2109 form for this cask (M100). The 2109 form only identify six bags all originating from Building 7920, Room 120 (LAA). The packaging logs identified that these six bags contain 56 cans of waste items, in addition to 29 other items (e.g., balances, clamps, PPE, empty bottles, and shielding) listed on the logs. However, based on a review of the more detailed packaging logs it was determined that one item originating from 7930 (Cell C), two items originated from Room 211, and three items (two lead shield and a transition plate) were labeled as "Dreseden." Interviews were conducted with the generators (C600) and a Discrepancy Report (DR600) was prepared.

It was determined that the small amount of radiological contamination introduced by these few items will be insignificant to the radiological characterization of the drums generated from this cask and that these items are also physically and chemically bounded by the description of waste stream OR-REDC-RH-HET in AK Summary Report CCP-AK-ORNL-500. Additionally, based on the review of the packaging dates for the waste items in casks X10C0011108 (1/28/2001 – 8/11/2002) and X10C0601826 (4/12/2000 – 2/6/2007) the radiological characterization will be performed using the "Mark-42/HFIR" radiological distribution described in CCP-AK-ORNL-501.

As described in the 6/5/2008 memorandum, AMP cans identified in the container paperwork were found during repackaging and VE (container ORRH00024). Based on information provided by the Bob Billet, review of these items determined that they are aluminum cylinders that were opened during repackaging and found to contain small circuitry and no liquids. It was determined that these items are components of dose meters and would not have contained PCBs.

The VE BDR for container ORRH0030 identifies "Heptalite" in the waste description. This waste material is not described in the AK Summary Report. Shane Miles was contacted on 5/18/2009 to resolve this discrepancy. Based on discussions with the ORNL RH operators and Don Coffee on 05/19/09, it was determined that this was a spelling error and that the material is actually the "Hopcalite" filter media described in the AK Summary Report. "Heptalite" will be changed to "Hopcalite" on the Visual Examination Data Form in BDR RHORVE900012.

Based on the cask documentation and a review of the VE BDRs (RHORVE090011, RHORVE0900012, and RHORVE0900013) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides (during the Mark-42/HFIR time frame)

This memorandum will included with Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00019	4/9/2009	4/9/2009	X10C9402650 (60%); X10C0601826 (40%); Includes repack waste from drum ORRH00010
ORRH00020	4/9/2009	4/9/2009	X10C9402650 (70%); X10C0601826 (30%); Includes repack waste from drum ORRH00010
ORRH00024	4/13/2009	4/13/2009	X10C9402650 (40%); X10C0011108 (30%); X10C0601826 (30%) Includes repack waste from drum ORRH00007
ORRH00027	4/14/2009	4/14/2009	X10C9402650 (30%); X10C0011108 (30%); X10C0601826 (40%) Includes repack waste from drum ORRH00007
ORRH00028	4/20/2009	4/20/2009	X10C9402650 (80%); X10C0011108 (10%); X10C0601826 (10%) Includes repack waste from drum ORRH00007
ORRH00029	4/20/2009	4/20/2009	X10C9402650 (90%); X10C0011108 (5%); X10C0601826 (5%) Includes repack waste from drum ORRH00007
ORRH00030	4/21/2009	4/21/2009	X10C9402650 (95%); X10C0011108 (2%); X10C0601826 (3%) Includes repack waste from drum ORRH00007
ORRH00031	5/7/2009	5/7/2009	X10C9402650 (75%); X10C0011088 (23%); X10C0011108 (1%); X10C0601826 (1%) Includes repack waste from drum ORRH00007
ORRH00032	5/7/2009	5/7/2009	X10C9402650 (75%); X10C0011088 (23%); X10C0011108 (1%); X10C0601826 (1%) Includes repack waste from drum ORRH00007
ORRH00034	5/7/2009	5/7/2009	X10C9402650 (75%); X10C0011088 (23%); X10C0011108 (1%); X10C0601826 (1%) Includes repack waste from drum ORRH00007

Attachment 1 **Cask Evaluation - X10C0011108** **May 29, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
Bag 1 (79)	7/26/02 - 8/1/02	7920 Cell Bank	15 cans of melted plastic (3), cellulosics, glass, metal, and misc. debris	mercury (Hg Flo Cell)	Package date for can #8681 (7/26/01) assumed appears to be incorrect and should be 8/6/02
Bag 2 (80)	7/25/02 - 7/28/02	7920 Cell Bank	22 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris	broken light bulbs	
Bag 3 (81)	7/27/02 - 8/3/02	7920 Cell Bank	21 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris	nitric acid, sodium oxalate, 9V batteries	Campaign M9, M10, M11, M13, M14, and M15 waste identified
Bag 4 (82)	7/28/02 - 8/3/02	7920 Cell Bank	14 cans of melted plastic (10), cellulosics, glass, metal, rubber, and misc. debris (scales, mirror frame, air jet)	sodium oxalate, Hyflo Super Cell (filter aid)	Campaign M9, M10, M14, and 72 waste identified
Bag 5 (83)	7/28/02 - 8/7/03	7920 Cell Bank	16 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris (tweezers, mirror, wrenches)	9V battery, light bulbs, lithium chloride, sodium oxalte, red oil	
Bag 6 (84)	1/28/01 - 8/10/02	7920 Cell Bank	15 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (hose and filter)	sodium oxalate, red oil, lithium chloride	Campaign M9 waste identified
Bag 7 (85)	8/9/02 - 8/11/02	7920 Cell Bank	13 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (wrenches, furnace, tubing, detangler, tweezers), grouted resin	sodium oxalate, red oil, lithium chloride	

Attachment 2 **Cask Evaluation - X10C0601826** **June 2, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
106	8/3/02 - 1/28/07	7920 Cell Bank	Bag conataining 14 cans of cellulosics, glass, metal, grouted material, and misc. debris (balances and clamps)	broken light bulbs	EPA Codes D006, D008, D009, and D011 assigned to this cask by the generator.
107	4/12/00 - 12/14/06	7920 Cell Bank	Bag conataining 13 cans of cellulosics, glass, metal, rubber, and misc. debris (balances and clamps)	circuit boards, light bulb sockets	
108	4/12/04 - 12/19/06	7920 Cell Bank	Bag conataining 14 cans of melted plastic (7), cellulosics, glass, metal, and misc. debris		
109	8/11/02 - 12/19/06	7920 Cell Bank	Bag conataining 15 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris		
X430687A & B	8/24/06 - 2/6/07	7920 pipe tunnel Lab 211, and 7930	Consists of 19 items including pipe tunnel waste (PPE, rope), Desden lead shied and transition plate.	lead shields	Identifies one item from 7930 Cell C, WS 6 (8 mR/hr). Includes poly bottles from process development Lab 211, indicated only as Cf glovebox waste.

Attachment 3 **Cask Evaluation - X10C0011088** **March 27, 2009**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
1	8/22/2000	7920 Cell Bank/120	VOG Filter, metal, paper		
2	8/31/2000	7921 Cell Bank/120	Pipe Tunnel waste, metal, plastic		
3	9/15/2000	7921 Cell Bank/120	4 poly buckets, MSM boots, metal, poly		

Attachment 4 **Cask Evaluation - X10C9402650** **March 27, 2009**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
1	12/30/1997	7920/118	6 Items including waste from radiochemical processing for isotope separation and purification, items identified include MSM boots, plastic, and metal		
2	1/15/1998	7920/118	11 Items including waste from radiochemical processing for isotope separation and purification, items include Hopcalite filters, Hopcalite, plastic, paper, metal, wood, valve, glass, and heater elements	Non-Friable Asbestos	Item number X10I9417857 identified in Item History. 2109 not included for this item.
3	1/21/1998	7920/118	2 Items including waste from radiochemical processing for isotope separation and purification, items include Hopcalite filters		
4	1/22/1998	7920/118	6 Items including waste from radiochemical processing for isotope separation and purification, items include metal, plastic, and paper		

MEMORANDUM

To: Hillari Neely, CCP SPM

From: Kevin Peters, CCP AKE

Date: June 16, ~~2008~~ 2009 6/22/09

RE: Addition of Containers ORRH00037, ORRH00038, and ORRH00039 to Waste Stream OR-REDC-RH-HET (Parent Cask X10C0011088 and repack of drum ORRH00007)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 3 55-gallon drums recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete cask X10C0011088. This evaluation included the review of existing AK for the cask, in addition to review of the VE BDR generated for these drums during packaging. In addition to the waste directly repackaged into the drums from the casks, waste was also repackaged from RH container ORRH00007 previously added to waste stream OR-REDC-RH-HET (See the 6/5/2008 memoranda to add containers).

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Additional cask packaging documentation was provided by ORNL (May 29, 2008) that provides more detailed information relating to the contents and period of generation for the waste in the internal packages in the cask. Attachment 1 summarizes the information obtained during the review of historic waste packaging documentation including; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M120.

Based on the evaluation of the documentation for cask X10C0011088 (performed 5/27/2009), the cask was loaded during the 8/22/00-9/15/00 timeframe. Materials identified in the cask included VOG filter media, paper, metal, pipe tunnel waste, plastic, 4 poly buckets, MSM boots (See Attachment 1).

Based on the cask documentation and a review of the VE BDR (RHORVE090014) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation

- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides (during the Mark-42/HFIR time frame)

This memorandum will included with Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00037	6/4/2009	6/4/2009	X10C0011088 (99%) Includes repack waste from drum ORRH00007 (1%)
ORRH00038	6/3/2009	6/3/2009	X10C0011088 (99%) Includes repack waste from drum ORRH00007 (1%)
ORRH00039	6/4/2009	6/4/2009	X10C0011088 (99%) Includes repack waste from drum ORRH00007 (1%)

Attachment 1 **Cask Evaluation - X10C0011088** **March 27, 2009**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
1	8/22/2000	7920 Cell Bank/120	VOG Filter, metal, paper		
2	8/31/2000	7921 Cell Bank/120	Pipe Tunnel waste, metal, plastic		
3	9/15/2000	7921 Cell Bank/120	4 poly buckets, MSM boots, metal, poly		

MEMORANDUM

To: Hillari Neely, CCP SPM

From: Kevin Peters, CCP AKE

Date: June 16, 2009

RE: Addition of Containers ORRH00025 and ORRH00026 to Waste Stream OR-REDC-RH-HET (Parent Cask X10C0402925)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 55-gallon drums ORRH00025 and ORRH00026 recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete cask X10C0402925. This evaluation included the review of existing AK for the casks, in addition to review of the VE BDRs generated for these drums during packaging. It should be noted that evaluations of CH drums generated from this cask was performed, and these containers were included in the corresponding CH waste stream OR-REDC-CH-HET (CH Evaluation dated 12/17/2008 – See AK Source M136).

Information reviewed for the casks consisted of the ORNL UCN-2109 container paperwork forms (U100), REDC maintenance logbooks (U501), and the *Solid Waste Storage Area 5 North TRU Waste Engineering Study for the 22-Trench Area at ORNL* report (P1115). The *Visual Examination Data Form* was reviewed for each of the daughter drums.

Based on the evaluation of the documentation for cask X10C0402925 (performed 8/22/2008), the cask was loaded during the 7/28/76-8/4/76 timeframe. U501 discusses the removal of 63 poly buckets during this time frame containing non-burnable cubicle waste. The cask was full with 63 buckets on 8/4/76. See Attachment 1. The *Visual Examination Data Form* identified potentially RCRA hazardous materials, including light bulbs and lead sheets.

Based on the cask documentation and a review of the VE BDRs (RHORVE080007 and RHORVE080008) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items

- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00025	12/30/2008	12/30/2008	X10C0402925
ORRH00026	11/6/2008	11/6/2008	X10C0402925

Attachment 1 **Cask Evaluation - X10C0402925** **August 22, 2008**

Cask Type	Waste Package Date	Waste Origin	Waste Description	Chemicals/ Compounds	Comments	AK Sources
6"	7/28/76-8/4/76	7920 Cell Bank	Nonburnable cubicle waste in 63 poly buckets. Cubicle filters identified. ATN 1189	None Identified	U501 logbook discusses the removal of the 63rd poly bucket of nonburnable cubicle waste to fill the 6" concrete cask in the cistern on 8/3/76.	U100, U501 (pgs. 153-155), P1115 (pg. 55)

MEMORANDUM

To: Hillari Neely, CCP SPM

From: Kevin Peters, CCP AKE

Date: June 29, 2009

RE: Addition of Container ORRH00033 to Waste Stream OR-REDC-RH-HET (Parent Cask X10C0011088)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of one 55-gallon drum recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete cask X10C0011088. This evaluation included the review of existing AK for the cask, in addition to review of the VE BDR generated for these drums during packaging.

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Attachment 1 summarizes the information obtained during the review of historic waste packaging documentation including; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M012.

Based on the evaluation of the documentation for cask X10C0011088 (performed 5/27/2009), the cask was loaded during the 8/22/00-9/15/00 timeframe. Materials identified in the cask included VOG filter media, paper, metal, pipe tunnel waste, plastic, 4 poly buckets, MSM boots (See Attachment 1).

Based on the cask documentation and a review of the VE BDR (RHORVE090015) generated during packaging of this drum, the container is bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides (during the Mark-42/HFIR time frame)

This memorandum will included with Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following container:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00033	6/24/2009	6/24/2009	X10C0011088

Attachment 1 **Cask Evaluation - X10C0011088** **March 27, 2009**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
1	8/22/2000	7920 Cell Bank/120	VOG Filter, metal, paper		
2	8/31/2000	7921 Cell Bank/120	Pipe Tunnel waste, metal, plastic		
3	9/15/2000	7921 Cell Bank/120	4 poly buckets, MSM boots, metal, poly		

MEMORANDUM

To: Hillari Neely, CCP SPM

From: Steve Schafer, CCP AK

Date: July 14, 2009

RE: Addition of Container ORRH00035, ORRH00036 to Waste Stream OR-REDC-RH-HET (Parent Cask X10C0011088 and Drum ORRH00007)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of two 55-gallon drums recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete cask X10C0011088. Waste originally packaged into drum ORRH00007 from paretn casks X10C0011108 and X10C0601826 is also included in these two drums. This evaluation included the review of existing AK for the cask, in addition to review of the VE BDR generated for these drums during packaging.

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Attachment 1 summarizes the information obtained during the review of historic waste packaging documentation induding; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M012.

Based on the evaluation of the documentation for casks X10C0011088, X10C0011108 and X10C0601826 (See Attachments 1, 2, and 3) materials identified in the casks are consistent with this waste stream. Based on the cask documentation and a review of the VE BDR (RHORVE090015) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides (during the Mark-42/HFIR time frame)

This memorandum will included with Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following container:

Drum ID	Package Date	Vent Date	Parent Cask(s) and/or Drum(s)
ORRH00035	7/6/2009	7/6/2009	X10C0011088, ORRH00007
ORRH00036	7/6/2009	7/6/2009	X10C0011088, ORRH00007

Attachment 1 Cask Evaluation - X10C0011088 March 27, 2009

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
1	8/22/2000	7920 Cell Bank/120	VOG Filter, metal, paper		
2	8/31/2000	7921 Cell Bank/120	Pipe Tunnel waste, metal, plastic		
3	9/15/2000	7921 Cell Bank/120	4 poly buckets, MSM boots, metal, poly		

Attachment 2 **Cask Evaluation - X10C0011108** **May 29, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
Bag 1 (79)	7/26/02 - 8/1/02	7920 Cell Bank	15 cans of melted plastic (3), cellulosics, glass, metal, and misc. debris	mercury (Hg Flo Cell)	Package date for can #8681 (7/26/01) assumed appears to be incorrect and should be 8/6/02
Bag 2 (80)	7/25/02 - 7/28/02	7920 Cell Bank	22 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris	broken light bulbs	
Bag 3 (81)	7/27/02 - 8/3/02	7920 Cell Bank	21 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris	nitric acid, sodium oxalate, 9V batteries	Campaign M9, M10, M11, M13, M14, and M15 waste identified
Bag 4 (82)	7/28/02 - 8/3/02	7920 Cell Bank	14 cans of melted plastic (10), cellulosics, glass, metal, rubber, and misc. debris (scales, mirror frame, air jet)	sodium oxalate, Hyflo Super Cell (filter aid)	Campaign M9, M10, M14, and 72 waste identified
Bag 5 (83)	7/28/02 - 8/7/03	7920 Cell Bank	16 cans of melted plastic (1), cellulosics, glass, metal, rubber, and misc. debris (tweezers, mirror, wrenches)	9V battery, light bulbs, lithium chloride, sodium oxalte, red oil	
Bag 6 (84)	1/28/01 - 8/10/02	7920 Cell Bank	15 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (hose and filter)	sodium oxalate, red oil, lithium chloride	Campaign M9 waste identified
Bag 7 (85)	8/9/02 - 8/11/02	7920 Cell Bank	13 cans of melted plastic (7), cellulosics, glass, metal, rubber, and misc. debris (wrenches, furnace, tubing, detangler, tweezers), grouted resin	sodium oxalate, red oil, lithium chloride	

Attachment 3 **Cask Evaluation - X10C0601826** **June 2, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
106	8/3/02 - 1/28/07	7920 Cell Bank	Bag conataining 14 cans of cellulosics, glass, metal, grouted material, and misc. debris (balances and clamps)	broken light bulbs	EPA Codes D006, D008, D009, and D011 assigned to this cask by the generator.
107	4/12/00 - 12/14/06	7920 Cell Bank	Bag conataining 13 cans of cellulosics, glass, metal, rubber, and misc. debris (balances and clamps)	circuit boards, light bulb sockets	
108	4/12/04 - 12/19/06	7920 Cell Bank	Bag conataining 14 cans of melted plastic (7), cellulosics, glass, metal, and misc. debris		
109	8/11/02 - 12/19/06	7920 Cell Bank	Bag conataining 15 cans of melted plastic (9), cellulosics, glass, metal, rubber, and misc. debris		
X430687A & B	8/24/06 - 2/6/07	7920 pipe tunnel Lab 211, and 7930	Consists of 19 items including pipe tunnel waste (PPE, rope), Desden lead shied and transition plate.	lead shields	Identifies one item from 7930 Cell C, WS 6 (8 mR/hr). Includes poly bottles from process development Lab 211, indicated only as Cf glovebox waste.

MEMORANDUM

To: Hillari Neely, CCP SPM

From: Steve Schafer, CCP AKE

Date: September 1, 2009

RE: Addition of Containers ORRH00040, ORRH00041, ORRH00043, ORRH00044 ORRH00045 and ORRH00046 to Waste Stream OR-REDC-RH-HET (Parent Casks/Drum ORRH00007, X10C0201072, X10C9310023, and X10C0011102)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 55-gallon drums ORRH00040, ORRH00041, ORRH00043, ORRH00044 ORRH00045 and ORRH00046 recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete casks X10C0201072, X10C9310023, and X10C0011102. This evaluation included the review of existing AK for the casks, in addition to review of the VE BDR generated for these drums during packaging.

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Additional cask packaging documentation was provided by ORNL that provides more detailed information relating to the contents and period of generation for the waste in the internal packages in some the casks (M120). Attachments 1, 2 and 3 summarizes the information obtained during the review of historic waste packaging documentation including, as available; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M120. Additionally, based on the review of the packaging dates for the waste items in casks X10C0201072, X10C9310023, and X10C0011102, the radiological characterization will be performed using the "Mark-42/HFIR" radiological distribution described in CCP-AK-ORNL-501.

Based on the cask documentation and a review of the VE BDRs (RHORVE09016 and RHORVE09017) generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content

- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00040	7/16/2009	7/16/2009	X10C0201072; ORRH00007
ORRH00041	8/26/2009	8/26/2009	X10C0201072 (10%); X10C9310023 (90%)
ORRH00043	8/26/2009	8/26/2009	X10C9310023 (70%); X10C0011102 (30%)
ORRH00044	8/27/2009	8/27/2009	X10C9310023 (80%); X10C0011102 (20%)
ORRH00045	8/27/2009	8/27/2009	X10C9310023 (70%); X10C0011102 (30%)
ORRH00046	8/31/2009	8/31/2009	X10C9310023 (60%); X10C0011102 (40%)

Attachment 1 **Cask Evaluation - X10C0201072** **June 2, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
1	1/15/2003	7920 Rm. 120	1'x2'x2' Charcoal Filter and Metal		
2	1/15/2003	7920 Rm. 120	1'x2'x2' Charcoal Filter and Metal		
3	1/22/2003	7920 Rm. 120	Pieces of cutup steel tubing		See below
4	7/23/2003	7920 Rm. 120	19 buckets of MSM boots, plastic and metal		
5	1/22/2003	7920 Rm. 120	3 buckets of glovebox waste		
6	11/18/2003	7920 Rm. 120	Bag with tools, glass tank, cloth wipes, plastic pan		See below

RH TRH Waste Certification Data Sheet identifies CH Drum X10C0200885 being transfer to the cask on 1/22/03 description of contents includes pit 4 jumpers, 1 bag with tools, tank (glass), rags, and gloves. No indication if the drum was included in the cask, these waste items are likely items 3 and 6.

Attachment 2 **Cask Evaluation - X10C9310023** **June 25, 2008**

Cask	Cask Type	Waste Package Date	Waste Origin	Waste Description	Chemicals/ Compounds	AK Sources	Comment	Evaluation Date	Drum Evaluation
X10C9310023	6	9/9/1994-11/10/1994	9/9/1994	Cask contains 44 bags of waste originating from cubicle waste transfer area (Rm. 118). A majority of the waste bags were generated before 10/1/1994. Specific waste items identified include charcoal filter media, valves, grout, pump, MSM boot, ATN 3570	None Identified	U100		6/25/2009	

Attachment 3 **Cask Evaluation - X10C0011102** **March 27, 2009**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
1	4/26/2001	7920 Cell Bank/120	3 Hopcalite filters (metal)		
2	5/4/2001	7921 Cell Bank/120	MSM Boots		
3	5/4/2001	7921 Cell Bank/120	Misc. plastic and metal items		

MEMORANDUM

To: Hillari Neely, CCP SPM

From: Steve Schafer, CCP AK

Date: September 29, 2009

RE: Addition of Containers ORRH00042, and ORRH00047 through ORRH00057 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C9310023, X10C0011102, and X10C9304039)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 55-gallon drums ORRH00042, and ORRH00047 through ORRH00057 recently generated by ORNL TWPC operations repackaging REDC Building 7920 debris waste contained in concrete casks X10C9310023, X10C0011102, and X10C9304039. This evaluation included the review of existing AK for the casks, in addition to review of the VE BDR generated for these drums during packaging.

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Additional cask packaging documentation was provided by ORNL that provides more detailed information relating to the contents and period of generation for the waste in the internal packages in some the casks (M120). Attachments 1, 2 and 3 summarizes the information obtained during the review of historic waste packaging documentation including, as available; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for this cask is maintained in AK Source Documents M100 and M120. Additionally, based on the review of the packaging dates for the waste items in casks X10C9304039, X10C9310023, and X10C0011102, the radiological characterization will be performed using the "Mark-42/HFIR" radiological distribution described in CCP-AK-ORNL-501.

Based on the cask documentation and a review of the VE BDRs generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content

- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00047	9/1/2009	9/1/2009	X10C9310023; X10C0011102
ORRH00042	9/3/2009	9/3/2009	X10C9310023
ORRH00048	9/4/2009	9/4/2009	X10C9310023
ORRH00049	9/15/2009	9/15/2009	X10C9310023
ORRH00050	9/22/2009	9/22/2009	X10C9310023
ORRH00051	9/23/2009	9/23/2009	X10C9310023; X10C9304039
ORRH00052	9/23/2009	9/23/2009	X10C9304039; X10C9310023
ORRH00053	9/24/2009	9/24/2009	X10C9304039
ORRH00054	9/24/2009	9/24/2009	X10C9304039
ORRH00055	9/25/2009	9/25/2009	X10C9304039
ORRH00056	9/28/2009	9/28/2009	X10C9304039
ORRH00057	9/28/2009	9/28/2009	X10C9304039

Attachment 1 **Cask Evaluation - X10C9304039** **June 25, 2009**

Waste Package Date	Waste Origin	Waste Description	Chemicals/ Compounds	AK Sources	Evaluation Date
11/8/1993-4/12/1994	11/8/1993	Contains 62 items (60 buckets) from the 7920 cell bank. Contains intermediate containers (metal paint cans) in plastic buckets. Waste includes: metal, string, glass, wire, wipes, poly, can lids, mirrors, paper, MSM boots, gauges, melted poly blocks (~25), grout, rope, miscellaneous tools, cloth, miscellaneous wrenches, rubber, sample bottle lids, concrete, wipes, pre-amp cans, filter, tongs, metal tubing. ATN 3213	None Identified	U100	6/25/2009

Attachment 2 **Cask Evaluation - X10C9310023** **June 25, 2009**

Cask	Cask Type	Waste Package Date	Waste Origin	Waste Description	Chemicals/ Compounds	AK Sources	Comment	Evaluation Date	Drum Evaluation
X10C9310023	6	9/9/1994-11/10/1994	9/9/1994	Cask contains 44 bags of waste originating from cubicle waste transfer area (Rm. 118). A majority of the waste bags were generated before 10/1/1994. Specific waste items identified include charcoal filter media, valves, grout, pump, MSM boot, ATN 3570	None Identified	U100		6/25/2009	

Attachment 3 Cask Evaluation - X10C0011102 March 27, 2009

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	Comments
1	4/26/2001	7920 Cell Bank/120	3 Hopcalite filters (metal)		
2	5/4/2001	7921 Cell Bank/120	MSM Boots		
3	5/4/2001	7921 Cell Bank/120	Misc. plastic and metal items		

MEMORANDUM

To: Hillari Neely, CCP SPM

From: Steve Schafer, CCP AKE

Date: January 26, 2010

RE: Addition of Containers ORRH00058 through ORRH00083 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C0601826, X10C9304039, X10C9310003, X10C9402633, X10CSATN03043, and X10CSATN03210)

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 55-gallon drums generated by ORNL TWPC operations repackaging operations. Repackaged waste consists of REDC Building 7920 debris waste contained in concrete casks X10C0601826, X10C9304039, X10C9310003, X10C9402633, X10CSATN03043, and X10CSATN03210. This evaluation included the review of existing AK for the casks in addition to review of the VE BDRs generated for these drums during packaging.

The 2109 packaging documentation (M100) and inventory database (M012) supplied by ORNL were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. . Additional cask packaging documentation was provided by ORNL that provides more detailed information relating to the contents and period of generation for the waste in the internal packages in some the casks (M120). Tables 2 though 7 summarize the information obtained during the review of historic waste packaging documentation including, as available; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. The historic documentation reviewed for these casks is maintained in AK Source Documents M100 and M120. Additionally, based on the review of the packaging dates for the waste items in casks X10C0601826, X10C9304039, X10C9310003, X10C9402633, X10CSATN03043, and X10CSATN03210, the radiological characterization will be performed using the "Mark-42/HFIR" radiological distribution described in CCP-AK-ORNL-501.

During the review of the packaging documentation for Cask X10C0601826 (M120), discrepancies were identified between this documentation and the initial packaging information on the 2109 form for this cask (M100). The 2109 form only identify six bags all originating from Building 7920, Room 120 (LAA). The packaging logs identified that these six bags contain 56 cans of waste items, in addition to 29 other items (e.g., balances, clamps, PPE, empty bottles, and shielding) listed on the logs. However, based on a review of the more detailed packaging logs it was determined that one item originating from 7930 (Cell C), two items originated from Room 211, and three items (two lead shield and a transition plate) were labeled as "Dreseden." Interviews were conducted with the generators (C600) and a Discrepancy Report (DR600) was prepared. It was determined that the small amount of radiological contamination introduced by these few items will be insignificant to the radiological characterization of the drums generated from this cask and that these items are also physically and chemically bounded by the description of waste stream OR-REDC-RH-HET in AK Summary Report CCP-AK-ORNL-500.

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Additionally, based on the review of the packaging dates for the waste items in casks, the radiological characterization will be performed using the "Mark-42/HFIR" radiological distribution described in CCP-AK-ORNL-501.

Based on the cask documentation and a review of the VE BDRs generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report, including freeze files changes, for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Table 1. Containers added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)	Date Evaluated
ORRH00058	9/29/2009	9/29/2009	Parent X10C9304039 (99%); X10C0601826 (1%)	10/12/2009
ORRH00059	10/6/2009	10/6/2009	Parent X10C9304039 (80%); X10CSATN03210 (20%)	10/12/2009
ORRH00060	10/7/2009	10/7/2009	Parent X10C9304039 (100%)	10/12/2009
ORRH00061	10/7/2009	10/7/2009	Parent X10CSATN03210 (100%)	10/12/2009
ORRH00062	10/8/2009	10/8/2009	Parent X10CSATN03210 (100%)	10/12/2009
ORRH00063	10/8/2009	10/8/2009	Parent X10CSATN03210 (99%); X10C0601826 (1%)	10/12/2009
ORRH00064	10/19/2009	10/19/2009	Parent X10CSATN03043 (99%); X10C9304039 (1%)	11/1/2009
ORRH00065	10/20/2009	10/20/2009	Parent X10CSATN03043 (99%); X10C9304039 (1%)	11/1/2009
ORRH00066	10/29/2009	10/29/2009	Parent X10CSATN03043 (100%)	11/4/2009
ORRH00067	11/4/2009	11/4/2009	Parent X10CSATN03043 (99%); X10C0601862 (1%) from repack of ORRH00010	11/11/2009
ORRH00068	11/5/2009	11/5/2009	Parent X10CSATN03043 (90%); X10C9310003 (10%)	11/11/2009
ORRH00069	11/9/2009	11/9/2009	Parent X10CSATN03043 (100%)	11/11/2009
ORRH00070	11/9/2009	11/9/2009	Parent X10CSATN03043 (50%); X10C9310003 (50%)	11/11/2009
ORRH00071	11/9/2009	11/9/2009	Parent X10C9310003 (100%)	11/11/2009
ORRH00072	11/10/2009	11/10/2009	Parent X10C9310003 (100%)	11/11/2009
ORRH00073	11/10/2009	11/10/2009	Parent X10C9310003 (100%)	11/11/2009
ORRH00074	11/10/2009	11/10/2009	Parent X10C9310003 (100%)	11/11/2009
ORRH00075	11/11/2009	11/11/2009	Parent X10C9310003 (100%)	12/1/2009
ORRH00076	11/11/2009	11/11/2009	Parent X10C9310003 (100%)	12/1/2009
ORRH00077	11/11/2009	11/11/2009	Parent X10C9310003 (100%)	12/1/2009
ORRH00078	11/11/2009	11/11/2009	Parent X10C9310003 (100%)	1/26/2010
ORRH00079	11/16/2009	11/16/2009	Parent X10C9310003 (100%)	1/26/2010
ORRH00080	11/23/2009	11/23/2009	Parent X10C9310003 (100%)	1/26/2010
ORRH00081	1/25/2010	1/25/2010	Parent X10C9402633 (100%)	1/26/2010
ORRH00082	1/25/2010	1/25/2010	Parent X10C9402633 (100%)	1/26/2010
ORRH00083	1/26/2010	1/26/2010	Parent X10C9402633 (100%)	1/26/2010

Table 2 **Cask Evaluation - X10C0601826** **June 2, 2008**

Internal Containers/Items	Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds Comments	AK Sources
106	8/3/02 - 1/28/07	7920 Cell Bank	Bag containing 14 cans of cellulosic, glass, metal, grouted material, and misc. debris (balances and clamps)	broken light bulbs. EPA Codes D006, D008, D009, and D011 assigned to this cask by the generator	M100, M120
107	4/12/00 - 12/14/06	7920 Cell Bank	Bag containing 13 cans of cellulosic, glass, metal, rubber, and misc. debris (balances and clamps)	circuit boards, light bulb sockets	
108	4/12/04 - 12/19/06	7920 Cell Bank	Bag containing 14 cans of melted plastic (7), cellulosic, glass, metal, and misc. debris		
109	8/11/02 - 12/19/06	7920 Cell Bank	Bag containing 15 cans of melted plastic (9), cellulosic, glass, metal, rubber, and misc. debris		
X430687A & B	8/24/06 - 2/6/07	7920 pipe tunnel Lab 211, and 7930	Consists of 19 items including pipe tunnel waste (PPE, rope), Desden lead shied and transition plate.	lead shields. Identifies one item from 7930 Cell C, WS 6 (8 mR/hr). Includes poly bottles from process development Lab 211, indicated only as Cf glovebox waste.	

Table 3 **Cask Evaluation - X10C9304039** **June 25, 2009**

Waste Package Date	Waste Origin	Waste Description	Chemicals/ Compounds	AK Sources	Evaluation Date
11/8/1993-4/12/1994	11/8/1993	Contains 62 items (60 buckets) from the 7920 cell bank. Contains intermediate containers (metal paint cans) in plastic buckets. Waste includes: metal, string, glass, wire, wipes, poly, can lids, mirrors, paper, MSM boots, gauges, melted poly blocks (~25), grout, rope, miscellaneous tools, cloth, miscellaneous wrenches, rubber, sample bottle lids, concrete, wipes, pre-amp cans, filter, tongs, metal tubing. ATN 3213	None Identified	M100	6/25/2009

Table 4 **Cask Evaluation - X10C9310003** **June 25, 2009**

Waste Package Date	Waste Origin	Waste Description	Chemicals/ Compounds	AK Sources	Evaluation Date
5/2/1994-7/21/1994	5/2/1994	Cask contains 60 3-gallon containers of solid waste originating from cubicle waste transfer area (Rm. 118). Material types include cloth, glass, metal, paper, plastic. Internal containers generated between 5/2/1994-7/21/1994. ATN 3214	None Identified	M100	6/25/2009

Table 5 **Cask Evaluation - X10C9402633** **June 26, 2009**

Waste Package Date	Waste Origin	Waste Description	Chemicals/ Compounds	AK Sources	Evaluation Date
1/3/1997-5/20/1997	1/3/1997	Cask contains 14 draw string bags of solid waste originating from cubicle waste transfer area (Rm. 118). Metal, rubber, glass, plastic, combustible waste in draw string bags and twist and tape heat seal bags.		M100	6/26/2009

Table 6 **Cask Evaluation - X10CSATN03042** **September 2, 2009**

Waste Package Date	**Waste Origin**	**Waste Description**	**Chemicals/Compounds**	AK Sources	Evaluation Date
2/17/1998 - 10/25/1991	7920 Cell Bank/120	63 Buckets. Dry solids. Some plastic buckets contain metal buckets with the waste inside. Wastes include: plastic sheet, glass sample bottles, poly sample bottles, wipes, bottle caps, cardboard cartons, poly tubing with swedgelocks, plastic bags, pipettes, wrapping paper, glass titrator electrodes, tape, melted poly, glass parts, light cords, vices, target fabricating equipment, manipulator tongs, target fabrication cans, metal blocks, heating mantle, broken glass, 1 gallon metal can, metal stand bases, metal rings, metal clamp, analytical chemistry waste, MSM pads, tools, MSM fingers, target fab. metal dies and punches, metal fittings, floor sweepings, pellet dies, electrical wire, rubber tubing, rubber pipette bulbs, glass tubes, light bulbs, processing filter element, poly block, pipe fittings, gasket materials, plastic fittings, nylon string, broken Bain-Marie buckets, pre amp cans, mechanical thermometer, polypropylene filter,	Light Bulbs, Thermoneter	M100	9/2/2009

Table 7 **Cask Evaluation - X10CSATN03210** **June 25, 2009**

Waste Package Date	Waste Origin	Waste Description	Chemicals/Compounds	AK Sources	Evaluation Date
10/14/1992-8/4/1993	10/4/1993	Contains 60 items (59 buckets) from the 7920 cell bank. Some plastic buckets contain metal buckets with the waste inside. Wastes include: metal valve parts, sheet plastic, wipes, glass bottles, sampler blocks, hand tools, melted poly (~19), MSM boots and rings, plastic bottle caps, needles, wire and connectors, string, filters, rope, metal, rubber, cloth, cardboard, wood, tongs, target shrouds, concrete. ATN 3210	None Identified	M100	6/9/2009

MEMORANDUM

To: Hillari Neeley, CCP SPM

From: Kevin Peters, CCP AKE

Date: February 25, 2010

RE: Addition of 4 Containers to Waste Stream AERHDM

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for additional waste stream containers.

This memorandum presents the evaluation of four (4) containers recently generated during repackaging of AGHCF waste not currently in waste stream AERHDM. Wes Root provided the Visual Examination Data Forms for the following 30-gallon drums containing 8 7-gallon waste cans packaged in the AGHCF (see Attachment 1).

Drum ID	Internal Can	Internal Can
915	519	490
916	492	486
917	518	484
918	471	474

Based on a review Visual Examination Data Forms for the above drums the containers are bounded by current revision of the AK Summary Report for waste stream AERHDM for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) for waste stream AERHDM waste stream and the AK Tracking Spreadsheet (AKTSS) will be updated to include these additional containers.

Christopher Chancellor
Signing for Kevin Peters

03/01/2010

Name / Signature Date

ORIGINAL

Attachment 1 – AK Tracking Spreadsheet Update Requests

From: Root, Frank W. [mailto:rhwesr@anl.gov]
Sent: Thursday, February 25, 2010 8:51 AM
To: Kevin Peters
Cc: Quintana, Irene
Subject: AK Tracking Spreadsheet Update

Kevin

Please add 30-gallon drums 915, 916, 917, and 918 to the ANL AK Tracking Spreadsheet. Attached are PDFs of the VE Data Sheets for the 4 drums.

Thanks.

F. Wesley Root

CCP VPM, ANL

Off: 630-252-8306

Cell: 505695-9610

containerid	Internal_Can_1	Internal_Can_2	Internal_Can_3	AKReport	WasteStream	MatrixCode	ClosureDate	VentDate
915	519	490		CCP-AK-ANLE-500	AERHDM	S5400	2/3/2010	2/3/2010
916	492	486		CCP-AK-ANLE-500	AERHDM	S5400	2/3/2010	2/3/2010
917	518	484		CCP-AK-ANLE-500	AERHDM	S5400	2/4/2010	2/4/2010
918	471	474		CCP-AK-ANLE-500	AERHDM	S5400	2/4/2010	2/4/2010

MEMORANDUM

To: Hillari Neeley, CCP SPM

From: Kevin Peters, CCP AKE

Date: March 1, 2010

RE: Addition of 3 Containers to Waste Stream AERHDM

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for additional waste stream containers.

This memorandum presents the evaluation of three (3) containers recently generated during repackaging of AGHCF waste not currently in waste stream AERHDM. Wes Root provided the Visual Examination Data Forms for the following 30-gallon drums containing 6 7-gallon waste cans packaged in the AGHCF (see Attachment 1).

Drum ID	Internal Can	Internal Can
921	485	483
922	524	449
923	488	522

Based on a review Visual Examination Data Forms for the above drums the containers are bounded by current revision of the AK Summary Report for waste stream AERHDM for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) for waste stream AERHDM waste stream and the AK Tracking Spreadsheet (AKTSS) will be updated to include these additional containers.

ORIGINAL

Attachment 1 – AK Tracking Spreadsheet Update Requests

From: Root, Frank W. [mailto:rhwesr@anl.gov]
Sent: Monday, March 01, 2010 8:16 AM
To: Kevin Peters
Cc: Quintana, Irene
Subject: AK Tracking Spreadsheet Update

Kevin

Please add 30-gallon drums 921, 922, and 923 to the ANL AK Tracking Spreadsheet. Attached are PDFs of the VE Data Sheets for the 3 30-gallon drums.

Thanks.

F. Wesley Root

CCP VPM, ANL

Off: 630-252-8306

Cell: 505695-9610

Christopher Chancellor
Signing for Kevin Peters

03/01/2010

Name / Signature Date

containerid	Internal_Can_1	Internal_Can_2	Internal_Can_3	AKReport	WasteStream	MatrixCode	ClosureDate	VentDate
921	485	483		CCP-AK-ANLE-500	AERHDM	S5400	2/8/2010	2/8/2010
922	524	449		CCP-AK-ANLE-500	AERHDM	S5400	2/8/2010	2/8/2010
923	488	522		CCP-AK-ANLE-500	AERHDM	S5400	2/9/2010	2/9/2010

DIVIDER PAGE ONLY

Not part of page count

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523 or 575-234-7431
Fax Number: 575-234-7033

☒ Original Record
☐ Fax Record
☐ E-mail Record

Attn:	Sheila Pearcy	From:	Christopher Chancellor
Ship to:	CCP Central Records/ CCP Records Custodian 4021 National Parks Highway - MS GSA 212, Carlsbad, NM 88220	Site:	ANLE Waste at ANL and INL
		Company:	Los Alamos National Laboratory
		Telephone Number:	575-628-3914
Telephone Number:	575-234-7523	Date Sent:	03/01/2010

Document Number	Description	Record Date	Total Pages
NA	Add Container Memo from Kevin Peters to Hillari Neeley, dated March 1, 2010	3/1/2010	1
NA	Container Worksheet	3/1/2010	1
NA	NA	NA	NA

Please append attached documents to the back of CCP-AK-ANLE-500 Attachment 8.

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted ☒	Tami Parker Signature	TAMI PARKER Printed Name	3/3/10 Date
Records Rejected ☐	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:	Signature	Printed Name	Date

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	0179
DESTINATION TEL #	96283238
DESTINATION ID	LANL CARLSBAD
ST. TIME	03/03 13:45
TIME USE	00'14
PAGES SENT	1
RESULT	OK

Controlled Copy

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523 or 575-234-7431
Fax Number: 575-234-7033

☒ Original Record
☐ Fax Record
☐ E-mail Record

Attn:	Sheila Pearcy	From:	Christopher Chancellor
Ship to:	CCP Central Records/ CCP Records Custodian	Site:	ANLE Waste at ANL and INL
	4021 National Parks Highway - MS GSA 212, Carlsbad, NM 88220	Company:	Los Alamos National Laboratory
Telephone Number:	575-234-7523	Telephone Number:	575-628-3914
		Date Sent:	03/01/2010

NA	Add Container Memo from Kevin Peters to Hillari Neeley, dated March 1, 2010	3/1/2010	1
NA	Container Worksheet	3/1/2010	1
NA	NA	NA	NA

Please append attached documents to the back of CCP-AK-ANLE-500 Attachment 8.

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted ☒ Tami Parker TAMI PARKER 3/3/10

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523 or 575-234-7431
Fax Number: 575-234-7033

☒ Original Record
☐ Fax Record
☐ E-mail Record

Attn:	Sheila Pearcy	From:	Christopher Chancellor
Ship to:	CCP Central Records/ CCP Records Custodian 4021 National Parks Highway - MS GSA 212, Carlsbad, NM 88220	Site:	ANLE Waste at ANL and INL
		Company:	Los Alamos National Laboratory
		Telephone Number:	575-628-3914
Telephone Number:	575-234-7523	Date Sent:	03/01/2010

NA	Add Container Memo from Kevin Peters to Hillari Neeley, dated February 25, 2010	2/25/2010	1
NA	Attachment 1 - AK Tracking Spreadsheet Requests	2/25/2010	1
NA	Container Worksheet	2/25/2010	1

Please append the attached documentation to the back of CCP-AK-ANLE-500 Attachment 8.

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted	☒	Tami Parker Signature	TAMI PARKER Printed Name	3/3/10 Date
Records Rejected	☐	_____ Signature	_____ Printed Name	_____ Date

Reason for Rejection:

Re-submittal:	_____ Signature	_____ Printed Name	_____ Date

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	0178
DESTINATION TEL #	96283238
DESTINATION ID	LANL CARLSBAD
ST. TIME	03/03 13:44
TIME USE	00'14
PAGES SENT	1
RESULT	OK

Controlled Copy

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523 or 575-234-7431
Fax Number: 575-234-7033

☒ Original Record
☐ Fax Record
☐ E-mail Record

Attn:	Sheila Pearcy	From:	Christopher Chancellor
Ship to:	CCP Central Records/ CCP Records Custodian	Site:	ANLE Waste at ANL and INL
	4021 National Parks Highway - MS GSA 212, Carlsbad, NM 88220	Company:	Los Alamos National Laboratory
		Telephone Number:	575-628-3914
Telephone Number:	575-234-7523	Date Sent:	03/01/2010

NA	Add Container Memo from Kevin Peters to Hillari Neeley, dated February 25, 2010	2/25/2010	1
NA	Attachment 1 - AK Tracking Spreadsheet Requests	2/25/2010	1
NA	Container Worksheet	2/25/2010	1

Please append the attached documentation to the back of CCP-AK-ANLE-500 Attachment 8.

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted ☒ Tami Parker TAMI PARKER 3/3/10

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523 or 575-234-7431
Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Chezie Davis
Ship to:	CCP Central Records/CCP Records Custodian	Site:	Oak Ridge National Laboratories
		Company:	Tech Specs
	4021 National Parks Highway – MS	Telephone Number:	575-725-0135
	GSA 212, Carlsbad, NM 88220	Date Sent:	02/01/2010
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
N/A	Memorandum To: H. Neely From: S. Shafer, CCP AKE Date: January 26, 2010 RE: Addition of Containers ORRH00058 through ORRH00083 Waste Stream OR-REDC-RH-HET (Parent Casks X10C9304039, X10C9310003, X10C9402633, X10CSATN03043, and X10CSATN03210).	01/26/10	6

Comments

Please add to Attachment 8 of CCP-AK-ORNL-500 (waste stream OR-REDC-RH-HET).

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted	[X]	Tami Parker	TAMI PARKER	2/2/10
		Signature	Printed Name	Date
Records Rejected	[ ]			
		Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	1593
DESTINATION TEL #	92347138
DESTINATION ID	CHEZIE TODD
ST. TIME	02/02 08:32
TIME USE	00'16
PAGES SENT	1
RESULT	OK

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523 or 575-234-7431
Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Chezie Davis
Ship to:	CCP Central Records/CCP Records Custodian	Site:	Oak Ridge National Laboratories
		Company:	Tech Specs
	4021 National Parks Highway – MS	Telephone Number:	575-725-0135
	GSA 212, Carlsbad, NM 88220	Date Sent:	02/01/2010
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
N/A	Memorandum To: H. Neely From: S. Shafer, CCP AKE Date: January 26, 2010 RE: Addition of Containers ORRH00058 through ORRH00083 Waste Stream OR-REDC-RH-HET (Parent Casks X10C9304039, X10C9310003, X10C9402633, X10CSATN03043, and X10CSATN03210).	01/26/10	6

Comments
Please add to Attachment 8 of CCP-AK-ORNL-500 (waste stream OR-REDC-RH-HET).

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [X]	Tami Parker	TAMI PARKER	2/2/10
	Signature	Printed Name	Date
Records Rejected [ ]			
	Signature	Printed Name	Date

Reason for Rejection:

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Chezie Todd
Ship to.	CCP Central Records/CCP Records	Site:	Oak Ridge National Laboratory
	Custodian	Company:	Technical Specialists
	4021 National Parks Highway – MS	Telephone Number:	575-725-0135
	GSA 203, Carlsbad, NM 88220	Date Sent:	10/02/2009

Telephone Number: 575-234-7523

Document Number	Title / Description	Record Date	Total Pages
N/A	Memorandum: To: H. Neely. From: S. Shafer Date: 9/29/2009 RE: Addition of Containers ORRH00042, and ORRH00047 through ORRH00057 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C9310023, X10C0011102, and X10C9304039)	9/29/09	25 TP 10/14/09
~~N/A~~	~~Attachment 1: Cask Evaluation X10C9304039~~	~~08/25/09~~	~~1~~ TP 10/14/09
~~N/A~~	~~Attachment 2: Cask Evaluation X10C9310023~~	~~08/25/09~~	~~1~~ TP 10/14/09
N/A	~~Attachment 3: Cask Evaluation X10C0011102~~	~~3/27/09~~	~~1~~ TP 10/14/09

Comments

Please add to Attachment 8, Waste Stream for OR-REDC-RH-HET

Acceptance/Rejection Signature and Date

Records Accepted	[X]	Tami Parker	TAMI PARKER	10/14/09
		Signature	Printed Name	Date
Records Rejected	[ ]			
		Signature	Printed Name	Date

Reason for Rejection:

NA

Re-submittal:

Signature	Printed Name	Date

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	0245
DESTINATION TEL #	92347138
DESTINATION ID	CHEZIE TODD
ST. TIME	10/14 08:17
TIME USE	00'15
PAGES SENT	1
RESULT	OK

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 505-234-7523
Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Chezie Todd
Ship to:	CCP Central Records/CCP Records Custodian	Site:	Oak Ridge National Laboratory
		Company:	Technical Specialists
	4021 National Parks Highway – MS	Telephone Number:	575-725-0135
	GSA 203, Carlsbad, NM 88220	Date Sent:	10/02/2009
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
N/A	Memorandum: To: H. Neely. From: S. Shafer Date: 9/29/2009 RE: Addition of Containers ORRH00042, and ORRH00047 through ORRH00057 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C9310023, X10C0011102, and X10C9304039)	9/29/09	25 TP 10/14/09
N/A	~~Attachment 1: Cask Evaluation X10C9304039~~	~~08/25/09~~	~~1~~ TP 10/14/09
N/A	~~Attachment 2: Cask Evaluation X10C9310023~~	08/25/09	1 TP 10/14/09
N/A	~~Attachment 3: Cask Evaluation X10C0011102~~	~~3/27/09~~	~~1~~ TP 10/14/09

Comments

Please add to Attachment 8, Waste Stream for OR-REDC-RH-HET

Acceptance/Rejection Signature and Date

Records Accepted [X] Tami Parker (Signature) TAMI PARKER (Printed Name) 10/14/09 (Date)

Records Rejected [ ] (Signature) (Printed Name) (Date)

Reason for Rejection: NA

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Chezie Todd
Ship to:	CCP Central Records/CCP Records Custodian	Site:	Oak Ridge National Laboratory
		Company:	Technical Specialists
	4021 National Parks Highway – MS	Telephone Number:	575-725-0135
	GSA 203, Carlsbad, NM 88220	Date Sent:	9/22/2009
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
N/A	Memorandum: To: H. Neely. From: S. Shafer Date: 9/1/09 RE: Addition of containers ORRH00040, ORRH00041, ORRH00043, ORRH00044, ORRH00045, and ORRH00046 to Waste Stream OR-REDC-RH-HET (Parent Casks/Drum ORRH00007, X10C0201072, X10C9310023, and X10C0011102)	9/01/09	2
N/A	Attachment 1: Cask Evaluation X10C0201072	6/02/09	1
N/A	Attachment 2: Cask Evaluation X10C9310023	6/25/09	1
N/A	Attachment 3: Cask Evaluation X10C0011102	3/27/09	1

Comments

Please add to Attachment 8, Waste Stream for OR-REDC-RH-HET

Acceptance/Rejection Signature and Date

Records Accepted [X] Jami Parker — TAMI PARKER — 9/23/09
Signature | Printed Name | Date

Records Rejected [ ] — | — | —
Signature | Printed Name | Date

Reason for Rejection: NA

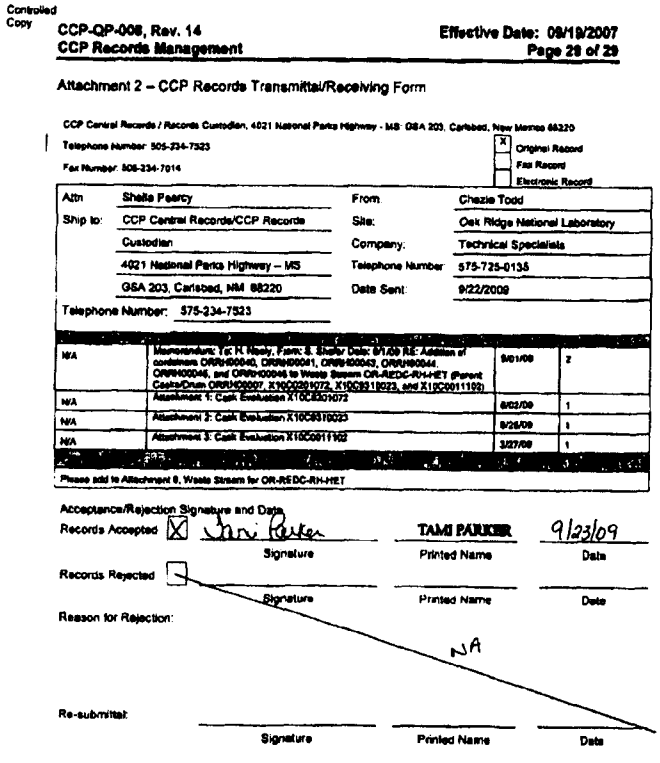
Re-submittal: — | — | —
Signature | Printed Name | Date

HP Color LaserJet

Fax Confirmation Report

CCP RECORDS
5752347033
Sep-23-2009 7:23AM

Job	Date	Time	Type	Identification	Duration	Pages	Result
8089	9/23/2009	7:22:16AM	Send	7138	0:40	1	OK



Controlled Copy

CCP-QP-008, Rev. 14 **Effective Date: 09/19/2007**
CCP Records Management **Page 28 of 29**

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 505-234-7523
Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn	Sheila Pearcy	From:	Chezie Todd
Ship to:	CCP Central Records/CCP Records Custodian	Site:	Oak Ridge National Laboratory
	4021 National Parks Highway – MS	Company:	Technical Specialists
	GSA 203, Carlsbad, NM 88220	Telephone Number:	575-725-0135
Telephone Number:	575-234-7523	Date Sent:	9/22/2009

N/A	Memorandum: To: R. Healy, From: S. Sheller Date: 8/1/09 RE: Addition of containers ORRH00040, ORRH00041, ORRH00043, ORRH00044, ORRH00045, and ORRV00046 to Waste Stream OR-REDC-RH-HET (Parent Cells/Drum ORRH00007, X10CD21072, X10CB21073, and X10CD011102)	8/01/09	2
N/A	Attachment 1: Cell Evaluation X10CB21073	8/03/09	1
N/A	Attachment 2: Cell Evaluation X10CB19023	9/25/09	1
N/A	Attachment 3: Cell Evaluation X10CD011102	3/27/09	1

Please add to Attachment 8, Waste Stream for OR-REDC-RH-HET

Acceptance/Rejection Signature and Date

Records Accepted [X] Tami Parker — TAMI PARKER — 9/23/09
Signature — Printed Name — Date

Records Rejected [ ] — Signature — Printed Name — Date

Reason for Rejection: NA

Re-submittal: — Signature — Printed Name — Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Hart Greenwood
Ship to:	CCP Central Records/CCP Records	Site:	Oak Ridge National Laboratory
	Custodian	Company:	Technical Specialists
	4021 National Parks Highway – MS	Telephone Number:	575-725-0135
	GSA 203, Carlsbad, NM 88220	Date Sent:	8/3/09
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
N/A	Memorandum From: Steve Schafer, CCP AKE To: Hillari Neely, CCP SPM Date: 7/14/2009 RE: Addition of Container ORRH00035, ORRH00036 to waste stream OR-REDC-RH-HET (Parent Cask X10C0011088 and Drum ORRH00007)	7/14/09	2
N/A	Attachment 1 Cask Evaluation-X10C0011088	3/27/09	1
N/A	Attachment 2 Cask Evaluation – X10C0011108	5/29/08	1
N/A	Attachment 3 Cask Evaluation – X10C0601826	6/02/08	1

Comments

Please incorporate memo with Attachment 8 for waste stream OR-REDC-RH-HET

Acceptance/Rejection Signature and Date

	Signature	Printed Name	Date
Records Accepted [X]	Tami Parker	TAMI PARKER	8/3/09
Records Rejected [ ]			

Reason for Rejection: NA

Re-submittal:

Signature	Printed Name	Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 505-234-7523
Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Hart Greenwood
Ship to:	CCP Central Records/CCP Records	Site:	Oak Ridge National Laboratory
	Custodian	Company:	Technical Specialists
	4021 National Parks Highway – MS	Telephone Number:	575-725-0135
	GSA 203, Carlsbad, NM 88220	Date Sent:	8/03/09
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
N/A	Memorandum From: Kevin Peters, CCP AKE To: Hillari Neely, CCP SPM Date: 7/29/2009 RE: Addition of Container ORRH00033 to Waste Stream OR-REDC-RH-HET (Parent Cask X10C0011088)	6/29/09	2
N/A	Attachment 1 Cask Evaluation-X10C0011088	3/27/08	1

Comments

Please incorporate memo with Attachment 8 for waste stream OR-REDC-RH-HET. Pagination does not apply to document.

Acceptance/Rejection Signature and Date

Records Accepted [X]	Tami Parker	TAMI PARKER	8/5/09
	Signature	Printed Name	Date
Records Rejected [ ]			
	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Kevin Peters
Ship to:	CCP Central Records/CCP Records	Site:	Oak Ridge National Laboratory
	4021 National Parks Highway	Company:	Technical Specialties, LLC
	MS GSA 103	Telephone Number:	303-949-7525
	Carlsbad, NM 88220	Date Sent:	6/24/09
Telephone Number:	575-234-7523		

Document Number	Title / Description	Revision Date	Total Pages
NA	Corrected page 1 of 7 of Addition of Containers Memorandum from Kevin Peters to Irene Quintana for ORNL-RH-500	5/19/2009	1

Comments:

Please replace original page with corrected page.

Acceptance/Rejection Signature and Date

Records Accepted [X]	Tami Parker	TAMI PARKER	6/24/09
	Signature	Printed Name	Date
Records Rejected [ ]			
	Signature	Printed Name	Date

Reason for Rejection: NA

Re-submittal:			
	Signature	Printed Name	Date

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	2149
CONNECTION TEL	92347056
SUBADDRESS	
CONNECTION ID	
ST. TIME	06/24 10:23
USAGE T	00'21
PGS. SENT	1
RESULT	OK

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 505-234-7523
Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Kevin Peters
Ship to:	CCP Central Records/CCP Records	Site:	Oak Ridge National Laboratory
	4021 National Parks Highway	Company:	Technical Specialties, LLC
	MS GSA 103	Telephone Number:	303-949-7525
	Carlsbad, NM 88220	Date Sent:	6/24/09
Telephone Number:	575-234-7523		

Document Number	Title/Description	Record Date	Total Pgs
NA	Corrected page 1 of 7 of Addition of Containers Memorandum from Kevin Peters to Irene Quintana for ORNL-RH-500	5/19/2009	1

Comments:
Please replace original page with corrected page.

Acceptance/Rejection Signature and Date

Records Accepted [X] Tami Parker — TAMI PARKER — 6/24/09
Signature — Printed Name — Date

Records Rejected [ ] _____ — _____ — _____
Signature — Printed Name — Date

Reason for Rejection:
NA

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Kevin Peters
Ship to:	CCP Central Records/CCP Records	Site:	Oak Ridge National Laboratory
	4021 National Parks Highway	Company:	Technical Specialties, LLC
	MS GSA 103	Telephone Number:	303-949-7525
	Carlsbad, NM 88220	Date Sent:	6/24/09
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
NA	Addition of containers Memo from Kevin Peters to Hillari Neely for ORNL-RH-500	4/13-2009	3

Comments:

Please append to the back of the Attachment 8 for ORNL-RH-500.

Acceptance/Rejection Signature and Date

Records Accepted	[X]	Tami Parker	TAMI PARKER	6/24/09
		Signature	Printed Name	Date
Records Rejected	[ ]			
		Signature	Printed Name	Date

Reason for Rejection:

NA

Re-submittal:

Signature	Printed Name	Date

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	2150
CONNECTION TEL	92347056
SUBADDRESS	
CONNECTION ID	
ST. TIME	06/24 10:24
USAGE T	00'23
PGS. SENT	1
RESULT	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 505-234-7523
Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Kevin Peters
Ship to:	CCP Central Records/CCP Records	Site:	Oak Ridge National Laboratory
	4021 National Parks Highway	Company:	Technical Specialties, LLC
	MS GSA 103	Telephone Number:	303-949-7525
	Carlsbad, NM 88220	Date Sent:	6/24/09
Telephone Number:	575-234-7523		

Document Number	Title/Description	Record Date	Total Pages
NA	Addition of containers Memo from Kevin Peters to Hillari Neely for ORNL-RH-500	4/13-2009	3

Comments:
Please append to the back of the Attachment 8 for ORNL-RH-500.

Acceptance/Rejection Signature and Date

Records Accepted [X]	Tami Parker	TAMI PARKER	6/24/09
	Signature	Printed Name	Date
Records Rejected [ ]			
	Signature	Printed Name	Date

Reason for Rejection:

NA

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523

Fax Number: 575-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Christopher J. Chancellor
Ship to:	CCP Central Records/ CCP Records Custodian 4021 National Parks Highway - MS GSA 203, Carlsbad, NM 88220	Site:	Oak Ridge National Laboratory
		Company:	Los Alamos National Laboratory
		Telephone Number:	575-706-5343
Telephone Number:	575-234-7523	Date Sent:	06/22/2009

Document Number	Title/Description	Record Date	Total Pages
NA	Attachment 8 - Waste Containers List for the OR-REDC-RH-HET Waste Stream for inclusion in the CCP ORNL Library Files with the following attached source documents:	6/22/2009	1
NA	Add Container Memos	06/16/2008	4

Comments:

Please append to existing Attachment 8.

Acceptance/Rejection Signature and Date

Records Accepted	[X]	Tami Parker (Signature)	TAMI PARKER (Printed Name)	6/22/09 (Date)
Records Rejected	[ ]	(Signature)	(Printed Name)	(Date)

Reason for Rejection: NA

Re-submittal:	(Signature)	(Printed Name)	(Date)

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	2082
CONNECTION TEL	96283238
SUBADDRESS	
CONNECTION ID	
ST. TIME	06/22 11:08
USAGE T	00'21
PGS. SENT	1
RESULT	OK

Controlled Copy

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CCP Records Management

Effective Date: 09/19/2007
Page 29 of 29

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523

Fax Number: 575-234-7014

☒ Original Record
☐ Fax Record
☐ Electronic Record

Attn:	Sheila Pearcy	From:	Christopher J. Chancellor
Ship to:	CCP Central Records/ CCP Records Custodian	Site:	Oak Ridge National Laboratory
	4021 National Parks Highway - MS GSA 203, Carlsbad, NM 88220	Company:	Los Alamos National Laboratory
Telephone Number:	575-234-7523	Telephone Number:	575-706-5343
		Date Sent:	06/22/2009

NA	Attachment 8 - Waste Containers List for the OR-REDC-RH-HET Waste Stream for inclusion in the CCP ORNL Library Files with the following attached source documents:	6/22/2009	1
NA	Add Container Memos	06/16/2008	4

Please append to existing Attachment 8.

Acceptance/Rejection Signature and Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Hart Greenwood
Ship to:	CCP Central Records/CCP Records	Site:	Oak Ridge National Laboratory
	Custodian	Company:	Technical Specialists
	4021 National Parks Highway – MS	Telephone Number:	575-725-0135
	GSA 203, Carlsbad, NM 88220	Date Sent:	6/23/2009
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
N/A	Memorandum: To: H. Neely. From: K. Peters Date: June 16, 2009. RE: Addition of Containers ORRH00025 and ORRH00026 to Waste Stream OR-REDC-RH-HET (Parent Cask X10C0402925)	6/16/2009	1
N/A	Waste Containers list with Drum ID, Package Date, Vent Date, and Parent Cask	6/16/2009	1
N/A	Attachment 1 Cask Evaluation-X10C0402925	8/22/2009	1

Comments

Please add to Attachment 8, Waste Stream for OR-REDC-RH-HET

Acceptance/Rejection Signature and Date

Records Accepted [X] — Signature: Tami Parker — Printed Name: TAMI PARKER — Date: 6/23/09

Records Rejected [ ] — Signature: _____ — Printed Name: _____ — Date: _____

Reason for Rejection: NA

Re-submittal: Signature: _____ — Printed Name: _____ — Date: _____

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	2096
CONNECTION TEL	96283238
SUBADDRESS	
CONNECTION ID	
ST. TIME	06/23 08:35
USAGE T	00'20
PGS. SENT	1
RESULT	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Hart Greenwood
Ship to:	CCP Central Records/CCP Records	Site:	Oak Ridge National Laboratory
	Custodian	Company:	Technical Specialists
	4021 National Parks Highway – MS	Telephone Number:	575-725-0135
	GSA 203, Carlsbad, NM 88220	Date Sent:	6/23/2009
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
N/A	Memorandum: To: H. Neely. From: K. Peters Date: June 16, 2009. RE: Addition of Containers ORRH00025 and ORRH00026 to Waste Stream OR-REDC-RH-HET (Parent Cask X10C0402925)	6/16/2009	1
N/A	Waste Containers list with Drum ID, Package Date, Vent Date, and Parent Cask	6/16/2009	1
N/A	Attachment 1 Cask Evaluation-X10C0402925	8/22/2009	1

Comments

Please add to Attachment 8, Waste Stream for OR-REDC-RH-HET

Acceptance/Rejection Signature and Date

Records Accepted [X] Tami Parker — TAMI PARKER — 6/23/09
Signature — Printed Name — Date

Records Rejected [ ] _____ — _____ — _____
Signature — Printed Name — Date

Reason for Rejection:

N/A

Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523

Fax Number: 575-234-7014

☒ Original Record
☐ Fax Record
☐ Electronic Record

Attn:	Sheila Pearcy	From:	Christopher Chancellor
Ship to:	CCP Central Records/ CCP Records Custodian 4021 National Parks Highway - MS GSA 203, Carlsbad, NM 88220	Site:	Oak Ridge National Laboratory
		Company:	Los Alamos National Laboratory
		Telephone Number:	575-706-5343
Telephone Number:	575-234-7523	Date Sent:	04/15/2009

NA	Attachment 8 - Waste Containers List for the OR-REDC-RH-HET Waste Stream for inclusion in the CCP ORNL Library Files with the following attached source documents:	4/14/2009	1
NA	Add Container Memos	05/2008 - 06/2008	24

None.

Acceptance/Rejection Signature and Date

Records Accepted ☒ Tami Parker (Signature) — TAMI PARKER (Printed Name) — 4/16/09 (Date)

Records Rejected ☐ _____ (Signature) — _____ (Printed Name) — _____ (Date)

Reason for Rejection: NA

Re-submittal: _____ (Signature) — _____ (Printed Name) — _____ (Date)

HP LaserJet *M2727nf MFP*

Fax Confirmation Report

HP LASERJET FAX

Apr-16-2009 8:55AM

Job	Date	Time	Type	Identification	Duration	Pages	Result
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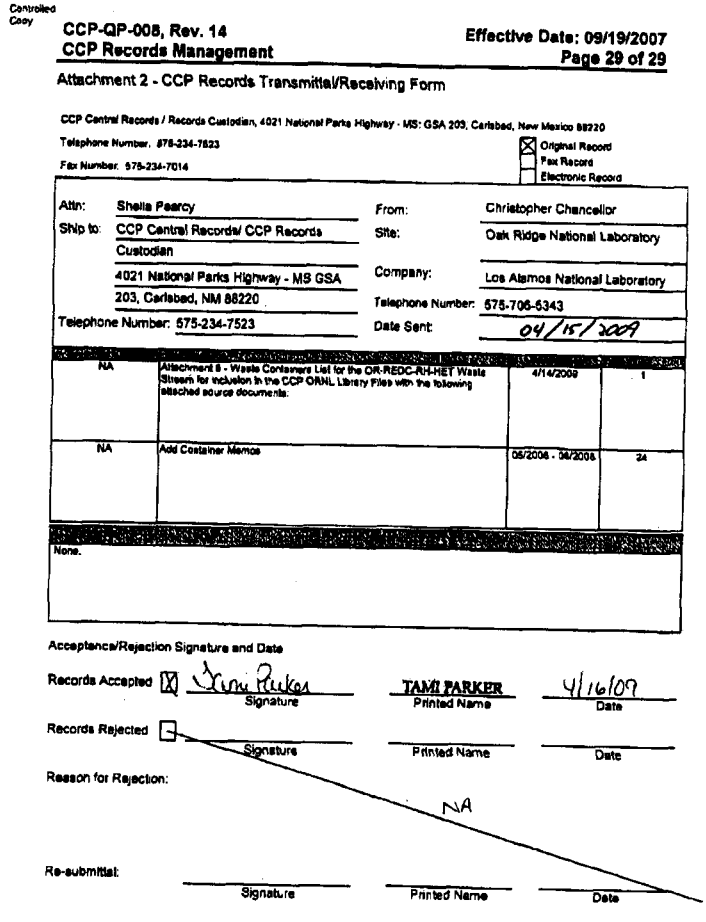

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Effective Date: 09/19/2007
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Attachment 2 - CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523
Fax Number: 575-234-7014

☒ Original Record
☐ Fax Record
☐ Electronic Record

Attn: Sheila Pearcy
Ship to: CCP Central Records/ CCP Records Custodian
4021 National Parks Highway - MS GSA 203, Carlsbad, NM 88220
Telephone Number: 575-234-7523

From: Christopher Chancellor
Site: Oak Ridge National Laboratory
Company: Los Alamos National Laboratory
Telephone Number: 575-706-5343
Date Sent: 04/15/2009

NA	Attachment 8 - Waste Containers List for the OR-REDC-RH-HET Waste Stream for inclusion in the CCP ORNL Library Files with the following attached source documents:	4/14/2009	1
NA	Add Container Memos	06/2006 - 04/2008	24

None.

Acceptance/Rejection Signature and Date

Records Accepted ☒ Signature: [signature] Printed Name: TAMI PARKER Date: 4/16/09

Records Rejected ☐ Signature: _____ Printed Name: _____ Date: _____

Reason for Rejection: NA

Re-submittal: Signature: _____ Printed Name: _____ Date: _____

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523
Fax Number: 575-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	~~Chezie Davis~~ Tami
Ship to:	CCP Central Records/CCP Records Custodian	Site:	Oak Ridge National Laboratory
		Company:	Technical Specialists
	4021 National Parks Highway – MS	Telephone Number:	575-725-0135
	GSA 203, Carlsbad, NM 88220	Date Sent:	5/20/2009
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
N/A	Memorandum – To: I. Quintana, CCP SPM From: K. Peters, CCP AKE Date: 5/19/09 RE: Addition of Containers ORRH00019, ORRH00020, ORRH00024, ORRH00027, ORRH00028, ORRH00029, ORRH00030, ORRH00030, ORRH00031, ORRH00032, and ORRH00034 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C0011108, X10C0601826, X10C9402650, X10C001108, and repack of drums ORRH00007 and ORRH00010.	5/19/09	7

Comments

This is to be included as part of Attachment 8, not to supersede it.

Acceptance/Rejection Signature and Date

		Signature	Printed Name	Date
Records Accepted	[X]	Tami Parker	TAMI PARKER	5/21/09
Records Rejected	[ ]			

Reason for Rejection: NA

Re-submittal:

Signature	Printed Name	Date

HP LaserJet *M2727nf MFP*

Fax Confirmation Report

HP LASERJET FAX

May-21-2009 7:31AM

Job	Date	Time	Type	Identification	Duration	Pages	Result
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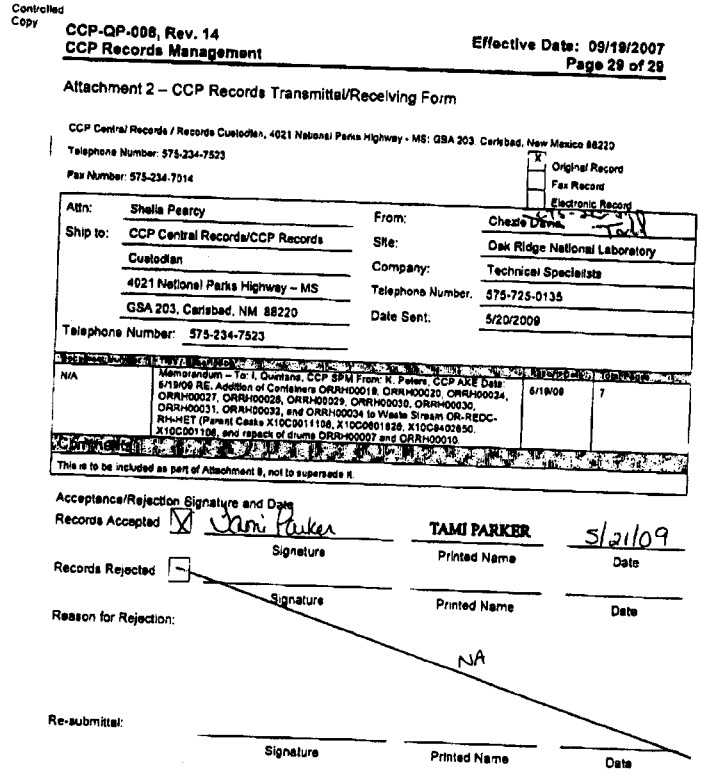

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CCP Records Management

Effective Date: 09/19/2007
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Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523
Fax Number: 575-234-7014

X Original Record
Fax Record
Electronic Record

Attn:	Sheila Pearcy	From:	Chezie Dare
Ship to:	CCP Central Records/CCP Records	Site:	Oak Ridge National Laboratory
	Custodian	Company:	Technical Specialists
	4021 National Parks Highway – MS	Telephone Number:	575-725-0135
	GSA 203, Carlsbad, NM 88220	Date Sent:	5/20/2009
Telephone Number:	575-234-7523		

Type	Description	Date	Pages
N/A	Memorandum – To: I. Quintana, CCP SPM From: K. Peters, CCP AXE Date: 5/19/09 RE: Addition of Containers ORRH00018, ORRH00020, ORRH00024, ORRH00027, ORRH00028, ORRH00029, ORRH00030, ORRH00030, ORRH00031, ORRH00032, and ORRH00034 to Waste Stream OR-REDC-RH-HET (Parent Casks X10C0011108, X10C0601826, X10C8402850, X10C001108, and repack of drums ORRH00007 and ORRH00010	5/19/09	7

Comments:
This is to be included as part of Attachment 9, not to supersede it.

Acceptance/Rejection Signature and Date

Records Accepted	[X]	Tami Parker	TAMI PARKER	5/21/09
		Signature	Printed Name	Date
Records Rejected	[ ]			
		Signature	Printed Name	Date

Reason for Rejection: NA

Re-submittal:

Signature	Printed Name	Date

MEMORANDUM

To: Laura Nelson, CCP SPM

From: Steve Schafer, CCP AKE

Date: August 26, 2010

RE: Addition of 344 Containers to Waste Stream OR-REDC-RH-HET

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 344 55-gallon drums generated by ORNL TWPC operations repackaging operations listed in Table 1. These containers were evaluated by the AKE as they were generated prior to being added to the AK Tracking Spreadsheet. The evaluation date for each container is identified in Table 1. Repackaged waste consists of REDC Building 7920 debris waste originally packaged in the concrete casks listed in Table 2. This evaluation included the review of existing AK for the casks in addition to review of the VE BDRs generated for these drums during packaging.

The 2109 packaging documentation (M100), inventory database (M012), and other historic cask packaging assessments (P1115, U038, U850) were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Tables 2 summarizes the information obtained during the review of historic waste packaging documentation including, as available; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. Additionally, based on the review of the packaging dates for the waste items in casks, the radiological distributions described in CCP-AK-ORNL-501 were determined.

Based on the cask documentation and a review of the VE BDRs generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)	Date Drum Evaluated
ORRH00103	2/9/2010	2/9/2010	Parent X10C9402642 (100%)	2/10/2010
ORRH00104	2/10/2010	2/10/2010	Parent X10C9402642 (100%)	2/10/2010
ORRH00105	2/10/2010	2/10/2010	Parent X10C9402642 (100%)	2/16/2010
ORRH00106	2/17/2010	2/17/2010	Parent X10CSATN02874 (100%)	2/18/2010
ORRH00107	2/18/2010	2/18/2010	Parent X10CSATN02874 (100%)	2/18/2010
ORRH00108	2/18/2010	2/18/2010	Parent X10CSATN02874 (100%)	2/22/2010
ORRH00109	2/18/2010	2/18/2010	Parent X10CSATN02874 (100%)	2/22/2010
ORRH00110	2/19/2010	2/19/2010	Parent X10CSATN02874 (100%)	2/22/2010
ORRH00111	2/19/2010	2/19/2010	Parent X10CSATN02874 (100%)	2/22/2010
ORRH00112	2/22/2010	2/22/2010	Parent X10CSATN02874 (100%)	2/23/2010
ORRH00113	2/22/2010	2/22/2010	Parent X10CSATN02874 (100%)	2/23/2010
ORRH00114	2/22/2010	2/22/2010	Parent X10CSATN02874 (100%)	2/23/2010
ORRH00115	2/23/2010	2/23/2010	Parent X10CSATN02874 (100%)	2/23/2010
ORRH00116	2/24/2010	2/24/2010	Parent X10CSATN02874 (100%)	3/3/2010
ORRH00117	3/1/2010	3/1/2010	Parent X10CSATN02874 (100%)	3/3/2010
ORRH00118	3/2/2010	3/2/2010	Parent X10CSATN02869 (100%)	3/3/2010
ORRH00119	3/3/2010	3/3/2010	Parent X10CSATN02869 (100%)	3/3/2010
ORRH00120	3/3/2010	3/3/2010	Parent X10CSATN02869 (100%)	3/4/2010
ORRH00121	3/15/2010	3/15/2010	Parent X10CSATN02869 (10%); X10CSATN02866 (90%)	3/16/2010
ORRH00122	3/16/2010	3/16/2010	Parent X10CSATN02866 (100%)	3/16/2010
ORRH00123	3/16/2010	3/16/2010	Parent X10CSATN02866 (100%)	3/16/2010
ORRH00124	3/16/2010	3/16/2010	Parent X10CSATN02866 (100%)	3/17/2010
ORRH00125	3/17/2010	3/17/2010	Parent X10CSATN02866 (100%)	3/17/2010
ORRH00126	3/17/2010	3/17/2010	Parent X10CSATN02866 (100%)	3/18/2010
ORRH00127	3/29/2010	3/29/2010	Parent X10CSATN02694 (100%)	3/30/2010
ORRH00128	3/29/2010	3/29/2010	Parent X10CSATN02694 (100%)	3/30/2010
ORRH00129	3/29/2010	3/29/2010	Parent X10CSATN02694 (100%)	3/30/2010
ORRH00130	2/15/2010	2/15/2010	Parent X10C9402642 and Cell Decon Waste (100%)	2/16/2010
ORRH00131	3/2/2010	3/2/2010	Parent X10CSATN02874 (50%), X10CSATN02869 (50%)	3/3/2010
ORRH00132	3/3/2010	3/3/2010	Parent X10CSATN02869 (100%)	3/4/2010
ORRH00133	3/4/2010	3/4/2010	Parent X10CSATN02869 (100%)	3/4/2010
ORRH00134	3/4/2010	3/4/2010	Parent X10CSATN02869 (100%)	3/8//2010
ORRH00135	3/8/2010	3/8/2010	Parent X10CSATN02869 (100%)	3/9/2010
ORRH00136	3/5/2010	3/5/2010	Parent X10CSATN02869 (100%)	3/8/2010
ORRH00137	3/10/2010	3/10/2010	Parent X10CSATN02869 (100%)	3/11/2010
ORRH00138	3/11/2010	3/11/2010	Parent X10CSATN02869 (100%)	3/11/2010
ORRH00139	3/11/2010	3/11/2010	Parent X10CSATN02869 (100%)	3/11/2010
ORRH00140	3/11/2010	3/11/2010	Parent X10CSATN02869 (100%)	3/12/2010
ORRH00141	3/11/2010	3/11/2010	Parent X10CSATN02869 (100%)	3/12/2010
ORRH00142	3/17/2010	3/17/2010	Parent X10CSATN02869 (100%,	3/18/2010

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)	Date Drum Evaluated
			Repack of drum ORRH00132)	
ORRH00143	3/18/2010	3/18/2010	Parent X10CSATN02866 (100%)	3/18/2010
ORRH00144	3/18/2010	3/18/2010	Parent X10CSATN02866 (100%)	3/19/2010
ORRH00145	3/19/2010	3/19/2010	Parent X10CSATN02866 (100%)	3/19/2010
ORRH00146	3/22/2010	3/22/2010	Parent X10CSATN02866 (100%)	3/23/2010
ORRH00147	3/22/2010	3/22/2010	Parent X10CSATN02866 (100%)	3/23/2010
ORRH00148	3/22/2010	3/22/2010	Parent X10CSATN02866 (100%)	3/23/2010
ORRH00149	3/23/2010	3/23/2010	Parent X10CSATN02866 (100%)	3/23/2010
ORRH00150	3/23/2010	3/23/2010	Parent X10CSATN02866 (60%), X10CSATN02694 (40%)	3/24/2010
ORRH00151	3/24/2010	3/24/2010	X10CSATN02694 (100%)	3/25/2010
ORRH00152	4/1/2010	4/1/2010	Parent X10CSATN02493 (100%)	4/2/2010
ORRH00153	3/30/2010	3/30/2010	Parent X10CSATN02694 (100%)	3/31/2010
ORRH00154	3/30/2010	3/30/2010	Parent X10CSATN02694 (100%)	3/31/2010
ORRH00155	3/30/2010	3/30/2010	Parent X10CSATN02694 (100%)	3/30/2010
ORRH00156	4/8/2010	4/8/2010	Parent X10CSATN02474 (100%)	4/9/2010
ORRH00157	4/8/2010	4/8/2010	Parent X10CSATN02474 (100%)	4/9/2010
ORRH00158	4/9/2010	4/9/2010	Parent X10CSATN02474 (100%)	4/9/2010
ORRH00159	4/9/2010	4/9/2010	Parent X10CSATN02474 (100%)	4/12/2010
ORRH00160	4/9/2010	4/9/2010	Parent X10CSATN02474 (100%)	4/12/2010
ORRH00161	4/10/2010	4/10/2010	Parent X10CSATN02474 (100%)	4/12/2010
ORRH00162	3/24/2010	3/24/2010	X10CSATN02694 (100%)	3/25/2010
ORRH00163	3/24/2010	3/24/2010	X10CSATN02694 (100%)	3/25/2010
ORRH00164	3/25/2010	3/25/2010	X10CSATN02694 (100%)	3/25/2010
ORRH00165	3/25/2010	3/25/2010	Parent X10CSATN02694 (100%)	3/26/2010
ORRH00166	3/25/2010	3/25/2010	Parent X10CSATN02694 (100%)	3/26/2010
ORRH00167	3/25/2010	3/25/2010	Parent X10CSATN02694 (100%)	3/26/2010
ORRH00168	3/26/2010	3/26/2010	Parent X10CSATN02694 (100%)	3/26/2010
ORRH00169	3/29/2010	3/29/2010	Parent X10CSATN02694 (100%)	3/30/2010
ORRH00170	3/30/2010	3/30/2010	Parent X10CSATN02694 (100%)	3/31/2010
ORRH00171	3/31/2010	3/31/2010	Parent X10CSATN02699 (100%)	3/31/2010
ORRH00172	3/31/2010	3/31/2010	Parent X10CSATN02699 (100%)	3/31/2010
ORRH00173	3/31/2010	3/31/2010	Parent X10CSATN02699 (100%)	4/2/2010
ORRH00174	4/1/2010	4/1/2010	Parent X10CSATN02493 (100%)	4/2/2010
ORRH00175	4/1/2010	4/1/2010	Parent X10CSATN02493 (100%)	4/2/2010
ORRH00176	4/1/2010	4/1/2010	Parent X10CSATN02493 (100%)	4/2/2010
ORRH00177	4/1/2010	4/1/2010	Parent X10CSATN02493 (100%)	4/2/2010
ORRH00178	4/2/2010	4/2/2010	Parent X10CSATN02493 (100%)	4/2/2010
ORRH00179	4/5/2010	4/5/2010	Parent X10CSATN02493 (100%)	4/6/2010
ORRH00180	4/5/2010	4/5/2010	Parent X10CSATN02493 (100%)	4/6/2010
ORRH00181	4/5/2010	4/5/2010	Parent X10CSATN02493 (100%)	4/6/2010
ORRH00182	4/5/2010	4/5/2010	Parent X10CSATN02493 (100%)	4/6/2010
ORRH00183	4/6/2010	4/6/2010	Parent X10CSANT02493 (100%)	4/7/2010
ORRH00184	4/7/2010	4/7/2010	Parent X10CSATN02493 (100%)	4/7/2010
ORRH00185	4/6/2010	4/6/2010	Parent X10CSATN02493 (100%)	4/7/2010

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)	Date Drum Evaluated
ORRH00186	4/6/2010	4/6/2010	Parent X10CSATN02493 (100%)	4/7/2010
ORRH00187	4/8/2010	4/8/2010	Parent X10CSATN02474 (100%)	4/8/2010
ORRH00188	4/7/2010	4/7/2010	Parent X10CSATN02474 (100%)	4/8/2010
ORRH00189	4/7/2010	4/7/2010	Parent X10CSATN02474 (100%)	4/8/2010
ORRH00190	4/12/2010	4/12/2010	Parent X10CSATN02474 (100%)	4/13/2010
ORRH00191	4/8/2010	4/8/2010	Parent X10CSATN02474 (100%)	4/9/2010
ORRH00192	4/13/2010	4/13/2010	Parent X10CSATN02689 (100%)	4/14/2010
ORRH00193	4/12/2010	4/12/2010	Parent X10CSATN02474 (100%)	4/13/2010
ORRH00194	4/8/2010	4/8/2010	Parent X10CSATN02474 (100%)	4/9/2010
ORRH00195	4/8/2010	4/8/2010	Parent X10CSATN02474 (100%)	4/9/2010
ORRH00196	4/13/2010	4/13/2010	Parent X10CSATN02689 (100%)	4/14/2010
ORRH00197	4/14/2010	4/14/2010	Parent X10CSATN02689 (100%)	4/14/2010
ORRH00198	4/14/2010	4/14/2010	Parent X10CSATN02689 (100%)	4/14/2010
ORRH00199	4/14/2010	4/14/2010	Parent X10CSATN02689 (100%)	4/14/2010
ORRH00200	4/14/2010	4/14/2010	Parent X10CSATN02689 (100%)	4/15/2010
ORRH00201	4/14/2010	4/14/2010	Parent X10CSATN02689 (100%)	4/15/2010
ORRH00202	4/14/2010	4/14/2010	Parent X10CSATN02689 (100%)	4/15/2010
ORRH00203	4/14/2010	4/14/2010	Parent X10CSATN02689 (100%)	4/15/2010
ORRH00204	4/14/2010	4/14/2010	Parent X10CSATN02689 (100%)	4/15/2010
ORRH00205	4/14/2010	4/14/2010	Parent X10CSATN02689 (100%)	4/15/2010
ORRH00206	4/14/2010	4/14/2010	Parent X10CSATN02689 (100%)	4/15/2010
ORRH00207	4/15/2010	4/15/2010	Parent X10CSATN02689 (100%)	4/16/2010
ORRH00208	4/15/2010	4/15/2010	Parent X10CSATN02689 (100%)	4/16/2010
ORRH00209	4/15/2010	4/15/2010	Parent X10CSATN02689 (100%)	4/16/2010
ORRH00210	4/15/2010	4/15/2010	Parent X10CSATN02689 (100%)	4/16/2010
ORRH00211	4/16/2010	4/16/2010	Parent X10CSATN02689 (100%)	4/16/2010
ORRH00212	4/16/2010	4/16/2010	Parent X10CSATN02689 (100%)	4/16/2010
ORRH00213	4/16/2010	4/16/2010	Parent X10CSATN02689 (100%)	4/16/2010
ORRH00214	4/16/2010	4/16/2010	Parent X10CSATN02689 (100%)	4/19/2010
ORRH00215	4/16/2010	4/16/2010	Parent X10CSATN02689 (100%)	4/19/2010
ORRH00216	4/16/2010	4/16/2010	Parent X10CSATN02689 (100%)	4/19/2010
ORRH00217	4/19/2010	4/19/2010	Parent X10CSATN02689 (60%) and X10CSATN02455 (40%)	4/21/2010
ORRH00218	4/21/2010	4/21/2010	Parent X10CSATN02455 (100%)	4/22/2010
ORRH00219	4/22/2010	4/22/2010	Parent X10CSATN02455 (100%)	4/22/2010
ORRH00220	4/22/2010	4/22/2010	Parent X10CSATN02455 (100%)	4/23/2010
ORRH00221	4/23/2010	4/23/2010	Parent X10CSATN02455 (100%)	4/23/2010
ORRH00222	4/23/2010	4/23/2010	Parent X10CSATN02455 (100%)	4/23/2010
ORRH00223	4/21/2010	4/21/2010	Parent X10CSATN02455 (100%)	4/22/2010
ORRH00224	4/21/2010	4/21/2010	Parent X10CSATN02455 (100%)	4/22/2010
ORRH00225	4/23/2010	4/23/2010	Parent X10CSATN02455 (100%)	4/24/2010
ORRH00226	4/23/2010	4/23/2010	Parent X10CSATN02455 (100%)	4/24/2010
ORRH00227	4/23/2010	4/23/2010	Parent X10CSATN02455 (100%)	4/24/2010
ORRH00228	4/23/2010	4/23/2010	Parent X10CSATN02455 (100%)	4/24/2010
ORRH00229	4/26/2010	4/26/2010	Parent X10CSATN02455 (100%)	4/27/2010

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)	Date Drum Evaluated
ORRH00230	4/26/2010	4/26/2010	Parent X10CSATN02455 (100%)	4/27/2010
ORRH00231	4/27/2010	4/27/2010	Parent X10CSATN02455 (100%)	4/28/2010
ORRH00232	4/27/2010	4/27/2010	Parent X10CSATN02455 (100%)	4/28/2010
ORRH00233	4/27/2010	4/27/2010	Parent X10CSATN02455 (100%)	4/28/2010
ORRH00234	4/27/2010	4/27/2010	Parent X10CSATN02455 (100%)	4/28/2010
ORRH00235	4/27/2010	4/27/2010	Parent X10CSATN02455 (100%)	4/28/2010
ORRH00236	4/28/2010	4/28/2010	Parent X10CSATN02455 (100%)	4/28/2010
ORRH00237	4/28/2010	4/28/2010	Parent X10CSATN02455 (20%), X10CSATN02450 (80%)	4/29/2010
ORRH00238	4/28/2010	4/28/2010	Parent X10CSATN02450 (100%)	4/29/2010
ORRH00239	4/28/2010	4/28/2010	Parent X10CSATN02450 (100%)	4/29/2010
ORRH00240	4/29/2010	4/29/2010	Parent X10CSATN02450 (100%)	4/29/2010
ORRH00241	4/29/2010	4/29/2010	Parent X10CSATN02450 (100%)	4/29/2010
ORRH00242	4/29/2010	4/29/2010	Parent X10CSATN02450 (100%)	4/30/2010
ORRH00243	4/29/2010	4/29/2010	Parent X10CSATN02450 (100%)	4/30/2010
ORRH00244	4/29/2010	4/29/2010	Parent X10CSATN02450 (100%)	4/30/2010
ORRH00245	4/29/2010	4/29/2010	Parent X10CSATN02450 (100%)	4/30/2010
ORRH00246	4/29/2010	4/29/2010	Parent X10CSATN02450 (100%)	4/30/2010
ORRH00246A	7/15/2010	7/15/2010	Parent X10CSATN02450 (95%) X10CSATN02284 (5%) from original drum ORH0024501	7/15/2010
ORRH00247	4/29/2010	4/29/2010	Parent X10CSATN02450 (100%)	4/30/2010
ORRH00248	4/30/2010	4/30/2010	Parent X10CSATN02450 (100%)	4/30/2010
ORRH00249	4/30/2010	4/30/2010	Parent X10CSATN02450 (100%)	4/30/2010
ORRH00250	4/30/2010	4/30/2010	Parent X10CSATN02450 (100%)	5/1/2010
ORRH00251	4/30/2010	4/30/2010	Parent X10CSATN02450 (100%)	5/1/2010
ORRH00252	4/30/2010	4/30/2010	Parent X10CSATN02450 (100%)	5/1/2010
ORRH00253	5/1/2010	5/1/2010	Parent X10CSATN02450 (100%)	5/3/2010
ORRH00254	5/4/2010	5/4/2010	Parent X10CSATN02450 (100%)	5/4/2010
ORRH00255	5/4/2010	5/4/2010	Parent X10CSATN02450 (100%)	5/4/2010
ORRH00256	5/4/2010	5/4/2010	Parent X10CSATN02450 (100%)	5/5/2010
ORRH00257	5/4/2010	5/4/2010	Parent X10CSATN02450 (100%)	5/5/2010
ORRH00258	5/4/2010	5/4/2010	Parent X10CSATN02244 (100%)	5/5/2010
ORRH00259	5/4/2010	5/4/2010	Parent X10CSATN02244 (100%)	5/5/2010
ORRH00260	5/5/2010	5/5/2010	Parent X10CSATN02244 (100%)	5/5/2010
ORRH00261	5/5/2010	5/5/2010	Parent X10CSATN02244 (100%)	5/5/2010
ORRH00262	5/10/2010	5/10/2010	Parent X10CSATN02244 (100%)	5/12/2010
ORRH00263	5/5/2010	5/5/2010	Parent X10CSATN02244 (100%)	5/6/2010
ORRH00264	5/5/2010	5/5/2010	Parent X10CSATN02244 (100%)	5/6/2010
ORRH00265	5/6/2010	5/6/2010	Parent X10CSATN02244 (100%)	5/7/2010
ORRH00266	5/6/2010	5/6/2010	Parent X10CSATN02244 (100%)	5/7/2010
ORRH00267	5/6/2010	5/6/2010	Parent X10CSATN02244 (100%)	5/7/2010
ORRH00268	5/12/2010	5/12/2010	Parent X10CSATN02244 (100%)	5/13/2010
ORRH00269	5/7/2010	5/7/2010	Parent X10CSATN02244 (100%)	5/7/2010
ORRH00270	5/12/2010	5/12/2010	Parent X10CSATN02244 (100%)	5/13/2010

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)	Date Drum Evaluated
ORRH00271	5/13/2010	5/13/2010	Parent X10CSATN02244 (80%), X10CSATN02434 (20%)	5/13/2010
ORRH00272	5/13/2010	5/13/2010	Parent X10CSATN02434 (100%)	5/13/2010
ORRH00273	5/13/2010	5/13/2010	Parent X10CSATN02434 (100%)	5/14/2010
ORRH00274	5/13/2010	5/13/2010	Parent X10CSATN02434 (100%)	5/14/2010
ORRH00275	5/13/2010	5/13/2010	Parent X10CSATN02434 (100%)	5/14/2010
ORRH00276	5/13/2010	5/13/2010	Parent X10CSATN02434 (100%)	5/14/2010
ORRH00277	5/13/2010	5/13/2010	Parent X10CSATN02434 (100%)	5/14/2010
ORRH00278	5/13/2010	5/13/2010	Parent X10CSATN02434 (100%)	5/14/2010
ORRH00279	5/17/2010	5/17/2010	Parent X10CSATN02434 (100%)	5/18/2010
ORRH00280	5/17/2010	5/17/2010	Parent X10CSATN02434 (100%)	5/18/2010
ORRH00281	5/15/2010	5/15/2010	Parent X10CSATN02434 (100%)	5/15/2010
ORRH00282	5/17/2010	5/17/2010	Parent X10CSATN02434 (100%)	5/18/2010
ORRH00283	5/17/2010	5/17/2010	Parent X10CSATN02434 (100%)	5/18/2010
ORRH00284	5/18/2010	5/18/2010	Parent X10CSATN02244 (10%); X10CSATN02434 (90%)	5/18/2010
ORRH00285	5/14/2010	5/14/2010	Parent X10CSATN02434 (100%)	5/14/2010
ORRH00286	5/14/2010	5/14/2010	Parent X10CSATN02434 (100%)	5/14/2010
ORRH00287	5/15/2010	5/15/2010	Parent X10CSATN02434 (100%)	5/15/2010
ORRH00288	5/18/2010	5/18/2010	Parent X10CSATN02244 (10%), X10CSATN02434 (90%)	5/19/2010
ORRH00289	5/18/2010	5/18/2010	Parent X10CSATN02244 (10%), X10CSATN02434 (90%)	5/19/2010
ORRH00290	5/19/2010	5/19/2010	Parent X10CSATN02244 (20%), X10CSATN02434 (80%)	5/19/2010
ORRH00291	5/18/2010	5/18/2010	Parent X10CSATN02434 (100%)	5/18/2010
ORRH00292	5/20/2010	5/20/2010	Parent X10CSATN02062 (100%)	5/20/2010
ORRH00293	5/20/2010	5/20/2010	Parent X10CSATN02062 (100%)	5/20/2010
ORRH00294	5/20/2010	5/20/2010	Parent X10CSATN02062 (100%)	5/20/2010
ORRH00295	5/20/2010	5/20/2010	Parent X10CSATN02062 (100%)	5/21/2010
ORRH00296	5/20/2010	5/20/2010	Parent X10CSATN02062 (100%)	5/21/2010
ORRH00297	5/20/2010	5/20/2010	Parent X10CSATN02062 (100%)	5/21/2010
ORRH00298	5/19/2010	5/19/2010	Parent X10CSATN02062 (100%)	5/20/2010
ORRH00299	5/19/2010	5/19/2010	Parent X10CSATN02434 (100%)	5/20/2010
ORRH00300	5/19/2010	5/19/2010	Parent X10CSATN02062 (100%)	5/20/2010
ORRH00301	5/20/2010	5/20/2010	Parent X10CSATN02062 (100%)	5/21/2010
ORRH00302	5/20/2010	5/20/2010	Parent X10CSATN02062 (100%)	5/21/2010
ORRH00303	5/21/2010	5/21/2010	Parent X10CSATN02062 (100%)	5/22/2010
ORRH00304	5/21/2010	5/21/2010	Parent X10CSATN02062 (100%)	5/22/2010
ORRH00305	5/21/2010	5/21/2010	Parent X10CSATN02062 (100%)	5/22/2010
ORRH00306	5/21/2010	5/21/2010	Parent X10CSATN02062 (100%)	5/22/2010
ORRH00307	5/22/2010	5/22/2010	Parent X10CSATN02062 (100%)	5/22/2010
ORRH00308	5/22/2010	5/22/2010	Parent X10CSATN02062 (100%)	5/22/2010
ORRH00309	5/24/2010	5/24/2010	Parent X10CSATN02062 (100%)	5/25/2010
ORRH00310	5/26/2010	5/26/2010	Parent X10CSATN02062 (20%) and	5/27/2010

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)	Date Drum Evaluated
			X10CSATN02012 (80%)	
ORRH00311	5/26/2010	5/26/2010	Parent X10CSATN02012 (100%)	5/27/2010
ORRH00312	5/26/2010	5/26/2010	Parent X10CSATN02012 (100%)	5/27/2010
ORRH00313	5/26/2010	5/26/2010	Parent X10CSATN02012 (100%)	5/27/2010
ORRH00314	5/26/2010	5/26/2010	Parent X10CSATN02012 (100%)	5/27/2010
ORRH00315	5/26/2010	5/26/2010	Parent X10CSATN02012 (100%)	5/27/2010
ORRH00316	5/27/2010	5/27/2010	Parent X10CSATN02012 (100%)	5/27/2010
ORRH00317	5/27/2010	5/27/2010	Parent X10CSATN02012 (100%)	5/27/2010
ORRH00318	5/27/2010	5/27/2010	Parent X10CSATN02012 (100%)	5/27/2010
ORRH00319	5/27/2010	5/27/2010	Parent X10CSATN02012 (100%)	5/27/2010
ORRH00320	5/27/2010	5/27/2010	Parent X10CSATN02012 (100%)	5/27/2010
ORRH00321	5/27/2010	5/27/2010	Parent X10CSATN02012 (100%)	5/28/2010
ORRH00322	5/27/2010	5/27/2010	Parent X10CSATN02012 (100%)	5/28/2010
ORRH00323	5/27/2010	5/27/2010	Parent X10CSATN02012 (100%)	5/28/2010
ORRH00324	5/29/2010	5/29/2010	Parent X10CSATN02012 (100%)	5/29/2010
ORRH00325	6/2/2010	6/2/2010	Parent X10CSATN02012 (100%)	6/2/2010
ORRH00326	5/27/2010	5/27/2010	Parent X10CSATN02012 (100%)	5/28/2010
ORRH00327	5/27/2010	5/27/2010	Parent X10CSATN02012 (100%)	5/28/2010
ORRH00328	5/28/2010	5/28/2010	Parent X10CSATN02012 (100%)	5/28/2010
ORRH00329	6/2/2010	6/2/2010	Parent X10CSATN02012 (100%)	6/2/2010
ORRH00330	6/2/2010	6/2/2010	Parent X10CSATN02012 (100%)	6/3/2010
ORRH00331	6/2/2010	6/2/2010	Parent X10CSATN02012 (90%), X10CSATN02457 (10%)	6/3/2010
ORRH00332	6/3/2010	6/3/2010	Parent X10CSATN02457 (100%)	6/3/2010
ORRH00333	6/3/2010	6/3/2010	Parent X10CSATN02457 (100%)	6/4/2010
ORRH00334	6/3/2010	6/3/2010	Parent X10CSATN02457 (100%)	6/4/2010
ORRH00335	6/3/2010	6/3/2010	Parent X10CSATN02457 (100%)	6/4/2010
ORRH00336	6/8/2010	6/8/2010	Parent X10CSATN02438 (100%)	6/8/2010
ORRH00337	6/9/2010	6/9/2010	Parent X10CSATN02438 (100%)	6/10/2010
ORRH00338	6/10/2010	6/10/2010	Parent X10CSATN02438 (100%)	6/11/2010
ORRH00339	6/16/2010	6/16/2010	Parent X10CSATN02438 (10%), X10CSATN02078 (90%)	6/17/2010
ORRH00340	6/16/2010	6/16/2010	Parent X10CSATN02078 (100%)	6/17/2010
ORRH00341	6/16/2010	6/16/2010	Parent X10CSATN02078 (100%)	6/17/2010
ORRH00342	6/17/2010	6/17/2010	Parent X10CSATN02078 (100%)	6/17/2010
ORRH00343	6/24/2010	6/24/2010	Parent X10CSATN02078 (100%)	6/25/2010
ORRH00344	6/24/2010	6/24/2010	Parent X10CSATN02078 (90%) and X10CSATN01878 (10%)	6/25/2010
ORRH00345	6/24/2010	6/24/2010	Parent X10CSATN01878 (100%)	6/25/2010
ORRH00346	7/27/2010	7/27/2010	Parent X10CSATN02284 (100%)	7/28/2010
ORRH00347	7/27/2010	7/27/2010	Parent X10CSATN02284 (100%)	7/28/2010
ORRH00348	7/28/2010	7/28/2010	Parent X10CSATN02284 (100%)	7/29/2010
ORRH00349	7/28/2010	7/28/2010	Parent X10CSATN02284 (100%)	7/29/2010
ORRH00350	6/25/2010	6/25/2010	Parent X10CSATN01878 (100%)	6/25/2010
ORRH00351	6/28/2010	6/28/2010	Parent X10CSATN01878 (100%)	6/29/2010

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Drum ID	Package Date	Vent Date	Parent Cask(s)	Date Drum Evaluated
ORRH00352	6/28/2010	6/28/2010	Parent X10CSATN01878 (100%)	6/29/2010
ORRH00353	7/2/2010	7/2/2010	Parent X10CSATN02277 (100%)	7/7/2010
ORRH00354	7/6/2010	7/6/2010	Parent X10CSATN02277 (100%)	7/7/2010
ORRH00355	7/6/2010	7/6/2010	Parent X10CSATN02277 (100%)	7/7/2010
ORRH00356	7/7/2010	7/7/2010	Parent X10CSATN02277 (100%)	7/8/2010
ORRH00357	7/15/2010	7/15/2010	Parent X10CSATN02284 (100%)	7/15/2010
ORRH00358	7/15/2010	7/15/2010	Parent X10CSATN02284 (100%)	7/15/2010
ORRH00359	7/15/2010	7/15/2010	Parent X10CSATN02284 (100%)	7/15/2010
ORRH00360	7/15/2010	7/15/2010	Parent X10CSATN02284 (100%)	7/15/2010
ORRH00361	7/15/2010	7/15/2010	Parent X10CSATN02284 (100%)	7/15/2010
ORRH00362	7/19/2010	7/19/2010	Parent X10CSATN02284 (100%)	7/21/2010
ORRH00363	7/16/2010	7/16/2010	Parent X10CSATN02284 (100%)	8/5/2010
ORRH00364	7/19/2010	7/19/2010	Parent X10CSATN02284 (100%)	7/21/2010
ORRH00365	7/28/2010	7/28/2010	Parent X10CSATN02640 (100%)	7/29/2010
ORRH00366	7/29/2010	7/29/2010	Parent X10CSATN02640 (100%)	7/30/2010
ORRH00367	7/28/2010	7/28/2010	Parent X10CSATN02640 (100%)	7/29/2010
ORRH00368	7/19/2010	7/19/2010	Parent X10CSATN02284 (100%)	7/21/2010
ORRH00369	7/19/2010	7/19/2010	Parent X10CSATN02284 (100%)	7/21/2010
ORRH00370	7/19/2010	7/19/2010	Parent X10CSATN02284 (100%)	7/21/2010
ORRH00371	7/21/2010	7/21/2010	Parent X10CSATN02284 (100%)	7/22/2010
ORRH00372	7/22/2010	7/22/2010	Parent X10CSATN02284	7/30/2010
ORRH00373	7/22/2010	7/22/2010	Parent X10CSATN02284	7/30/2010
ORRH00374	7/29/2010	7/29/2010	Parent X10CSATN02640 (100%)	7/30/2010
ORRH00375	7/29/2010	7/29/2010	Parent X10CSATN02640 (100%)	7/30/2010
ORRH00376	7/30/2010	7/30/2010	Parent X10CSATN02640 (100%)	7/30/2010
ORRH00377	7/30/2010	7/30/2010	Parent X10CSATN02640 (100%)	7/30/2010
ORRH00378	7/30/2010	7/30/2010	Parent X10CSATN02640 (100%)	8/3/2010
ORRH00379	7/30/2010	7/30/2010	Parent X10CSATN02640 (100%)	8/3/2010
ORRH00380	7/28/2010	7/28/2010	Parent X10CSATN02640 (100%)	7/29/2010
ORRH00381	7/29/2010	7/29/2010	Parent X10CSATN02640 (100%)	7/29/2010
ORRH00382	7/28/2010	7/28/2010	Parent X10CSATN02284 (90%), X10CSATN02640 (10%)	7/29/2010
ORRH00383	7/30/2010	7/30/2010	Parent X10CSATN02640 (100%)	8/3/2010
ORRH00384	7/30/2010	7/30/2010	Parent X10CSATN02640 (100%)	8/2/2010
ORRH00385	7/30/2010	7/30/2010	Parent X10CSATN02640 (100%)	8/2/2010
ORRH00386	8/6/2010	8/6/2010	Parent X10CSATN02645 (100%)	8/7/2010
ORRH00387	8/6/2010	8/6/2010	Parent X10CSATN02645 (100%)	8/7/2010
ORRH00388	8/6/2010	8/6/2010	Parent X10CSATN02645 (100%)	8/7/2010
ORRH00389	8/3/2010	8/3/2010	Parent X10CSATN02645 (100%)	8/4/2010
ORRH00390	8/3/2010	8/3/2010	Parent X10CSATN02645 (100%)	8/4/2010
ORRH00391	8/3/2010	8/3/2010	Parent X10CSATN02645 (100%)	8/4/2010
ORRH00392	8/3/2010	8/3/2010	Parent X10CSATN02645 (100%)	8/4/2010
ORRH00393	8/4/2010	8/4/2010	Parent X10CSATN02645 (100%)	8/4/2010
ORRH00394	8/4/2010	8/4/2010	Parent X10CSATN02645 (100%)	8/4/2010
ORRH00395	8/4/2010	8/4/2010	Parent X10CSATN02645 (100%)	8/4/2010

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Drum ID	Package Date	Vent Date	Parent Cask(s)	Date Drum Evaluated
ORRH00396	8/5/2010	8/5/2010	Parent X10CSATN02645 (100%)	8/5/2010
ORRH00397	8/5/2010	8/5/2010	Parent X10CSATN02645 (100%)	8/5/2010
ORRH00398	8/9/2010	8/9/2010	Parent X10CSATN02645 (10%), X10CSATN02634 (90%)	8/10/2010
ORRH00399	8/5/2010	8/5/2010	Parent X10CSATN02645 (100%)	8/12/2010
ORRH00400	8/5/2010	8/5/2010	Parent X10CSATN02645 (100%)	8/12/2010
ORRH00401	8/5/2010	8/5/2010	Parent X10CSATN02645 (100%)	8/6/2010
ORRH00402	8/6/2010	8/6/2010	Parent X10CSATN02645 (100%)	8/6/2010
ORRH00403	8/6/2010	8/6/2010	Parent X10CSATN02645 (100%)	8/6/2010
ORRH00404	8/6/2010	8/6/2010	Parent X10CSATN02645 (100%)	8/7/2010
ORRH00405	8/7/2010	8/7/2010	Parent X10CSATN02645 (100%)	8/7/2010
ORRH00406	8/9/2010	8/9/2010	Parent X10CSATN02645 (10%), X10CSATN02634 (90%)	8/10/2010
ORRH00407	8/10/2010	8/10/2010	Parent X10CSATN02645 (100%)	8/10/2010
ORRH00408	8/10/2010	8/10/2010	Parent X10CSATN02634 (100%)	8/10/2010
ORRH00409	8/11/2010	8/11/2010	Parent X10CSATN02634 (100%)	8/12/2010
ORRH00410	8/11/2010	8/11/2010	Parent X10CSATN02634 (100%)	8/12/2010
ORRH00411	8/11/2010	8/11/2010	Parent X10CSATN02634 (100%)	8/12/2010
ORRH00412	8/11/2010	8/11/2010	Parent X10CSATN02634 (100%)	8/12/2010
ORRH00413	8/11/2010	8/11/2010	Parent X10CSATN02634 (100%)	8/12/2010
ORRH00414	8/11/2010	8/11/2010	Parent X10CSATN02634 (100%)	8/12/2010
ORRH00415	8/11/2010	8/11/2010	Parent X10CSATN02634 (100%)	8/12/2010
ORRH00416	8/16/2010	8/16/2010	Parent X10CSATN02634 (100%)	8/17/2010
ORRH00417	8/16/2010	8/16/2010	Parent X10CSATN02634 (100%)	8/17/2010
ORRH00418	8/16/2010	8/16/2010	Parent X10CSATN02634 (70%), X10CSATN02614 (30%)	8/17/2010
ORRH00419	8/11/2010	8/11/2010	Parent X10CSATN02634 (100%)	8/12/2010
ORRH00420	8/11/2010	8/11/2010	Parent X10CSATN02634 (100%)	8/12/2010
ORRH00421	8/12/2010	8/12/2010	Parent X10CSATN02634 (100%)	8/12/2010
ORRH00422	8/12/2010	8/12/2010	Parent X10CSATN02634 (100%)	8/13/2010
ORRH00423	8/12/2010	8/12/2010	Parent X10CSATN02634 (100%)	8/13/2010
ORRH00424	8/12/2010	8/12/2010	Parent X10CSATN02634 (100%)	8/13/2010
ORRH00425	8/17/2010	8/17/2010	Parent X10CSATN02614 (100%)	8/18/2010
ORRH00426	8/17/2010	8/17/2010	Parent X10CSATN02614 (100%)	8/18/2010
ORRH00427	8/18/2010	8/18/2010	Parent X10CSATN02614 (100%)	8/18/2010
ORRH00428	8/20/2010	8/20/2010	Parent X10CSATN02612 (100%)	8/21/2010
ORRH00429	8/20/2010	8/20/2010	Parent X10CSATN02612 (100%)	8/21/2010
ORRH00430	8/20/2010	8/20/2010	Parent X10CSATN02612 (100%)	8/21/2010
ORRH00431	8/20/2010	8/20/2010	Parent X10CSATN02614 (20%), X10CSATN02612 (80%)	8/21/2010
ORRH00432	8/20/2010	8/20/2010	Parent X10CSATN02612 (100%)	8/21/2010
ORRH00433	8/20/2010	8/20/2010	Parent X10CSATN02612 (100%)	8/21/2010
ORRH00437	8/20/2010	8/20/2010	Parent X10CSATN02612 (100%)	8/21/2010
ORRH00438	8/20/2010	8/20/2010	Parent X10CSATN02612 (100%)	8/21/2010
ORRH00439	8/21/2010	8/21/2010	Parent X10CSATN02612 (100%)	8/21/2010

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)	Date Drum Evaluated
ORRH00440	8/21/2010	8/21/2010	Parent X10CSATN02612 (100%)	8/21/2010
ORRH00441	8/23/2010	8/23/2010	Parent X10CSATN02612 (100%)	8/24/2010
ORRH00442	8/23/2010	8/23/2010	Parent X10CSATN02612 (100%)	8/24/2010
ORRH00443	8/23/2010	8/23/2010	Parent X10CSATN02612 (100%)	8/24/2010
ORRH00444	8/23/2010	8/23/2010	Parent X10CSATN02612 (100%)	8/24/2010
ORRH00445	8/23/2010	8/23/2010	Parent X10CSATN02612 (100%)	8/24/2010
ORRH00446	8/24/2010	8/24/2010	Parent X10CSATN02612 (100%)	8/24/2010
ORRH00447	8/24/2010	8/24/2010	Parent X10CSATN02612 (100%)	8/25/2010
ORRH00448	8/24/2010	8/24/2010	Parent X10CSATN02612 (100%)	8/25/2010

Cask Identification	Waste Package Date	Waste Description	Radiological Distribution
X10C9402642	6/26/97	(a) 670 lb of waste (21.4 ft3; 28% combustible) from the cell bank, containing 1.51 Ci of Cm-244, in 6-in-thick-walled concrete cask. (b) The summary sheets attached to the CPL and the WIDs indicate the cask received eight 20-gal drawstring bags (wts: 20–100 lb) containing primarily glass, metal (including a column from Right Rack 7), and plastic (including polyethylene), but also included some paper. The column was in bag X10I9417234, which does not have a bar code. (c) Contact dose rates on waste packages ranged from 10–5000 mrem/h β-γ and 1–2600 mrem/h neutron.	Mark-42
X10CSATN02493	8/17/84	(a) Dry solids (heat sealed buckets of cubicle waste; <30% combustible), containing 0.14 Ci of Cf-252 and 0.02 Ci of Cm-244, in 6-in-thick-walled concrete cask. (b) 64 sealed polyethylene buckets (holding 56 1-gal paint cans, two of which are Pb-lined, and 26 Bain-Marie containers) containing one filter, a motor, a Vortex [mixer], and other unspecified waste. (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 400 and 80 mrem/h, respectively.	SETF
X10CSATN01878	10/5/79	(a) [35] plastic buckets, one boot ring, and one undefined container distributed among three large plastic bags, containing 1 Ci of Cf-252 and 12 Ci of Cm-244, in 12-in-thick-walled concrete cask. Contact dose rates on bags ranged from 8–360 mrem/h β-γ and 15–350 mrem/h neutron, per the REDC maintenance logbook. (b) 35 sealed polyethylene buckets containing one "hot" filter, spent fuel hulls, wood sample holder, and other unspecified waste (including Pb). (c) Neutron dose rate on the surface of the cask when originally stored was 300 mrem/h.	SETF
X10CSATN2012[illegible]	3/28/80	(a) >1000 lb of dry solids (<5% combustible), containing 0.3 Ci of Cf-252 and 0.2 Ci of Cm-244, in 6-in-thick-walled concrete cask. (b) 62 sealed polyethylene buckets (holding 54 1-gal paint cans, four of which are Pb-lined) containing one filter and other unspecified waste. (c) Neutron dose rate on the surface of the cask when originally stored was 700 mrem/h.	SETF
X10CSATN02062	10/9/80	(a) >800 lb of dry solids (64 polyethylene buckets of cubicle waste and miscellaneous wastes; <30% combustible), containing 0.41 Ci (no isotope specified; interpreted as Cm-244 for WIMS inventory), in 6-in-thick-walled concrete cask. Buckets contain HCV parts, parts from pump stand, pieces of manipulator boot, polyethylene bottles, and assorted trash, per the REDC maintenance logbook. (b) 64 sealed polyethylene buckets (holding 62 1-gal paint cans, three of which are Pb-lined) containing one filter and other unspecified waste. (c) Neutron dose rate on the surface of the cask when originally stored was 225 mrem/h.	SETF

X10CSATN02078	4/30/81	(a) Non-combustible dry solids (high-activity cell waste in ~30 plastic buckets in three large bags), containing 2 Ci of Cf-252 and 11 Ci of Cm-244, in 12-in-thick-walled concrete cask. (b) 33 1-gal paint cans) containing three "hot" filters, spent fuel hulls, and other unspecified waste. (c) Neutron dose rate on the surface of the cask when originally stored was 500 mrem/h.	SETF
X10CSATN02244	10/15/81	(a) >1000 lb of dry solids [waste buckets (metal) from cubicles and equipment (<20% combustible) in eight large plastic bags, three of which had contact dose rates between 2–4 rem/h β-γ and 0.2–1.5 rem/h neutron], containing 0.26 Ci of Cf-252 and 0.57 Ci of Cm-244, in 6-in-thick-walled concrete cask. (b) 62 sealed polyethylene buckets (holding 52 1-gal paint cans, one of which is Pb-lined) containing one filter and other unspecified waste. (c) Neutron dose rate on the surface of the cask when originally stored was 600 mrem/h.	SETF
X10CSATN02277	8/19/82	(a) Dry solids [hot waste buckets (27 buckets plus 2 F.L.) from Cubicle 4 in two T-4 plastic bags; <50% combustible], containing <0.01 Ci of Cf-252 and <0.04 Ci of Cm-244 ['<" symbols omitted in WIMS], in 12-in-thick-walled concrete cask. (b) 27 1-gal paint cans containing three [or four] "hot" filters, spent fuel hulls, and other unspecified waste. (c) Neutron dose rate on the surface of the cask when originally stored was 200 mrem/h.	SETF
X10CSATN02284	9/29/82	(a) Dry solids [iodine retention system filters and Tank Pit 6 jumpers; <40% combustible], containing 3 mCi of Cf-252 and 10 mCi of Cm-244, in 6-in-thick-walled concrete cask. The iodine retention system contains two charcoal and three Hopcalite filters. Cask also contains six polyethylene buckets with manipulator boots and with two 1-L polyethylene bottles, which had contact dose rates of 1300 mrem/h β-γ and 3 mrem/h neutron and 8000 mrem/h β-γ and 23 mrem/h neutron, respectively, per the REDC maintenance logbook. (b) Iodine retention system (five Hopcalite and/or charcoal filters) plus miscellaneous wastes). (c) Neutron dose rate on the surface of the cask when originally stored was 70 mrem/h.	SETF
X10CSATN02434	8/4/83	(a) >800 lb of dry solids (sealed polyethylene buckets of waste from cubicles; <20% combustible), containing 0.09 Ci [radionuclide not specified; interpreted as Cm-244 in WIMS], in 6-in-thick-walled concrete cask. Includes Bain-Marie buckets (from Cell 9), five manipulator boots and three Al port rings from Cell 8, and Ra-contaminated waste [from the NUWAX-83 Project], per the REDC maintenance logbook. See description of Bain-Marie containers in P125. (b) 64 sealed polyethylene buckets (holding 57 1-gal paint cans) containing one filter and other unspecified waste (possibly including Pb). (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 360 and 450 mrem/h, respectively.	SETF

X10CSATN02438	10/17/83	(a) Dry solids (hot waste buckets from cubicles), containing <0.02 Ci of Cm-244 ["<" symbol omitted in WIMS], in 12-in-thick-walled concrete cask. (b) 42 sealed polyethylene buckets and Bain-Marie containers (holding 21 1-gal paint cans) containing one filter and other unspecified waste (possibly including Pb). (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 3000 and 100 mrem/h, respectively.	SETF
X10CSATN02450	11/15/83	(a) >1000 lb of dry solids (sealed waste buckets from cubicles; ~50% combustible), containing 0.04 Ci each of Cf-252 and Cm-244 [Cf-252 should have been >0.058 Ci and other Cf isotopes were present; see notes (c) and (d)], in 6-in-thick-walled concrete cask. (b) 66 sealed polyethylene buckets (holding 61 1-gal paint cans, three of which are Pb-lined) containing one filter and other unspecified waste. (c) Cf (2 sealed sources): 26 μg Cf, 24 μg Cf-252; Cf (miscellaneous compounds): 43 μg Cf, 30 μg Cf-252, in three other items [NMIT MC-07915, 11/02/83, Project No. F-KC-0100-003: Research Materials Collection, BES, ER]. (d) Cf (miscellaneous compounds): 17 μg Cf, 12 μg Cf-252; Cf (sealed source): 44 μg Cf, 25 μg Cf-252; Cf (other R&D use): 27 μg Cf, 17 μg [NMIT MC-07916, 11/02/83, Project No. F-KC-0100-003: Research Materials Collection, BES, ER]. (e) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 1000 and 200 mrem/h, respectively.	SETF
X10CSATN02455	12/15/83	(a) >900 lb of dry solids (sealed plastic buckets of cubicle waste; <20% combustible), containing <0.06 Ci of Cm-244 ["<" symbol omitted in WIMS], in 6-in-thick-walled concrete cask. (b) 64 sealed polyethylene buckets (holding 57 1-gal paint cans, seven of which are Pb-lined, and four Bain-Marie containers) containing one filter and other unspecified waste. (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 300 and 250 mrem/h, respectively.	SETF
X10CSATN02457	1/6/84	(a) Dry solids (sealed plastic buckets of cubicle waste), containing 0.06 Ci of Cm-244, in 12-in-thick-walled concrete cask. (b) 21 sealed polyethylene buckets (holding 21 1-gal paint cans and one Bain-Marie container) containing one filter and other unspecified waste (possibly including Pb). (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were both 250 mrem/h.	SETF
X10CSATN02474	7/3/84	(a) Dry solids (>56 sealed waste buckets), containing 1 mCi of Cf-252 and 30 mCi of Cm-244, in 6-in-thick-walled concrete cask. Contains pellet dies, powder magazines, >9 manipulator boots, four Bain-marie buckets from Cell 9, and polyethylene bottles, per the REDC maintenance logbook. [Note: Last cask for which useful information was available from REDC maintenance log books; gap until waste transfer log sheets come into use.] (b) 65 sealed polyethylene buckets (holding 49 1-gal paint cans, three of which are Pb-lined, and four Bain-Marie containers) containing one filter and other unspecified waste. (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 150 and 50 mrem/h, respectively.	SETF

X10CSATN02493	8/17/84	(a) Dry solids (heat sealed buckets of cubicle waste; <30% combustible), containing 0.14 Ci of Cf-252 and 0.02 Ci of Cm-244, in 6-in-thick-walled concrete cask. (b) 64 sealed polyethylene buckets (holding 56 1-gal paint cans, two of which are Pb-lined, and 26 Bain-Marie containers) containing one filter, a motor, a Vortex [mixer], and other unspecified waste. (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 400 and 80 mrem/h, respectively.	SETF
X10CSATN02612	3/5/85	(a) Dry solids (waste station sealed plastic buckets; ~60% combustible), containing 1.25 Ci of Cf-252 and 0.12 Ci of Cm-244, in 6-in-thick-walled concrete cask. (b) 68 sealed polyethylene buckets (holding 63 1-gal paint cans, one of which is Pb-lined) containing one filter, one piece of equipment, and other unspecified waste. (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 200 and 250 mrem/h, respectively.	SETF
X10CSATN02614	3/15/85	(a) Dry solids (nine hot waste buckets from cubicles, including five doubly contained Bain-Marie buckets; ~10% combustible), containing 2.3 Ci of Cf-252 and 0.2 Ci of Cm-244, in 12-in-thick-walled concrete cask. (b) 5 sealed polyethylene buckets (holding 5 Bain-Marie containers) and 30 1-gal paint cans (some may be inside Bain-Marie buckets), containing one filter and other unspecified waste (possibly including Pb). [Note conflict with waste description from Request for Storage/Disposal form (note a).] (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 550 and 450 mrem/h, respectively.	SETF
X10CSATN02634	9/17/85	(a) Dry solids (plastic buckets of cubicle waste; >90% combustible), containing 0.25 Ci of Cf-252, in 6-in-thick-walled concrete cask. (b) 65 sealed polyethylene buckets (holding 51 1-gal paint cans, 17 of which are Pb-lined, and 11 Bain-Marie containers) containing one filter and other unspecified waste. (c) External neutron dose rate measured at contact at the time the cask was stored was 50 mrem/h.	SETF
X10CSATN02640	11/4/85	(a) Dry solids [sealed waste buckets (one broken open); <10% combustible), containing 1 Ci of Cf-252 and Cm-244, in 6-in-thick-walled concrete cask. (b) 57 sealed polyethylene buckets (holding 34 1-gal paint cans, eight of which are Pb-lined) containing one filter and other unspecified waste. (c) External neutron dose rate measured at contact at the time the cask was stored was 200 mrem/h. (d) WIMS inventory based on assignment of half the reported inventory to each radionuclide.	SETF
X10CSATN02645	1/24/86	(a) Dry solids [cubicle waste, plus materials identified on NMIT MC-09247—see note (b) for cask ATN-2644], containing 1.5 Ci of Cf-252 and Cm-244, in 6-in-thick-walled concrete cask. (b) 68 sealed polyethylene buckets (holding 43 1-gal paint cans, 11 of which are Pb-lined) containing one filter and other unspecified waste. (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 600 and 300 mrem/h, respectively. (d) WIMS inventory based on assignment of half the reported inventory to each radionuclide.	SETF

X10CSATN02689	11/20/86	(a) Dry solids (C-zone waste; <20% combustible), containing 0.075 Ci of Cf-252 and Cm-244, in 6-in-thick-walled concrete cask. (b) Floor cask containing bags, and/or polyethylene buckets, and or 1-gal paint cans (two of the latter specifically listed), and wood. (c) External neutron dose rate measured at contact at the time the cask was stored was 25 mrem/h. (d) WIMS inventory based on assignment of half the reported inventory to each radionuclide.	SETF
X10CSATN02694	1/15/87	(a) Dry solids (sealed plastic waste buckets; ~10% combustible), containing 2.5 Ci of Cf-252 and Cm-244, in 6-in-thick-walled concrete cask. (b) 67 sealed polyethylene buckets (holding 50 1-gal paint cans, one of which is Pb-lined) containing ion exchange resin (in five buckets), one filter, and other unspecified waste. (c) External neutron dose rate measured at contact at the time the cask was stored was 700 mrem/h. (d) WIMS inventory based on assignment of half the reported inventory to each radionuclide.	SETF
X10CSATN02699	6/20/86	(a) Dry solids (process filters and miscellaneous waste from cubicles packed in metal cans; <15% combustible), containing 0.8 Ci of Cf-252 and 0.3 Ci of Cs-137, in 12-in-thick-walled concrete cask. [Only Cf-252 and "fission products" were reported on the copy of the Request for Storage/Disposal form in the REDC DMC]. (b) 25 1-gal paint cans) containing four filters and other unspecified waste (possibly including Pb). (c) External neutron dose rate measured at contact at the time the cask was stored was 150 mrem/h.	SETF
X10CSATN02866	6/4/87	(a) Dry solids (cubicle waste in sealed buckets; ~25% combustible), containing 2 Ci of Cf-252 and Cm-244, in 6-in-thick-walled concrete cask. (b) 64 sealed polyethylene buckets (holding 43 1-gal paint cans) containing one filter, two pieces of equipment, and other unspecified waste (possibly including Pb). (c) External neutron dose rate measured at contact at the time the cask was stored was 400 mrem/h. (d) WIMS inventory based on assignment of half the reported inventory to each radionuclide	SETF
X10CSATN02869	11/6/87	(a) Dry solids [waste station–64 sealed plastic buckets (glass, metal, plastic, wood, etc.); ~40% combustible), containing 0.63 Ci each of Cf-252 and Cm-244, in 6-in-thick-walled concrete cask. (b) REDC Solid Waste Transfer Log: 60 sealed polyethylene buckets and four Bain-Marie buckets (holding 50 1-gal paint cans) containing six manipulator boots, 1-L polyethylene bottles and pipettes, electric mixer, clamps, ring stands, mirrors, heating mantles, ring stand base, hot plate, probe clamp holder, sample holder, metal plates, wooden block, pump stand base, and miscellaneous cell waste. (c) 64 sealed polyethylene buckets (holding 46 1-gal paint cans and four Bain-Marie buckets) containing one filter, an electric mixer, another piece of equipment, and other unspecified waste (possibly including Pb). [Note conflict with waste description from Request for Storage/Disposal form (note a) and from REDC Waste Transfer Log (note b).] (d) Contact dose rates on buckets ranged from <0.001–22.5 rem/h β-γ and <0.001–45 mrem/h neutron. (e) External neutron dose rate measured at contact at the time the cask was stored was 250 mrem/h.	SETF

X10CSATN02874	2/9/89	(a) >1000 lb of dry solids (64 sealed polyethylene waste buckets; 65% combustible), containing 0.05 Ci of Cf-252 and 0.60 Ci of Cm-244, in 6-in-thick-walled concrete cask. (b) Waste certification data sheets indicate that the 64 buckets (51 holding 1-gal steel paint cans) contained primarily plastic (including bagging, melted polyethylene/polypropylene; polyethylene blocks, bucket lids, and tubing; bottle caps; epoxy filled polyethylene bottles; pipettes; fittings; process filter elements; a broken epoxy welding connection; and eight manipulator boots, four of which had Al port rings attached), metal (including shredded aerosol paint cans, obsolete pellet pressing equipment from Cubicle 3, radiation probe, wrench, thermocouple wires, mirror frames, control box, 0.5 gal can, power cords, and other equipment), and glass (including glass sample bottles, broken glass, column, intact and broken flood lamps, mirrors, and Hg vapor lamps minus the Hg elements), but also included cloth (including filter elements and rags), cardboard/paper, wipes, nylon cord, string, Cell 9 air filters (epoxy filled). (c) Contact dose rates on buckets ranged from 50–7000 mrem/h β-γ and 2–1300 mrem/h neutron. (d) External neutron dose rate measured at contact at the time the cask was stored was 130 mrem/h.	SETF

Steve Schafer
Printed Name

/ Signature

08/26/2010
Date

MEMORANDUM

To: Laura Nelson, CCP SPM

From: Steve Schafer, CCP AKE

Date: January 17, 2011

RE: Addition of 196 Containers to Waste Stream OR-REDC-RH-HET

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 196 55-gallon drums generated by ORNL TWPC repackaging operations listed in Table 1. These containers were evaluated as they were generated prior to being added to the AK Tracking Spreadsheet. Each container was generally evaluated within 3 working days following the container generation date. Repackaged waste consists of REDC Building 7920 debris waste originally packaged in the concrete casks listed in Table 2. This evaluation included the review of existing AK for the casks in addition to review of the VE BDRs (i.e. Visual Examination Data Forms) generated for these drums during packaging.

The 2109 packaging documentation (M100), inventory database (M012), and other historic cask packaging assessments (P1115, U038, U850) were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Tables 2 summarizes the information obtained during the review of historic waste packaging documentation including, as available; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. Additionally, based on the review of the packaging dates for the waste items in casks, the radiological distribution described in CCP-AK-ORNL-501 was determined.

Based on the cask documentation and a review of the VE BDRs generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00434	8/25/2010	8/25/2010	Parent X10CSATN02664 (100%)
ORRH00435	8/26/2010	8/26/2010	Parent X10CSATN02664 (100%)
ORRH00436	8/26/2010	8/26/2010	Parent X10CSATN02664 (100%)
ORRH00449	8/25/2010	8/25/2010	Parent X10CSATN02664 (100%)
ORRH00450	8/25/2010	8/25/2010	Parent X10CSATN02664 (100%)
ORRH00451	8/25/2010	8/25/2010	Parent X10CSATN02664 (100%)
ORRH00452	8/25/2010	8/25/2010	Parent X10CSATN02664 (100%)
ORRH00453	8/25/2010	8/25/2010	Parent X10CSATN02664 (100%)
ORRH00454	8/26/2010	8/26/2010	Parent X10CSATN02664 (100%)
ORRH00455	8/26/2010	8/26/2010	Parent X10CSATN02664 (100%)
ORRH00456	8/27/2010	8/27/2010	Parent X10CSATN02664 (100%)
ORRH00457	8/27/2010	8/27/2010	Parent X10CSATN02664 (100%)
ORRH00458	8/27/2010	8/27/2010	Parent X10CSATN02664 (100%)
ORRH00459	8/27/2010	8/27/2010	Parent X10CSATN02664 (100%)
ORRH00460	8/27/2010	8/27/2010	Parent X10CSATN02664 (100%)
ORRH00461	8/28/2010	8/28/2010	Parent X10CSATN02664 (100%)
ORRH00462	8/28/2010	8/28/2010	Parent X10CSATN02664 (100%)
ORRH00463	8/31/2010	8/31/2010	Parent X10CSATN02406 (100%)
ORRH00464	8/31/2010	8/31/2010	Parent X10CSATN02406 (100%)
ORRH00465	8/31/2010	8/31/2010	Parent X10CSATN02406 (100%)
ORRH00466	9/1/2010	9/1/2010	Parent X10CSATN02406 (100%)
ORRH00467	9/2/2010	9/2/2010	Parent X10CSATN02406 (100%)
ORRH00468	9/2/2010	9/2/2010	Parent X10CSATN02406 (100%)
ORRH00469	9/2/2010	9/2/2010	Parent X10CSATN02406 (100%)
ORRH00470	9/2/2010	9/2/2010	Parent X10CSATN02406 (100%)
ORRH00471	9/3/2010	9/3/2010	Parent X10CSATN02406 (100%)
ORRH00472	9/7/2010	9/7/2010	Parent X10CSATN02698 (100%)
ORRH00473	8/30/2010	8/30/2010	Parent X10CSATN02406 (100%)
ORRH00474	8/30/2010	8/30/2010	Parent X10CSATN02406 (100%)
ORRH00475	8/30/2010	8/30/2010	Parent X10CSATN02406 (100%)
ORRH00476	9/7/2010	9/7/2010	Parent X10CSATN02698 (100%)
ORRH00477	8/31/2010	8/31/2010	Parent X10CSATN02406 (100%)
ORRH00478	8/31/2010	8/31/2010	Parent X10CSATN02406 (100%)
ORRH00479	8/31/2010	8/31/2010	Parent X10CSATN02406 (100%)
ORRH00480	9/9/2010	9/9/2010	Parent X10CSATN02698 (100%)
ORRH00481	9/9/2010	9/9/2010	Parent X10CSATN02698 (100%)
ORRH00482	9/10/2010	9/10/2010	Parent X10CSATN02698 (100%)

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00483	9/8/2010	9/8/2010	Parent X10CSATN02698 (100%)
ORRH00484	9/8/2010	9/8/2010	Parent X10CSATN02698 (100%)
ORRH00485	9/10/2010	9/10/2010	Parent X10CSATN02698 (100%)
ORRH00486	9/9/2010	9/9/2010	Parent X10CSATN02698 (100%)
ORRH00487	9/9/2010	9/9/2010	Parent X10CSATN02698 (100%)
ORRH00488	9/10/2010	9/10/2010	Parent X10CSATN02698 (100%)
ORRH00489	9/10/2010	9/10/2010	Parent X10CSATN02698 (100%)
ORRH00490	9/13/2010	9/13/2010	Parent X10CSATN02698 (100%)
ORRH00491	9/13/2010	9/13/2010	Parent X10CSATN02698 (100%)
ORRH00492	9/13/2010	9/13/2010	Parent X10CSATN02698 (100%)
ORRH00493	9/13/2010	9/13/2010	Parent X10CSATN02698 (100%)
ORRH00494	9/14/2010	9/14/2010	Parent X10CSATN02698 (100%)
ORRH00495	9/14/2010	9/14/2010	Parent X10CSATN02697 (100%)
ORRH00496	9/14/2010	9/14/2010	Parent X10CSATN02697 (100%)
ORRH00497	9/14/2010	9/14/2010	Parent X10CSATN02697 (100%)
ORRH00498	9/17/2010	9/17/2010	Parent X10CSATN02697 (100%)
ORRH00499	9/16/2010	9/16/2010	Parent X10CSATN02697 (100%)
ORRH00500	9/17/2010	9/17/2010	Parent X10CSATN02697 (100%)
ORRH00501	9/17/2010	9/17/2010	Parent X10CSATN02697 (100%)
ORRH00502	9/17/2010	9/17/2010	Parent X10CSATN02697 (100%)
ORRH00503	9/17/2010	9/17/2010	Parent X10CSATN02697 (100%)
ORRH00504	9/17/2010	9/17/2010	Parent X10CSATN02697 (100%)
ORRH00505	9/23/2010	9/23/2010	Parent X10CSATN02461 (100%)
ORRH00506	9/23/2010	9/23/2010	Parent X10CSATN02461 (100%)
ORRH00507	9/23/2010	9/23/2010	Parent X10CSATN02461 (100%)
ORRH00508	9/17/2010	9/17/2010	Parent X10CSATN02697 (100%)
ORRH00509	9/17/2010	9/17/2010	Parent X10CSATN02697 (100%)
ORRH00510	9/17/2010	9/17/2010	Parent X10CSATN02697 (100%)
ORRH00511	9/20/2010	9/20/2010	Parent X10CSATN02697 (100%)
ORRH00512	9/20/2010	9/20/2010	Parent X10CSATN02697 (100%)
ORRH00513	9/20/2010	9/20/2010	Parent X10CSATN02697 (100%)
ORRH00514	9/20/2010	9/20/2010	Parent X10CSATN02697 (10%); X10CSATN02461 (90%)
ORRH00515	9/20/2010	9/20/2010	Parent X10CSATN02461 (100%)
ORRH00516	9/20/2010	9/20/2010	Parent X10CSATN02697 (20%); X10CSATN02461 (80%)
ORRH00517	9/21/2010	9/21/2010	Parent X10CSATN02461 (100%)

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00518	9/21/2010	9/21/2010	Parent X10CSATN02697 (10%); X10CSATN02461 (90%)
ORRH00519	9/21/2010	9/21/2010	Parent X10CSATN02461 (100%)
ORRH00520	9/21/2010	9/21/2010	Parent X10CSATN02461 (100%)
ORRH00521	9/28/2010	9/28/2010	Parent X10CSATN02461 (100%)
ORRH00522	9/22/2010	9/22/2010	Parent X10CSATN02461 (100%)
ORRH00523	9/22/2010	9/22/2010	Parent X10CSATN02461 (100%)
ORRH00524	9/22/2010	9/22/2010	Parent X10CSATN02461 (100%)
ORRH00525	9/24/2010	9/24/2010	Parent X10CSATN02461 (100%)
ORRH00526	9/24/2010	9/24/2010	Parent X10CSATN02461 (100%)
ORRH00527	9/24/2010	9/24/2010	Parent X10CSATN02461 (100%)
ORRH00528	9/24/2010	9/24/2010	Parent X10CSATN02461 (100%)
ORRH00529	9/27/2010	9/27/2010	Parent X10CSATN02461 (100%)
ORRH00530	9/28/2010	9/28/2010	Parent X10CSATN02461 (100%)
ORRH00531	9/30/2010	9/30/2010	Parent X10CSATN02461 (100%)
ORRH00532	11/4/2010	11/4/2010	Parent X10CSATN02461 (100%)
ORRH00533	11/4/2010	11/4/2010	Parent X10CSATN02461 (100%)
ORRH00534	11/4/2010	11/4/2010	Parent X10CSATN02461 (100%)
ORRH00535	11/4/2010	11/4/2010	Parent X10CSATN02461 (100%)
ORRH00536	11/5/2010	11/5/2010	Parent X10CSATN02461 (100%)
ORRH00537	11/8/2010	11/8/2010	Parent X10CSATN02461 (100%)
ORRH00538	11/8/2010	11/8/2010	Parent X10CSATN02461 (100%)
ORRH00539	11/9/2010	11/9/2010	Parent X10CSATN02093 (100%)
ORRH00540	11/9/2010	11/9/2010	Parent X10CSATN02093 (100%)
ORRH00541	11/9/2010	11/9/2010	Parent X10CSATN02093 (100%)
ORRH00542	11/9/2010	11/9/2010	Parent X10CSATN02093 (100%)
ORRH00543	11/9/2010	11/9/2010	Parent X10CSATN02093 (100%)
ORRH00544	11/10/2010	11/10/2010	Parent X10CSATN02093 (100%)
ORRH00545	11/9/2010	11/9/2010	Parent X10CSATN02093 (100%)
ORRH00546	11/9/2010	11/9/2010	Parent X10CSATN02093 (100%)
ORRH00547	11/10/2010	11/10/2010	Parent X10CSATN02093 (100%)
ORRH00548	11/10/2010	11/10/2010	Parent X10CSATN02093 (100%)
ORRH00549	11/10/2010	11/10/2010	Parent X10CSATN02093 (100%)
ORRH00550	11/10/2010	11/10/2010	Parent X10CSATN02093 (100%)
ORRH00551	11/10/2010	11/10/2010	Parent X10CSATN02093 (100%)
ORRH00552	11/10/2010	11/10/2010	Parent X10CSATN02093 (100%)
ORRH00554	11/10/2010	11/10/2010	Parent X10CSATN02093 (100%)

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00555	11/16/2010	11/16/2010	Parent X10CSATN02093 (100%)
ORRH00556	11/16/2010	11/16/2010	Parent X10CSATN02241 (100%)
ORRH00557	11/16/2010	11/16/2010	Parent X10CSATN02241 (100%)
ORRH00558	11/19/2010	11/19/2010	Parent X10CSATN02241 (100%)
ORRH00559	11/16/2010	11/16/2010	Parent X10CSATN02241 (100%)
ORRH00560	11/16/2010	11/16/2010	Parent X10CSATN02241 (100%)
ORRH00561	11/17/2010	11/17/2010	Parent X10CSATN02241 (100%)
ORRH00562	11/20/2010	11/20/2010	Parent X10CSATN02241 (100%)
ORRH00563	11/20/2010	11/20/2010	Parent X10CSATN02241 (100%)
ORRH00564	11/22/2010	11/22/2010	Parent X10CSATN02241 (100%)
ORRH00565	11/22/2010	11/22/2010	Parent X10CSATN02241 (100%)
ORRH00566	11/22/2010	11/22/2010	Parent X10CSATN02241 (100%)
ORRH00567	11/22/2010	11/22/2010	Parent X10CSATN02241 (100%)
ORRH00568	11/24/2010	11/24/2010	Parent X10CSATN02241 (100%)
ORRH00569	11/23/2010	11/23/2010	Parent X10CSATN02241 (100%)
ORRH00570	11/24/2010	11/24/2010	Parent X10CSATN02241 (100%)
ORRH00571	12/1/2010	12/1/2010	Parent X10CSATN02682 (100%)
ORRH00572	12/1/2010	12/1/2010	Parent X10CSATN02682 (100%)
ORRH00573	12/1/2010	12/1/2010	Parent X10CSATN02682 (100%)
ORRH00574	12/1/2010	12/1/2010	Parent X10CSATN02682 (100%)
ORRH00575	12/2/2010	12/2/2010	Parent X10CSATN02682 (100%)
ORRH00576	12/2/2010	12/2/2010	Parent X10CSATN02682 (100%)
ORRH00577	12/2/2010	12/2/2010	Parent X10CSATN02682 (100%)
ORRH00578	12/15/2010	12/15/2010	Parent X10CSATN02205 (100%)
ORRH00579	12/2/2010	12/2/2010	Parent X10CSATN02682 (100%)
ORRH00580	12/2/2010	12/2/2010	Parent X10CSATN02682 (100%)
ORRH00581	12/2/2010	12/2/2010	Parent X10CSATN02682 (100%)
ORRH00582	12/2/2010	12/2/2010	Parent X10CSATN02682 (100%)
ORRH00583	12/3/2010	12/3/2010	Parent X10CSATN02682 (100%)
ORRH00584	12/3/2010	12/3/2010	Parent X10CSATN02682 (100%)
ORRH00585	12/3/2010	12/3/2010	Parent X10CSATN02682 (100%)
ORRH00586	12/3/2010	12/3/2010	Parent X10CSATN02682 (100%)
ORRH00587	12/7/2010	12/7/2010	Parent X10CSATN02022 (100%)
ORRH00588	12/8/2010	12/8/2010	Parent X10CSATN02022 (100%)
ORRH00589	12/9/2010	12/9/2010	Parent X10CSATN02022 (100%)
ORRH00590	12/9/2010	12/9/2010	Parent X10CSATN02022 (100%)
ORRH00591	12/9/2010	12/9/2010	Parent X10CSATN02022 (100%)

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00592	12/9/2010	12/9/2010	Parent X10CSATN02022 (100%)
ORRH00594	12/7/2010	12/7/2010	Parent X10CSATN02022 (100%)
ORRH00595	12/7/2010	12/7/2010	Parent X10CSATN02022 (100%)
ORRH00596	12/7/2010	12/7/2010	Parent X10CSATN02022 (100%)
ORRH00597	12/7/2010	12/7/2010	Parent X10CSATN02022 (100%)
ORRH00598	12/7/2010	12/7/2010	Parent X10CSATN02022 (100%)
ORRH00599	12/7/2010	12/7/2010	Parent X10CSATN02022 (100%)
ORRH00600	12/7/2010	12/7/2010	Parent X10CSATN02022 (100%)
ORRH00601	12/8/2010	12/8/2010	Parent X10CSATN02022 (100%)
ORRH00602	12/8/2010	12/8/2010	Parent X10CSATN02022 (100%)
ORRH00603	12/9/2010	12/9/2010	Parent X10CSATN02022 (100%)
ORRH00604	12/15/2010	12/15/2010	Parent X10CSATN02205 (100%)
ORRH00605	12/17/2010	12/17/2010	Parent X10CSATN02205 (100%)
ORRH00606	12/17/2010	12/17/2010	Parent X10CSATN02205 (100%)
ORRH00607	12/22/2010	12/22/2010	Parent X10CSATN02071 (100%)
ORRH00608	12/22/2010	12/22/2010	Parent X10CSATN02071 (100%)
ORRH00609	12/22/2010	12/22/2010	Parent X10CSATN02071 (100%)
ORRH00610	12/22/2010	12/22/2010	Parent X10CSATN02071 (100%)
ORRH00611	12/22/2010	12/22/2010	Parent X10CSATN02071 (100%)
ORRH00612	12/23/2010	12/23/2010	Parent X10CSATN02071 (100%)
ORRH00613	12/23/2010	12/23/2010	Parent X10CSATN02071 (100%)
ORRH00614	12/14/2010	12/14/2010	Parent X10CSATN02022 (100%)
ORRH00615	12/14/2010	12/14/2010	Parent X10CSATN02205 (100%)
ORRH00616	12/14/2010	12/14/2010	Parent X10CSATN02205 (100%)
ORRH00617	12/14/2010	12/14/2010	Parent X10CSATN02205 (100%)
ORRH00618	12/15/2010	12/15/2010	Parent X10CSATN02205 (100%)
ORRH00619	12/15/2010	12/15/2010	Parent X10CSATN02205 (100%)
ORRH00620	12/15/2010	12/15/2010	Parent X10CSATN02205 (100%)
ORRH00621	12/15/2010	12/15/2010	Parent X10CSATN02205 (100%)
ORRH00622	12/15/2010	12/15/2010	Parent X10CSATN02205 (100%)
ORRH00623	12/15/2010	12/15/2010	Parent X10CSATN02205 (100%)
ORRH00624	12/23/2010	12/23/2010	Parent X10CSATN02071 (100%)
ORRH00625	12/23/2010	12/23/2010	Parent X10CSATN02071 (100%)
ORRH00626	12/23/2010	12/23/2010	Parent X10CSATN02071 (100%)
ORRH00627	12/23/2010	12/23/2010	Parent X10CSATN02071 (100%)
ORRH00628	12/23/2010	12/23/2010	Parent X10CSATN02071 (100%)
ORRH00629	12/23/2010	12/23/2010	Parent X10CSATN02071 (100%)

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00630	12/24/2010	12/24/2010	Parent X10CSATN02071 (100%)
ORRH00631	12/24/2010	12/24/2010	Parent X10CSATN02071 (100%)
ORRH00632	1/4/2011	1/4/2011	Parent X10CSATN02446 (100%)
ORRH00633	1/4/2011	1/4/2011	Parent X10CSATN02446 (100%)
ORRH00634	1/4/2011	1/4/2011	Parent X10CSATN02446 (100%)
ORRH00635	1/4/2011	1/4/2011	Parent X10CSATN02446 (100%)
ORRH00636	1/5/2011	1/5/2011	Parent X10CSATN02446 (100%)
ORRH00637	1/5/2011	1/5/2011	Parent X10CSATN02446 (100%)
ORRH00638	1/5/2011	1/5/2011	Parent X10CSATN02446 (100%)
ORRH00639	1/5/2011	1/5/2011	Parent X10CSATN02446 (100%)
ORRH00640	1/5/2011	1/5/2011	Parent X10CSATN02446 (100%)
ORRH00641	1/5/2011	1/5/2011	Parent X10CSATN02446 (100%)
ORRH00642	1/6/2011	1/6/2011	Parent X10CSATN02446 (100%)
ORRH00643	1/7/2011	1/7/2011	Parent X10CSATN02446 (100%)

Table 2. Original Concrete Parent Casks

Cask Identification	Waste Package Date	Waste Description	Radiological Distribution
X10CSATN02022	8/1/1980	(a) Dry solids (65 sealed plastic buckets of cubicle waste; <50% combustible), containing 0.13 Ci of Cf-252 and 0.03 Ci of Cm-244, in 6-in-thick-walled concrete cask. (b) Appendix E in Stewart et al. (1989): 65 sealed polyethylene buckets (holding 49 1-gal paint cans) containing one filter, one ultrasonic cleaner, and other unspecified waste (possibly including Pb). (c) Neutron dose rate on the surface of the cask when originally stored was 300 mrem/h.	SETF
X10CSATN02071	12/4/1980	(a) >1000 lb of dry solids (62 buckets of cell waste, including air cylinders from waste port assembly and manipulator boots; >80% combustible), containing <0.06 Ci of Cm-244 ["<" symbol omitted in WIMS], in 6-in-thick-walled concrete cask. (b) Appendix E in Stewart et al. (1989): 63 sealed polyethylene buckets (holding 63 1-gal paint cans) containing one filter and other unspecified waste (possibly including Pb). (c) Neutron dose rate on the surface of the cask when originally stored was 250 mrem/h.	SETF
X10CSATN02093	3/23/1981	(a) >1000 lb of dry solids (64 waste buckets from cubicles, including HCV parts and a manipulator boot; 75% combustible), containing 0.2 Ci of Cf-252 and 0.3 Ci of Cm-244, in 6-in-thick-walled concrete cask. (b) Appendix E in Stewart et al. (1989): 64 sealed polyethylene buckets (holding 50 1-gal paint cans, three of which are Pb-lined) containing one filter, one Pb pig, one Pb brick, and other unspecified waste. (c) Neutron dose rate on the surface of the cask when originally stored was 500 mrem/h.	SETF
X10CSATN02205	6/9/1981	(a) >900 lb of combustible dry solids [64 polyethylene waste buckets], containing 0.04 Ci of Cm-244, in 6-in-thick-walled concrete cask. (b) Appendix E in Stewart et al. (1989): 64 sealed polyethylene buckets (holding 43 1-gal paint cans) containing one filter and other unspecified waste (possibly including Pb). (c) Neutron dose rate on the surface of the cask when originally stored was 200 mrem/h.	SETF

Table 2. Original Concrete Parent Casks

Cask Identification	Waste Package Date	Waste Description	Radiological Distribution
X10CSATN02241	10/15/1981	(a) >1000 lb of dry solids (>53 buckets; >90% combustible), containing 0.03 Ci of Cf-252 and 0.14 Ci of Cm-244 , in 6-in-thick-walled concrete cask. [Note on copy of Request for Storage/Disposal form in the REDC DMC indicates that the ">" symbol on the combustibility estimate should have been a "<" symbol; contents were reportedly non-burnable cell waste in polyethylene buckets.] (b) Appendix E in Stewart et al. (1989): 66 sealed polyethylene buckets (holding 64 1-gal paint cans) containing one filter and other unspecified waste (possibly including Pb). (c) Neutron dose rate on the surface of the cask when originally stored was 75 mrem/h.	SETF
X10CSATN02406	2/25/1983	(a) >800 lb of dry solids [waste from cubicles, including 1-L polyethylene bottles and "powder magazines, in sealed polyethylene buckets;" <20% combustible], no radionuclides or activities provided, in 6-in-thick-walled concrete cask. (b) Appendix E in Stewart et al. (1989): 64 sealed polyethylene buckets (holding 60 1-gal paint cans) containing one filter, a Variac, and other unspecified waste (possibly including Pb). (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 250 and 350 mrem/h, respectively. (d) Origin of WIMS inventory (0.03 Ci of Cm-244) is unknown.	SETF
X10CSATN02446	10/17/1983	(a) >900 lb of dry solids [LAA α-containing waste; <30% combustible], containing <4 mCi of Cm-244, in 6-in-thick-walled concrete cask. (b) Appendix E in Stewart et al. (1989): 68 sealed polyethylene buckets and Bain-Marie containers (holding 34 1-gal paint cans) containing one filter and other unspecified waste (possibly including Pb). (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 15 and 20 mrem/h, respectively.	SETF

Table 2. Original Concrete Parent Casks

Cask Identification	Waste Package Date	Waste Description	Radiological Distribution
X10CSATN02461	2/7/1984	(a) Dry solids (sealed plastic waste buckets in nine large plastic bags; <30% combustible), containing 0.43 Ci of Cf-252 and 0.39 Ci of Cm-244, in 6-in-thick-walled concrete cask. Six of the bags had contact dose rates between 0.5–3 rem/h β-γ and 0.9–3 rem/h neutron, per the REDC maintenance logbook. (b) Appendix E in Stewart et al. (1989): 63 sealed polyethylene buckets (holding 63 1-gal paint cans) containing one filter and other unspecified waste (possibly including Pb). (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 500 and 1000 mrem/h, respectively.	SETF
X10CSATN02664	4/8/1986	(a) Dry solids (62 sealed plastic buckets of cubicle waste; ~20% combustible), containing 2.5 Ci of Cf-252 and Cm-244, in 6-in-thick-walled concrete cask. (b) Appendix E in Stewart et al. (1989): 64 sealed polyethylene buckets (holding 40 1-gal paint cans, four of which are Pb-lined) containing one filter, two motors, and other unspecified waste. (c) External neutron dose rate measured at contact at the time the cask was stored was 500 mrem/h. (d) WIMS inventory based on assignment of half the reported inventory to each radionuclide.	SETF
X10CSATN02682	6/10/1986	(a) Dry solids (waste buckets from cubicles; 50% combustible), containing 0.5 Ci of Cm-244, in 6-in-thick-walled concrete cask. (b) Appendix E in Stewart et al. (1989): 65 sealed polyethylene buckets (holding 40 1-gal paint cans, two of which are Pb-lined) containing one filter and other unspecified waste. (c) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 180 and 100 mrem/h, respectively.	SETF

Table 2. Original Concrete Parent Casks

Cask Identification	Waste Package Date	Waste Description	Radiological Distribution
X10CSATN02697	12/11/1986	(a) Dry solids (Five iodine filters and miscellaneous waste; <15% combustible), containing 0.5 Ci of Cf-252 and Cm-244, in 6-in-thick-walled concrete cask. (b) Appendix E in Stewart et al. (1989): Iodine retention system (five Hopcalite and/or charcoal filters) plus miscellaneous wastes). (c) Cf (miscellaneous compounds): 200 µg Cf, 200 µg Cf-252 [NMIT MC-10861, 12/09/86, Project No. F-KC-0100-003: Research Materials Collection, BES, ER]. (d) External β-γ and neutron dose rates measured at contact at the time the cask was stored were 110 and 100 mrem/h, respectively. (e) WIMS inventory based on assignment of half the reported inventory to each radionuclide.	SETF
X10CSATN02698	8/6/1986	(a) Metal from Cell 3, along with plastic suits and booties, wipes, and other debris from SFF Cells, containing Cm-244 (<10 µCi/ft3; <20 g/drum), in 55-gal SS drum. One of five 55-gal drums (two of which were reportedly SS) stored on the same date, covered by the same Request for Storage/Disposal form. ["<20 g" statement above not intended to convey information about actual inventories in waste; only used to exempt generator from compliance with some fissile material control requirements.] (b) WIMS inventory was based on 11.4 Ci of Cm-244 (origin unknown)	SETF

MEMORANDUM

To: Laura Nelson, CCP SPM

From: Steve Schafer, CCP AKE

Date: May 20, 2011

RE: Addition of 5 Containers to Waste Stream OR-REDC-RH-HET

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 5 55-gallon drums generated by ORNL TWPC repackaging operations listed in Table 1. These containers were evaluated as they were generated prior to being added to the AK Tracking Spreadsheet. Each container was evaluated within 3 working days following the container generation date. Repackaged waste consists of REDC Building 7920 debris waste originally packaged in the concrete casks listed in Table 2. This evaluation included the review of existing AK for the casks in addition to review of the VE BDRs (i.e. Visual Examination Data Forms) generated for these drums during packaging.

The 2109 packaging documentation (M100), inventory database (M012), and other historic cask packaging assessments (P1115, U038, U850) were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Tables 2 summarizes the information obtained during the review of historic waste packaging documentation including, as available; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. Additionally, based on the review of the packaging dates for the waste items in casks, the radiological distribution described in CCP-AK-ORNL-501 was determined for each cask.

Based on the cask documentation and a review of the VE BDRs generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

CCP RECORDS ORIGINAL
DATE REC'D 3-20-12

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00646	5/17/2011	5/17/2011	Parent X10CSATN02665 (70%); X10CSATN01878 (30%) repack of drum ORRH00351
ORRH00647	5/17/2011	5/17/2011	Parent X10CSATN02665 (80%); X10CSATN01878 (20%) repack of drum ORRH00351
ORRH00648	5/17/2011	5/17/2011	Parent X10CSATN02665 (80%); X10CSATN01878 (20%) repack of drum ORRH00351
ORRH00649	5/17/2011	5/17/2011	Parent X10CSATN02665 (80%); X10CSATN01878 (20%) repack of drum ORRH00351
ORRH00650	5/17/2011	5/17/2011	Parent X10CSATN02665 (90%); X10CSATN01878 (10%) repack of drum ORRH00351

BEST AVAILABLE
CD 3/20/12

Table 2. Original Concrete Parent Casks

Cask Identification	Waste Package Date	Waste Description	Radiological Distribution
X10CSATN02665	4/8/1986	(a) Dry solids (LAA: C-zone waste--paper, plastic, and metal; ~30% combustible), containing 5 mCi of Cf-252 and Cm-244, in 6-in-thick-walled concrete cask. (b) Appendix E in Stewart et al. (1989): Floor cask containing bags, and/or polyethylene buckets, and or 1-gal paint cans (two of the latter specifically listed), and wood. (c) External neutron dose rate measured at contact at the time the cask was stored was 2 mrem/h. (d) WIMS inventory based on assignment of half the reported inventory to each radionuclide.	SETF
X10CSATN01878	10/5/1979	(a) [35] plastic buckets, one boot ring, and one undefined container distributed among three large plastic bags, containing 1 Ci of Cf-252 and 12 Ci of Cm-244, in 12-in-thick-walled concrete cask. Contact dose rates on bags ranged from 8–360 mrem/h β-γ and 15–350 mrem/h neutron, per the REDC maintenance logbook. (b) Appendix E in Stewart et al. (1989): 35 sealed polyethylene buckets containing one "hot" filter, spent fuel hulls, wood sample holder, and other unspecified waste (including Pb). (c) Neutron dose rate on the surface of the cask when originally stored was 300 mrem/h.	SETF

WASTE STREAM CONTAINER EVALUATION MEMORANDUM

To: Laura Nelson, CCP SPM

From: Steve Schafer, CCP AKE

Date: January 3, 2014

RE: Addition of 7 Containers to Waste Stream OR-REDC-RH-HET

The purpose of this memorandum is to satisfy the requirements of CCP AK Documentation procedure (CCP-TP-005) for updating AK for the addition of waste stream containers.

This memorandum presents the evaluation of 7 55-gallon drums generated by ORNL TWPC repackaging operations listed in Table 1 below. These containers were evaluated as they were generated prior to being added to the AK Tracking Spreadsheet. Repackaged waste consists of REDC Building 7920 debris waste originally packaged in the concrete casks listed in Table 2 below. This evaluation included the review of existing AK for the casks in addition to review of the VE BDRs (i.e. Visual Examination Data Forms) generated for these drums during packaging.

The 2109 packaging documentation (M100), inventory database (M012), and other historic cask packaging assessments (P1115, U038, U850) were used to identify casks containing REDC waste to be included in waste stream OR-REDC-RH-HET. Tables 2 summarizes the information obtained during the review of historic waste packaging documentation including, as available; ORNL 2109 forms, TRU Waste Certification Data Sheets, Radioactive Waste Container Log Sheets, and other documentation maintained by ORNL for the concrete casks. Additionally, based on the review of the packaging dates for the waste items in casks, the radiological distribution described in CCP-AK-ORNL-501 was determined for the parent cask identified in Table 2.

Based on the cask documentation and a review of the VE BDRs generated during packaging of these drums, the containers are bounded by the current revision of the AK Summary Report for the following:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and waste matrix code
- Chemical content
- Prohibited items
- Radionuclides

Attachment 8 (Waste Containers List) and the AK Tracking Spreadsheet (AKTSS) for waste stream OR-REDC-RH-HET will be updated to include the following containers:

Table 1. Containers Added to OR-REDC-RH-HET

Drum ID	Package Date	Vent Date	Parent Cask(s)
ORRH00678	12/10/2013	12/10/2013	Parent X10C9600188 (100%)
ORRH00679	12/11/2013	12/11/2013	Parent X10C9600188 (100%)
ORRH00680	12/12/2013	12/12/2013	Parent X10C9600188 (100%)
ORRH00681	12/13/2013	12/13/2013	Parent X10C9600188 (100%)
ORRH00682	12/13/2013	12/13/2013	Parent X10C9600188 (100%)
ORRH00683	12/16/2013	12/16/2013	Parent X10C9600188 (100%)
ORRH00684	12/19/2013	12/19/2013	Parent X10C9600188 (100%)

Table 2. Original Concrete Parent Casks

Cask Identification	Package Date	Waste Description	Radiological Distribution
X10C9600188	02/26/1996	Over-pack from X10C9402622 (Generated 9/18/1995) (a) 62% combustible from the cell bank. This cask was over-packed and moved from Bldg. 7855 to Bldg. 7834 on 02/26/96. The over-pack was assigned a new container ID No. (X10C9600188), but all of the information on its waste contents is still carried on the container packing list (CPL) for cask X10C9402622. The gross weight and external volume of the over-pack were reported as 16,002 lb and 347 ft3 (height 113 in; diameter 82.25 in), respectively. (b) The summary sheets attached to the CPL indicate the cask received 57 sealed 3-gal polyethylene buckets (wts: 3 lb each; <56 holding 1-gal steel paint cans) and two 15-gal plastic bags (each weighing 15 lb). The two bags each reportedly contained paper, plastic, and cloth. The 57 buckets contained primarily plastic (including melted polyethylene/ polyethylene items, and manipulator boot with Al port ring) and metal, but also included glass and grouted resin, along with some cloth, paper, rubber, and wood.	HFIR/HFIR Subcategory of the Mark-42/HFIR Distribution in CCP-AK-ORNL-501 NOTE: This cask is not identified in CCP-AK-ORNL-501 as a HFIR/HFIR distribution cask. The radiological engineer has been consulted and a freeze file has been submitted to include X10C9600188 in the HFIR/HFIR radiological distribution.

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR031
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☑ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Discrepancy Resolution re: OR-NFS-CH-HOM-A EPA Hazardous Waste Number Assignment	
Source Document Reference Information (author(s), document and revision number, date, publisher): Jeff Harrison, DR031, NA, 01/10/2011	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
PR7, WS1, WS8, WS9, WS12, S9	Throughout	Nature of Discrepancy: The immobilized homogeneous solids waste in 2-liter bottles was characterized by NFS as nonhazardous waste with the exception of drum NFS0929 which was assigned D006 (cadmium) and D009 (mercury) (M003, M198). Resolution: Analytical data from six process line samples of sweepings material identified a few samples above the regulatory level for arsenic, barium, and cadmium (C20S, M064, P273, U043). Arsenic was reported in one of six samples at 5.7 mg/L which is just slightly above the regulatory level of 5.0 mg/L. The other samples are below the regulatory level for arsenic. Barium was reported in three of six samples at 124 mg/L, 222 mg/L, and 301 mg/L which are above the regulatory level of 100 mg/l. However, the trip blank was also high in barium. The barium may have been introduced from one of the extraction columns used in the analysis which is a problem encountered periodically. Therefore, EPA hazardous waste numbers D004 (arsenic) and D009 (barium) are not assigned to this waste stream. Cadmium was reported in four of six samples at 1.2 mg/L, 1.3 mg/l, 1.S mg/L, and 24 mg/L which are above the regulatory level of 1.0 mg/L. The 24 mg/L cadmium value was outside the expected distribution from the other sample points, and consequently, this area was re-sampled. A sample composite was made of three parts new sample to one part previous sample. The result of the composite sample was 6.27 mg/L. A cadmium-coated wrench is located in one of the 2-liter bottles containing absorbent in drum NFS0929 (C210, M003, U043). Waste was also generated from the cleanup of mercury from a regulator gauge located inside a glovebox. The liquid mercury was wiped up from the glovebox floor using cheesecloth. The mercury contaminated cleanup material, and other mercury contaminated waste from the floor of the glovebox (e.g., plexiglass and small metal items) were solidified in a zinc amalgam in 2-liter bottles in drum NFS0929 (C204, C210, M052). Therefore, EPA hazardous waste numbers D006 (cadmium) and D009 (mercury) are assigned to waste stream OR-NFS-CH-HOM-A. EPA hazardous waste numbers D008 (lead) and D011 (silver) are assigned to debris waste

NTPC RECORDS ORIGINAL
DATE REC'D 12/18/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR031
AK # [b]	Source Doc. Page #[c]	AK Information Summary
		stream OR-NFS-CH-HET-A. The basis for these assignments to the debris waste stream were evaluated to determine if they would be applicable to waste stream OR-NFS-CH-HOM-A. The source of lead and silver is from tin/lead solder and silver solder in circuit boards contained in electrical equipment. OR-NFS-CH-HOM-A consists of grouted fines and absorbed liquids which would not contain tin/lead solder or silver solder. There are also miscellaneous metals in the waste such as sweepings, scrap, hardware (nuts, bolts, etc.), and hand tools. Electrical equipment was not identified by RTR in this waste.

Source Document Data Limitations (If any):

1. None

Acceptable Knowlege Expert:

Travis Smith _____ Date: 11/18/2013

Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

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Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution – OR-NFS-CH-HOM-A EPA Hazardous waste Numbers

Waste Stream Number(s): OR-NFS-CH-HOM-A

Waste Stream Description: Immobilized homogeneous waste from NFS

AK Documentation Type: ☒TRU Waste Management Program Information ☒Waste Stream Specific Information ☒Supporting Information

AK Source Document Discrepancy Form Tracking Number: **DR031**

Tracking #	*Category*	*Title*	*Document #*	*Date*	*Page #*
C204	Corr.	Letter from Michael L. West, Nuclear Fuel Services, Inc., to Martin W. Tull, Martin Marietta Energy Systems.	NA	9/3/92	All
C205	Corr.	Internal Correspondence from Martin W. Tull. Minutes of November 5, 1991 Meeting with NFS Regarding Process-Line Samples	NA	11/11/91	All
C210	Corr.	Record of Communication. Subject: NFS TRU Waste Shipped to Oak Ridge National Laboratory.	NA	9/12/07	4
M003	Unpub.	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork	NA	Various	See drum list
M052	Unpub.	Logbook for the Decommissioning and Volume Reduction Facility	NA	12/6/90 – 6/2/94	239, 245
M064	Unpub.	Analytical Chemistry Data Package for NFS Sample Set No. 3.	NA	10/9/91	All
M198	Unpub.	eMWaste Database Query	DR-10-004417	8/30/10	See drum list
P273	Pub.	Nuclear Fuel Services, Inc., Waste Certification Plan for Transuranic Waste	28G-91-001, DCM-03-05	7/1991 – 11/1992	Appendix A
U043	Unpub.	Final Report - Waste Characterization of Wastes Generated from D&D Activity; Buildings 110 and 234 on the NFS Site in Erwin, Tennessee	NA	1/31/92	5 – 7

Nature of Discrepancy: The immobilized homogeneous solids waste in 2-liter bottles was characterized by NFS as nonhazardous waste with the exception of drum NFS0929 which was assigned D006 (cadmium) and D009 (mercury) (M003, M198).

Resolution: Analytical data from six process line samples of sweepings material identified a few samples above the regulatory level for arsenic, barium, and cadmium (C205, M064, P273, U043).

Arsenic was reported in one of six samples at 5.7 mg/L which is just slightly above the regulatory level of 5.0 mg/L. The other samples are below the regulatory level for arsenic. Barium was reported in three of six samples at 124 mg/L, 222 mg/L, and 301 mg/L which are above the regulatory level of 100 mg/L. However, the trip blank was also high in barium. The barium may have been introduced from one of the extraction columns used in the analysis which is a problem encountered periodically. Therefore, EPA hazardous waste numbers D004 (arsenic) and D005 (barium) are not assigned to this waste stream.

Cadmium was reported in four of six samples at 1.2 mg/L, 1.3 mg/L, 1.5 mg/L, and 24 mg/L which are above the regulatory level of 1.0 mg/L. The 24 mg/L cadmium value was outside the expected distribution from the other sample points, and consequently, this area was re-sampled. A sample composite was made of three parts new sample to one part previous sample. The result of the composite sample was 6.27 mg/L. A cadmium-coated wrench is located in one of the 2-liter bottles containing absorbent in drum NFS0929 (C210, M003, U043). Waste was also generated from the cleanup of mercury from a regulator gauge located inside a glovebox. The liquid mercury was wiped up from the glovebox floor using cheesecloth. The mercury contaminated cleanup material, and other mercury contaminated waste from the floor of the glovebox (e.g., plexiglass and small metal items) were solidified in a zinc amalgam in 2-liter bottles in drum NFS0929 (C204, C210, M052). Therefore, EPA hazardous waste numbers D006 (cadmium) and D009 (mercury) are assigned to waste stream OR-NFS-CH-HOM-A

EPA hazardous waste numbers D008 (lead) and D011 (silver) are assigned to debris waste stream OR-NFS-CH-HET-A. The basis for these assignments to the debris waste stream were evaluated to determine if they would be applicable to waste stream OR-NFS-CH-HOM-A. The source of lead and silver is from tin/lead solder and silver solder in circuit boards contained in electrical equipment. OR-NFS-CH-HOM-A consists of grouted fines and absorbed liquids which would not contain tin/lead solder or silver solder. There are also miscellaneous metals in the waste such as sweepings, scrap, hardware (nuts, bolts, etc.), and hand tools. Electrical equipment was not identified by RTR in this waste.

Discrepancy Resolved: ☒ Yes ☐ No

Acceptable Knowledge Expert: Jeff Harrison / Jeff Harrison Date: 1/10/2011
Print Sign

Site Project Manager: Richard Kantrowitz / Richard Kantrowitz Date: 1/10/11
Print Sign

[a] Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	**Source Document Tracking Number:** DR030
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☐ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	**Category:** ☐ Correspondence ☑ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Discrepancy Resolution re: Drum NFS0929	
Source Document Reference Information (author(s), document and revision number, date, publisher): J. Harrison, DR030, NA, 01/10/2011	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
WS1, WS6, WS9, S9	Throughout	Nature of Discrepancy: The container paperwork (M003) for drum NFS0929 indicates the drum contains three 2-liter bottles. Based on an initial review of the WEAF RTR data (M068), the drum contained homogeneous solids as well as debris waste, but the debris waste appeared to be greater than 50 percent, by volume. For this reason, this drum was included in waste stream OR-NFS-CH-HET-A (DR006). However, a more thorough review of the WEAF RTR (M202) identified eight 2-liter bottles; four bottles containing a dark solid material (assumed to be grouted fines) and four bottles containing metal (fines, scrap, tools) suspended in a transparent resin material (assumed to be an organic polymer absorbent). RTR also observed a cut up 5-gallon plastic bucket. Resolution: The combination of 2-liter bottles containing grouted fines and 2-liter bottles containing organic polymer absorbent with miscellaneous metal mixed in is consistent with other drums in homogeneous waste stream OR-NFS-CH-HOM-A. Therefore, NFS0929 is being moved from waste stream OR-NFS-CH-HET-A to waste stream OR-NFS-CH-HOM-A.

NTPC RECORDS/ORIGINAL
DATE REC'D 12/15/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR030
Source Document Data Limitations (If any): 1. None	
Acceptable Knowlege Expert: Travis Smith _____ Date: 11/18/2013 Print /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

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Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution – Drum NFS0929

Waste Stream Number(s): OR-NFS-CH-HET-A, OR-NFS-CH-HOM-A

Waste Stream Description: Heterogeneous debris waste and immobilized homogeneous waste from NFS

AK Documentation Type: ☐ TRU Waste Management Program Information ☒ Waste Stream Specific Information ☒ Supporting Information

AK Source Document Discrepancy Form Tracking Number: **DR030**

Tracking #	*Category* [a]	*Title*	*Document #*	*Date*	*Page #*
DR006	Disc.	Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution (Physical Form of NFS0116 & NFS0929)	NA	11/30/07	All
M003	Unpub.	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork	NA	Various	NFS0929
M068	Unpub.	Review of WEAF RTR Video Tapes	NA	11/27/07	5
M202	Unpub.	Review of WEAF RTR Videos for NFS Immobilized Liquids and Fines	NA	10/14/10	29

Nature of Discrepancy: The container paperwork (M003) for drum NFS0929 indicates the drum contains three 2-liter bottles. Based on an initial review of the WEAF RTR data (M068), the drum contained homogeneous solids as well as debris waste, but the debris waste appeared to be greater than 50 percent, by volume. For this reason, this drum was included in waste stream OR-NFS-CH-HET-A (DR006). However, a more thorough review of the WEAF RTR (M202) identified eight 2-liter bottles; four bottles containing a dark solid material (assumed to be grouted fines) and four bottles containing metal (fines, scrap, tools) suspended in a transparent resin material (assumed to be an organic polymer absorbent). RTR also observed a cut up 5-gallon plastic bucket.

Resolution: The combination of 2-liter bottles containing grouted fines and 2-liter bottles containing organic polymer absorbent with miscellaneous metal mixed in is consistent with other drums in homogeneous waste stream OR-NFS-CH-HOM-A. Therefore, NFS0929 is being moved from waste stream OR-NFS-CH-HET-A to waste stream OR-NFS-CH-HOM-A.

Discrepancy Resolved: ☒ Yes ☐ No

Acceptable Knowledge Expert: Jeff Harrison / Jeff Harrison — Date: 1/10/2011
Print / Sign

Site Project Manager: Richard Kantrowitz / [signature] — Date: 1/10/11
Print / Sign

[a] Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR602
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☑ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Discrepancy Resolution, Re: Follow-Up on DR005 for EPA Hazardous Waste Number Discrepancies	
Source Document Reference Information (author(s), document and revision number, date, publisher): Kevin J. Peters, DR602, NA, 07/02/2008, CCP	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR7, WS2, WS3, WS8, WS12, S13	Throughout	S13 - CCP Discrepancy Resolution Nature of Discrepancy: As described in AK Summary Reports CCP-AK-ORNL-500 (Section 5.4.2) and CCP-AK-ORNL-002 (Section 5.4.3), the assignment of EPA Hazardous Waste Numbers (HWNs) to the REDC waste streams OR-REDC-RH-HET and OR-REDC-CH-HET was based on the review of AK sources including, procedures, personnel interviews, previous AK reports, container packaging and shipping documentation, and material safety data sheet (MSDS) information for commercial products as noted in the AK record. These AK sources were reviewed to determine potential waste material inputs and possible chemical contaminants associated with the Building 7920 REDC operations. Based on this review the following EPA HWNs were assigned to the REDC CH and RH debris waste: F002, F005, D005, D006, D007, D008, D009, D010, D011, and D019. A majority of the AK sources used for development of these CCP AK Summary Reports were originally collected by Weston Solutions, Inc. (Weston) for characterization of ORNL TRU waste streams. Weston's research culminated with the Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations (U044) dated 6/19/2006. This report includes containers of debris waste generated in the REDC (Buildings 7920 and 7930) and the Transuranium Research Laboratory (Building 5505) that were combined into waste stream ORFWENC-007. Based on Weston's characterization of the waste in this stream the following EPA HWNs were assigned: F001, F002, F004, F005, D004, D005, D006, D007, D008, D009, D010, D011, and D022. Discrepancy DR005 was prepared to resolve the inconsistencies documented in these two characterization programs. However, DR005 only focused on the assignment of the HWNs when there was a discrepancy between these characterization programs. During the ORNL Certification Audit, it was noted that the assignment of EPA HWNs for other chemicals was not well supported by the AK referenced in Table 5.3 for chemicals including benzene, methyl ethyl ketone (MEK), and 1,1,2-trichloroethane, and selenium. Source document C078 contains an inventory list of chemicals. This inventory list was reviewed by REDC personnel and chemical potentially present were identified with hand written circles, check marks, and notes, which are difficult to interpret. Resolution: To resolve this discrepancy the AK sources were reviewed for primarily the chemicals assigned HWNs to determine if the referenced sources supported this assignment. Specifically, the AK sources for MEK, benzene, 1,1,2-trichloroethane, and selenium were reviewed as follows: F005 – Methyl Ethyl Ketone

NTPC RECORDS ORIGINAL
DATE REC'D 1/3/14 SP

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR602
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		C078 is the only reference identified in U044 for MEK. C078 does not support the assignment of MEK. No other source identifies this chemical being used in the REDC. For this reason, MEK will be deleted from the CH and RH AK Summary Reports as an F005 solvent. F005 – Benzene C078 referenced in U044 for benzene not supported by the attached document. AK Source P020 – Non-REDC coal liquefaction and environmental research. AK Source P021 – Non-REDC fossil energy coal liquefaction research. AK Source P145 – Section 5.7 identifies benzene during a literary search regarding sulfate complexes – no indication experiments were conducted in the REDC. AK Source P162 – Experiments performed by Chemistry and Physics Division during the 1970 time frame. AK Source P160 and 164 – Describes the use of benzene during extractions operations associated with plutonium and transplutonium research that may have been conducted in the REDC process development laboratories. For this reason, F005 for benzene will continue to be assigned to REDC RH and CH waste streams. D010 – Selenium C078 referenced in U044 for selenium not supported by the attached document. AK Source P004 – Report describes research conducted prior to 1963 before the REDC was in operation (1966). AK Source P005 – Only reference to selenium is a non-REDC related study of soil absorption. AK Source P011 – References related to non-REDC research relating to food samples. AK Source P020 – General discussion of research related to metals in fly ash. C078 only reference in U044 for selenium not supported by the attached documentation in C078. No other source identifies this chemical being used in the REDC. For this reason, selenium will be deleted from the CH and RH AK Summary Reports for EPA HWN D010. F002 – 1,1,2-trichloroethane C078 is the only AK source identified for the F002 solvent 1,1,2-trichloroethane. This inventory list is hand marked and specifically identifies this chemical. The use of this solvent is not identified and the process of use is unknown. However, without the availability of additional information to verify that this chemical was not used in the REDC areas contaminating the RH and CH debris waste streams, F002 will be assigned to the waste streams. Ongoing chemical use research is currently being conducted for the process development laboratories. During this review of the AK documentation, additional research will be conducted to augment the chemical use in the REDC. In addition to the chemicals discussed above, the other chemicals in the references discussed above will be reviewed to correct the chemicals identified as potential present in the REDC was listed in source document C078. Several F003 solvents were identified by both Weston and CCP. As described in the Weston AK Report and CCP AK Summary, assignment of the F003 to the waste is not appropriate if liquids are not present in the final waste form. Based on the evaluation summarized above and that done in DR005, the following EPA HWNs are assigned to waste streams OR-REDC-RH-HET and OR-REDC-CH-HET; F002, F005, D005, D006, D007, D008, D009, D011, and D019.

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR602
Source Document Data Limitations (if any): 1. None cpy'd/19	
Acceptable Knowlege Expert: Travis Smith / [signature] Date: 12/11/2013 Print /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

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Attachment 11 – Acceptable Knowledge Source Document Discrepancy Resolution

Waste Stream Number(s): OR-REDC-RH-HET, OR-REDC-CH-HET

Waste Stream Description: REDC Heterogeneous Debris (CH and RH)

AK Documentation Type: [X] TRU Waste Management Program Information [X] Waste Stream Specific Information [X] Supplemental Information							
AK Source Document Discrepancy Form Tracking Number: DR602 – EPA Hazardous Waste Number Discrepancies – DR005 Follow-up							
Tracking #	Category[a]	Title	Document/Rev#	Author	Date	Publisher	Page #
N/A	Pub.	Central Characterization Project Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Radiochemical Engineering Development Center Remote-Handled Transuranic Waste, Waste Stream: OR-REDC-RH-HET	CCP-AK-ORNL-500, Rev. 0	CCP	5/2/2008	CCP	Section 5.4.2
N/A	Pub.	Central Characterization Project Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Radiochemical Engineering Development Center Contact-Handled Transuranic Waste, Waste Stream: OR-REDC-CH-HET	CCP-AK-ORNL-002, Rev. 0	CCP	5/2/2008	CCP	Section 5.4.3
C078	Corr.	Memo to Bryan Roy transmitting Historical Survey – RCRA Information	N/A	James W. Moore.	4/04/2005	N/A	All
DR005	Disc.	EPA Hazardous Waste Number Discrepancies	DR005	Kevin Peters	6/20/2008	CCP	All
I042	Corr.	AKE Memo and Potential Hazardous Constituents in ORNL Wastes	N/A	Betty Humphrey, Jean S. Burt	6/27/05-5/23/06	N/A	Throughout

NTPC RECORDS ORIGINAL
DATE REC'D 1/3/14
DR602

U044	Pub.	Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations	AK-ORNL-001, Rev. 4	TRU/Alpha Low Level Treatment Project	6/19/2006	N/A	Sections 2.7, 5.7, and Table 4.2

Nature of Discrepancy:

As described in AK Summary Reports CCP-AK-ORNL-500 (Section 5.4.2) and CCP-AK-ORNL-002 (Section 5.4.3), the assignment of EPA Hazardous Waste Numbers (HWNs) to the REDC waste streams OR-REDC-RH-HET and OR-REDC-CH-HET was based on the review of AK sources including, procedures, personnel interviews, previous AK reports, container packaging and shipping documentation, and material safety data sheet (MSDS) information for commercial products as noted in the AK record. These AK sources were reviewed to determine potential waste material inputs and possible chemical contaminants associated with the Building 7920 REDC operations. Based on this review the following EPA HWNs were assigned to the REDC CH and RH debris waste: F002, F005, D005, D006, D007, D008, D009, D010, D011, and D019.

A majority of the AK sources used for development of these CCP AK Summary Reports were originally collected by Weston Solutions, Inc. (Weston) for characterization of ORNL TRU waste streams. Weston's research culminated with the *Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations* (U044) dated 6/19/2006. This report includes containers of debris waste generated in the REDC (Buildings 7920 and 7930) and the Transuranium Research Laboratory (Building 5505) that were combined into waste stream ORFWENC-007. Based on Weston's characterization of the waste in this stream the following EPA HWNs were assigned: F001, F002, F004, F005, D004, D005, D006, D007, D008, D009, D010, D011, and D022.

Discrepancy DR005 was prepared to resolve the inconsistencies documented in these two characterization programs. However, DR005 only focused on the assignment of the HWNs when there was a discrepancy between these characterization programs. During the ORNL Certification Audit, it was noted that the assignment of EPA HWNs for other chemicals was not well supported by the AK referenced in Table 5.3 for chemicals including benzene, methyl ethyl ketone (MEK), and 1,1,2-trichloroethane, and selenium. Source document C078 contains an inventory list of chemicals. This inventory list was reviewed by REDC personnel and chemical potentially present were identified with hand written circles, check marks, and notes, which are difficult to interpret.

Resolution:

To resolve this discrepancy the AK sources were reviewed for primarily the chemicals assigned HWNs to determine if the referenced sources supported this assignment. Specifically, the AK sources for MEK, benzene, 1,1,2-trichloroethane, and selenium were reviewed as follows:

F005 – Methyl Ethyl Ketone

C078 is the only reference identified in U044 for MEK. C078 does not support the assignment of MEK. No other source identifies this chemical being used in the REDC. For this reason, MEK will be deleted from the CH and RH AK Summary Reports as an F005 solvent.

F005 – Benzene

C078 referenced in U044 for benzene not supported by the attached document.

AK Source P020 – Non-REDC coal liquefaction and environmental research.

AK Source P021 – Non-REDC fossil energy coal liquefaction research.

AK Source P145 – Section 5.7 identifies benzene during a literary search regarding sulfate complexes – no indication experiments were conducted in the REDC.

AK Source P162 – Experiments performed by Chemistry and Physics Division during the 1970 time frame.

AK Source P160 and 164 – Describes the use of benzene during extractions operations associated with plutonium and transplutonium research that may have been conducted in the REDC process development laboratories. For this reason, F005 for benzene will continue to be assigned to REDC RH and CH waste streams.

D010 – Selenium

C078 referenced in U044 for selenium not supported by the attached document.

AK Source P004 – Report describes research conducted prior to 1963 before the REDC was in operation (1966).

AK Source P005 – Only reference to selenium is a non-REDC related study of soil absorption.

AK Source P011 – References related to non-REDC research relating to food samples.

AK Source P020 – General discussion of research related to metals in fly ash.

C078 only reference in U044 for selenium not supported by the attached documentation in C078. No other source identifies this chemical being used in the REDC. For this reason, selenium will be deleted from the CH and RH AK Summary Reports for EPA HWN D010.

F002 – 1,1,2-trichloroethane

C078 is the only AK source identified for the F002 solvent 1,1,2-trichloroethane. This inventory list is hand marked and specifically identifies this chemical. The use of this solvent is not identified and the process of use is unknown. However, without the availability of additional information to verify that this chemical was not used in the REDC areas contaminating the RH and CH debris waste streams, F002 will be assigned to the waste streams. Ongoing chemical use research is currently being conducted for the process development laboratories. During this review of the AK documentation, additional research will be conducted to augment the chemical use in the REDC.

In addition to the chemicals discussed above, the other chemicals in the references discussed above will be reviewed to correct the chemicals identified as potential present in the REDC was listed in source document C078

Several F003 solvents were identified by both Weston and CCP. As described in the Weston AK Report and CCP AK Summary, assignment of the F003 to the waste is not appropriate if liquids are not present in the final waste form.

Based on the evaluation summarized above and that done in DR005, the following EPA HWNs are assigned to waste streams OR-REDC-RH-HET and OR-REDC-CH-HET; F002, F005, D005, D006, D007, D008, D009, D011, and D019.

Discrepancy Resolved: [X] Yes [ ] No

Acceptable Knowledge Expert: Kevin J. Peters / _____ Date: 7/2/2008
Print / Sign

Site Project Manager: Hussein J Neely / _____ Date: 7/2/2008
Print / Sign

[a] Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR601
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☑ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Discrepancy Resolution, Re: Presence of Debris Items in Poly Blocks	
Source Document Reference Information (author(s), document and revision number, date, publisher): Kevin J. Peters, DR601, NA, 07/01/2008, CCP	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR7, WS9, S16	Throughout	Nature of Discrepancy: AK Summary Reports CCP-AK-ORNL-500 (Section 4.2.2) and CCP-AK-ORNL-002 (Section 5.3.1) discuss the inclusion of melted plastic items in metal cans included in waste streams OR-REDC-RH-HET and OR-REDC-CH-HET. "To reduce the volume of waste, a low-temperature furnace in Cubicle 9 is used to melt small plastic items such as polyethylene bottles to consolidate them in a metal bucket. Spent cation-exchange resins are calcined, leached with nitric acid, collected in a polyethylene bottle and melted in the furnace, then placed into a metal bucket." During RHVE of 55-gallon drums ORRH00001, ORRH00002, and ORRH00003 (from parent cask X10C0011108), poly blocks were identified and placed into drums without cutting to view interior contents within the melted block. Subsequent to building these drums, RHVE operators found debris items on top of melted plastic that appeared to have been added after the melt. Because debris items were discovered on top of the plastic, VE operators began cutting poly blocks during VE. Four of the subsequent 24 poly blocks cut after the packaging of the first three drums contained debris items other than melted plastics within the melted matrix. These items included a small metal tube in one can, scrap metal in another can, and small empty glass vials in two other cans. No prohibited items were discovered. The conditions found in the poly blocks were not identified in the AK Summary Report. Resolution: In an effort to resolve the discrepancy regarding the description of the melted plastic (poly), recently received supplemental packaging documentation received from ORNL was reviewed for the casks (M120), including X10C0011108 the parent cask for drums ORRH00001, ORRH00002, and ORRH00003. Based on the review of the descriptions of cans containing melted poly (see attached) it was determined that it was common for debris items (glass, plastic, cellulosic, and metal) to be included in the cans on top of the melted plastic as observed by the VE personnel. For some of the cans containing melted poly a log sheet was included (see attached) identifying the plastic items that were included in the melt. Although there is no indication of non-plastic items being included in the melting process, plastic fittings, valves, and lines that may contain non-plastic parts were included. For these reasons, CCP-AK-ORNL-500 and CCP-AK-ORNL-002 will be revised to note that other items (glass, metal, plastic, and cellulosic) may be contained in the cans of melted poly, either in the plastic matrix or placed on top of the block in the metal can in waste streams OR-REDC-RH-HET and OR-REDC-CH-HET.

NTPC RECORDS ORIGINAL
DATE RECD 1/3/14 AP

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR601
Source Document Data Limitations (if any): 1. None.	
Acceptable Knowlege Expert: Travis Smith _____ Date: 12/11/2013 Print /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

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Attachment 11 – Acceptable Knowledge Source Document Discrepancy Resolution

Waste Stream Number(s): OR-REDC-RH-HET, OR-REDC-CH-HET

Waste Stream Description: REDC Heterogeneous Debris (CH and RH)

AK Documentation Type: [X] TRU Waste Management Program Information [X] Waste Stream Specific Information [X] Supplemental Information							
AK Source Document Discrepancy Form Tracking Number: DR601 – Discrepancy Resolution Regarding the Presence of Debris Items in Poly Blocks							
Tracking #	Category[a]	Title	Document/Rev#	Author	Date	Publisher	Page #
N/A	Pub.	Central Characterization Project Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Radiochemical Engineering Development Center Remote-Handled Transuranic Waste, Waste Stream: OR-REDC-RH-HET	CCP-AK-ORNL-500, Rev. 0	CCP	5/2/2008	CCP	Sections 4.2.2
N/A	Pub.	Central Characterization Project Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Radiochemical Engineering Development Center Contact-Handled Transuranic Waste, Waste Stream: OR-REDC-CH-HET	CCP-AK-ORNL-002, Rev. 0	CCP	12/12/2007	CCP	Section 5.3.1
N/A	NCR	L-Trend Code CCP Nonconformance Report	NCR-RHORNL-0001-08 (Rev. 0)	Ronald Reeves Irene Quintana	6/12/2008	CCP	Attached
M120	Unpub.	ORNL RH Cask Evaluation and Supplemental Packaging Documentation	N/A	ORNL	Various	N/A	Cask X10C0011108

NTPC RECORDS ORIGINAL
DATE REC'D 4/3/19
SP

Nature of Discrepancy:

AK Summary Reports CCP-AK-ORNL-500 (Section 4.2.2) and CCP-AK-ORNL-002 (Section 5.3.1) discuss the inclusion of melted plastic items in metal cans included in waste streams OR-REDC-RH-HET and OR-REDC-CH-HET.

> *"To reduce the volume of waste, a low-temperature furnace in Cubicle 9 is used to melt small plastic items such as polyethylene bottles to consolidate them in a metal bucket. Spent cation-exchange resins are calcined, leached with nitric acid, collected in a polyethylene bottle and melted in the furnace, then placed into a metal bucket."*

During RHVE of 55-gallon drums ORRH00001, ORRH00002, and ORRH00003 (from parent cask X10C0011108), poly blocks were identified and placed into drums without cutting to view interior contents within the melted block. Subsequent to building these drums, RHVE operators found debris items on top of melted plastic that appeared to have been added after the melt. Because debris items were discovered on top of the plastic, VE operators began cutting poly blocks during VE. Four of the subsequent 24 poly blocks cut after the packaging of the first three drums contained debris items other than melted plastics within the melted matrix. These items included a small metal tube in one can, scrap metal in another can, and small empty glass vials in two other cans. No prohibited items were discovered. The conditions found in the poly blocks were not identified in the AK Summary Report.

Resolution:

In an effort to resolve the discrepancy regarding the description of the melted plastic (poly), recently received supplemental packaging documentation received from ORNL was reviewed for the casks (M120), including X10C0011108 the parent cask for drums ORRH00001, ORRH00002, and ORRH00003. Based on the review of the descriptions of cans containing melted poly (see attached) it was determined that it was common for debris items (glass, plastic, cellulosic, and metal) to be included in the cans on top of the melted plastic as observed by the VE personnel. For some of the cans containing melted poly a log sheet was included (see attached) identifying the plastic items that were included in the melt. Although there is no indication of non-plastic items being included in the melting process, plastic fittings, valves, and lines that may contain non-plastic parts were included.

For these reasons, CCP-AK-ORNL-500 and CCP-AK-ORNL-002 will be revised to note that other items (glass, metal, plastic, and cellulosic) may be contained in the cans of melted poly, either in the plastic matrix or placed on top of the block in the metal can in waste streams OR-REDC-RH-HET and OR-REDC-CH-HET.

Discrepancy Resolved: [X] Yes [ ] No

Acceptable Knowledge Expert: Kevin J. Peters / _____ Date: 6/20/2008
Print Sign

Site Project Manager: Hilary J. Kelly / _____ Date: 7/11/2008
Print Sign

[a] Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR-RHORNL-0001-08 Revision 0

1. Lot No./Heat No. or Serial No.: N/A	2. Process (NDA, HSG, NDE, VE, Other): RHVE	3. Batch Data Report # (s): RHORVE080001 Container #(s): ORRH00001, ORRH00002, ORRH00003
4. Order/Work Order/Job Control Number (as applicable): N/A	5. PO #: N/A 6. Supplier: N/A	

DESCRIPTION OF NONCONFORMANCE

7. (a) CCP HOLD TAGS SHALL BE APPLIED UNLESS JUSTIFIED AS FOLLOWS:
Due to ALARA considerations, NCR tagging will not be applied for this NCR. Administrative control will be applied through container entry in the CCP Data Center. In addition, a listing of containers has been posted on the CCP ftp site, identifying those containers where NCR tagging is not being applied due to ALARA. Container information for this NCR has been included in the listing, which is to alert Mobile Loading Unit personnel as a second control mechanism for non-tagged containers. The current listing has been posted to the ftp site.

☐ < 100 nCi/g ☐ Prohibited Item ☐ >500 ppmv Flamm. VOCs

☐ E-Flag ☐ Receiving Inspection ☐ Transportation ☐ WWIS ☒ Other

(b) Description of Nonconformance
Required Condition (Implementing Procedure, Revision, Section & Text)

CCP-AK-ORNL-500, Rev.0, Section 4.2.2 states "To reduce the volume of waste, a low-temperature furnace in Cubicle 9 is used to melt small plastic items such as polyethylene bottles to consolidate them in a metal bucket. Spent cation-exchange resins are calcined, leached with nitric acid, collected in a polyethylene bottle and melted in the furnace, then placed into a metal bucket."

During RHVE operations, the cans with melted plastic are typically referred to as poly blocks.

(c). Actual Condition

During RHVE of containers ORRH00001, ORRH00002, ORRH00003, poly blocks were identified and placed into drums without cutting to view interior contents within the melted block. Subsequent to building these drums, RHVE operators found debris items on top of melted plastic that appeared to have been added after the melt. Because debris items were discovered on top of the plastic, VE operators began cutting poly blocks during VE. 4 of the subsequent 24 poly blocks cut to date contained debris items other than melted plastics within the melted matrix. These items included a small metal tube in one can, scrap metal in another can, and small empty glass vials in two other cans. No prohibited items were discovered. The conditions found in the poly blocks were not identified in the AK Summary Report.

8. NCR Originator (Print name, sign, and date) Ronald D. Reeves 6-12-08	9. CCP QA Engineer or Designee Validation (Print name, sign, and date) Dean Mooney 6/12/08
9a. Does this NCR have the potential to impact AK? ☒ YES ☐ NO ☐ INDETERMINATE If YES or INDETERMINATE, then apply Trend Code L in Block 12.	
10. Significant Condition? ☐ YES ☒ NO ☐ NA	11. Recurring Condition? ☐ YES ☒ NO (If YES, List NCRs/CARs)
12. Trend Code: L	13. Responsible Manager. IRENE QUINTANA

BEST AVAILABLE

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR-RHORNL-0001-08 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check One)
☐ Use-As-Is ☒ Reject ☐ Repair ☐ Rework ☐ Scrap

(a) Technical Justification (Required for Use-As-Is and Repair dispositions, N/A for Reject, Scrap, or Rework dispositions.)
N/A

(b) Disposition Instructions (Required for Reject and Scrap, N/A for Use-As-Is, Rework, and Repair)

(The conditions identified in this BDR do not require evaluation by the AKE to determine actions necessary to correct the packaging of the waste.)

1. BDR RHORVE08001 will be voided.

2. Waste containers ORRH00001, ORRH00002, and ORRH00003 will be opened individually, all waste removed and repackaged with any poly blocks cut open and examined in accordance with current practice. VE will be re-performed on the waste at the time of repackaging in accordance with CCP-TP-500. The waste container numbers will not change. The data will included in a new BDR.

3. Once all three waste containers are repackaged and Visual Examination complete, the waste containers will be sent through Dose-to-Curie in accordance with CCP-TP-604. The data will be included in a new BDR.

4. BDR ORRHDTC08001 will be voided.

5. The AKE will evaluate the conditions identified in the poly blocks and develop an AK Discrepancy Resolution in accordance with CCP-TP-005. The AK Discrepancy Resolution will be approved and provided to CCP Records.

(c) Instructions for Completion of the Final Disposition, including Inspection Criteria (Required for Repair and Rework, N/A for Use-As-Is, Reject and Scrap)
NA

(d) Corrective Actions (Actions to Prevent Recurrence) - as required.
N/A

FINAL DISPOSITION APPROVALS

20. Responsible Manager/Individual: (Print, sign, and date)	21. CCP QA Engineer or Designee: (Print, sign, and date)
IRENE QUINTANA 6/12/08	DEAN MOONEY 6/12/2008
Additional Approvals: (Print, sign, and date) NA	Additional Approvals: (Print, sign, and date) NA

CLOSURE

22. Final Disposition Complete Responsible Manager/Individual: (Print, sign, and date)

23. Final Disposition Verified – NCR Closed CCP QA Engineer: (Print, sign, and date)

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RH-TRU WASTE CERTIFICATION DATA SHEET NO. 1

CERTIFICATION OF INTERMEDIATE CONTAINERS OF RH-TRU WASTE
(e.g., one-gallon paint cans) FILLED IN THE CUBICLES

[DO NOT USE IF RCRA MATERIALS ARE PRESENT]

Your signature certifies a numbered, filled, and closed container containing NO fines; free liquid; pyrophoric, explosive, toxic, or corrosive materials; fissionable isotopes (>27 g/ft^3); heat sources (0.1 watt/ft^3); or RCRA materials.

Intermediate Container Identification: Paint Can No.: 9333
(or other container and number): _____
Date filled and closed: 8/3/02

Description of Contents:

Item(s)	Source/Waste Form Category
Melted Poly	Cell bank/plastic
Broken glass	glass
EDV Block	metal
MK-42 Lid	rubber
Rubber Gaskets	
Sample Bottle Lids	

Combustibles: 90 volume %

Radiation Readings (if taken):
γ at 12 in.: BKG R/h Neutrons at 3 ft: BKG mrem/h Date: 8/2/02
γ at 12 in.: _____ R/h Neutrons at 3 ft: _____ mrem/h Date: _____

NOTE THAT NO RCRA MATERIALS ARE PRESENT IN THIS CONTAINER

Signature of Waste Generator filling and closing waste container: R. G. Warner

REFERENCE: Plastic Bucket No.: _____, or Draw String Bag No.: 81,
and Sequence No.: 5 (Data Sheet 4)

DATA SHEET FOR IN-CELL MELTING OF PLASTIC WASTE

BUCKET I.D.: 3046 STARTING DATE: 7/28/02

SHEET 1 OF 1

Time	Temp.	Items Melted	Description / Comments	Ini.
1600	220	Plastic Bags /	250 ml bottles	RJS
1915	225	1 L PB	M14Pu0x-1	RJS
2100	223	Plastic Bags, jacos, cut up poly liners		RJSJ
2200	221	Plastic Bags		RJSJ
0145	222	cut up poly line, jacos, Bags		RJSJ
0235	225	cut up poly line, jacos, P.B. Lids		RJSJ
0400	197	cut up poly line, jacos, P.B. Lids, Bags		RJSJ
0515	226	Plastic Bags		RJSJ
		Bucket Full		

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR008
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☐ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☑ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Discrepancy Resolution, Re: Follow-Up on DR602 for EPA Hazardous Waste Number Discrepancies (REDC Waste)	
Source Document Reference Information (author(s), document and revision number, date, publisher): Jeff Harrison, DR008, NA, 09/10/2008, CCP	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
WS2, WS4, WS6, WS8, WS12, S13	Throughout	S13 - CCP Discrepancy Resolution Nature of Discrepancy: A majority of the AK sources used for development of CCP AK Summary Reports CCP-AK-ORNL-002 (CH waste) and CCP-AK-ORNL-500 (RH waste) were originally collected by Weston Solutions, Inc. (Weston) for characterization of ORNL TRU waste streams. Weston's research culminated with the Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations (U044) dated 6/19/2006. This report includes containers of debris waste generated in the REDC (Buildings 7920 and 7930) and the Transuranium Research Laboratory (Building 5505) that were combined into waste stream ORFWENC-007. The following EPA hazardous waste numbers were assigned to waste stream ORFWENC-007: F001, F002, F004, F005, D004, D005, D006, D007, D008, D009, D010, D011, and D022. The development of the CCP AK Summary Reports identified several discrepancies with the Weston EPA hazardous waste number assignment. Discrepancy resolution DR005 was prepared to resolve the inconsistencies documented in these two characterization programs. Based on DR005, the following hazardous waste numbers EPA HWNs were assigned to the REDC CH and RH debris waste: F002, F005, D005, D006, D007, D008, D009, D010, D011, and D019. During the ORNL RH Waste Certification Audit, it was noted that the assignment of EPA hazardous waste numbers for other chemicals was not well supported for chemicals including benzene, methyl ethyl ketone (MEK), 1,1,2-trichloroethane, and selenium. Source document C078 contains an inventory list of chemicals. This inventory list was reviewed by REDC personnel and chemical potentially present were identified with hand written circles, check marks, and notes, which are difficult to interpret. Discrepancy resolution DR602 was written to address the issues resulting from the ORNL RH Waste Certification Audit. It was determined that benzene and 1,1,2-trichloroethane were indeed applicable to the REDC waste, but MEK and selenium were not applicable to the REDC waste. DR602 also states that ongoing chemical use research is currently being conducted for the process development laboratories, and that during this review of the AK documentation, additional research will be conducted to augment the chemical use in the REDC. As a result of this ongoing research, uses/sources in Building 7920 were identified for arsenic, selenium, and 1,1,1-trichloroethane. Resolution: EPA hazardous waste number D004 (arsenic) was originally identified in the Weston AK (U044) as applicable to waste stream ORFWENC-007 which as described above includes waste from

NTPC RECORDS ORIGINAL
DATE REC'D 1/3/14

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR008
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		Building 7920. A review of the source documentation that supported the assignment of D004 to waste stream ORFWENC-007 (I042) determined that is was not applicable to Building 7920 (refer to DR005) and was therefore not assigned to CCP waste streams OR-REDC-CH-HET and OR-REDC-RH-HET. However, a source has been found for arsenic use in Building 7920. Section 5 of a 1971 Chemical Technology Division report (P114) describes transuranium element processing at the Transuranium Processing Plant and the High Flux Isotope Reactor. The Transuranium Processing Plant was the name used for Building 7920 before being renamed REDC. Section 5.5 of P114 describes transplutonium element research that would most likely have occurred in the Building 7920 process development labs. One of the activities involved actinide and lanthanide hydride and metallide studies in which erbium-arsenic and americium-arsenic compounds were studied. The Weston AK did not identify this activity as a source for arsenic. Based on this finding, EPA hazardous waste number D004 will be applied to CCP waste streams OR-REDC-CH-HET and OR-REDC-RH-HET. EPA hazardous waste number D010 (selenium) was originally identified in the Weston AK (U044) as applicable to waste stream ORFWENC-007 and was assigned to CCP waste streams OR-REDC-CH-HET and OR-REDC-RH-HET because it was identified in an REDC chemical inventory (C078). As a result of DR602, EPA hazardous waste number D010 was going to be removed from the CCP waste streams, but ongoing research has identified a source for selenium use in Building 7920. Selenium compounds (erbium-selenium and americium-selenium) were used in the same actinide and lanthanide hydride and metallide studies discussed above for arsenic (P114). Based on this finding, EPA hazardous waste number D010 will NOT be removed from CCP waste streams OR-REDC-CH-HET and OR-REDC-RH-HET. EPA hazardous waste number F002 was originally identified in the Weston AK (U044) as applicable to waste stream ORFWENC-007 due to the use of Freon, 1,1,2,trichloroethane, tetrachloroethylene, and trichloroethylene. Several source documents identified the use of trichloroethylene in Building 7920, but as described in DR005, it was determined that Freon and tetrachloroethylene were not applicable to waste from Building 7920. As described in DR602, the only AK source identified for 1,1,2-trichloroethane was C078 (chemical inventory list). The use of this solvent was not identified and the process of use is unknown; however, without the availability of additional information to verify that this chemical was not used in the REDC areas contaminating the RH and CH debris waste streams, EPA hazardous waste number F002 for 1,1,2-trichloroethane will be assigned to the CCP waste streams. Ongoing research has also identified the F002-listed solvent 1,1,1-trichloroethane as being used in Building 7920. A logbook from the mid-1980s for Labs 110 and 111 in Building 7920 identified the use of a product named Desicote (U529). Desicote is a rinsing aid that contains 1,1,1-trichloroethane (M022). Therefore, EPA hazardous waste number F002 for 1,1,1-trichloroethane, 1,1,2-trichloroethane, and trichloroethylene will be assigned to CCP waste streams OR-REDC-CH-HET and OR-REDC-RH-HET.

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR008
Source Document Data Limitations (if any): 1. None.	
Acceptable Knowlege Expert: Travis Smith /Sign Date: 12/11/2013 Print	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

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Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution

Waste Stream Number(s): OR-REDC-CH-HET, OR-REDC-RH-HET

Waste Stream Description: CH and RH heterogeneous debris waste from Building 7920 at ORNL

AK Documentation Type: ☐ TRU Waste Management Program Information ☒ Waste Stream Specific Information ☒ Supporting Information

AK Source Document Discrepancy Form Tracking Number: **DR008**

Tracking #	*Category* [a]	*Title*	*Doc/Rev #*	*Author*	*Date*	*Publisher*	*Page #*
C078	Corr.	Memo to Bryan Roy transmitting Historical Survey – RCRA Information	N/A	J. W. Moore.	4/04/05	N/A	chem. list Pg. 1
DR005	Disc.	EPA Hazardous Waste Number Discrepancies	N/A	K. Peters	6/24/08	CCP	All
DR602	Disc.	EPA Hazardous Waste Number Discrepancies	N/A	K. Peters	7/2/08	CCP	All
I042	Corr.	AKE Memo and Potential Hazardous Constituents in ORNL Wastes	N/A	B. Humphrey, J. S. Burt	5/23/06	N/A	Throughout
M022	Unpub.	MSDSs for REDC CH and RH Waste	N/A	N/A	Various	Various	Desicote
P114	Pub.	Chemical Technology Division Annual Progress Report Period Ending 3/31/1971	ORNL-4682	N/A	7/1971	ORNL	125
U044	Unpub.	Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste	AK-ORNL-001, Rev. 4	Weston Solutions, Inc.	6/19/06	N/A	104, 105
U529	Unpub.	Technical Notebook – Charles Alexander, Building 7920	B000334	C. Alexander	12/11/85-7/29/88	N/A	1

NTPC RECORDS ORIGINAL
DATE REC'D 4/3/14
SP

Nature of Discrepancy:

A majority of the AK sources used for development of CCP AK Summary Reports CCP-AK-ORNL-002 (CH waste) and CCP-AK-ORNL-500 (RH waste) were originally collected by Weston Solutions, Inc. (Weston) for characterization of ORNL TRU waste streams. Weston's research culminated with the *Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations* (U044) dated 6/19/2006. This report includes containers of debris waste generated in the REDC (Buildings 7920 and 7930) and the Transuranium Research Laboratory (Building 5505) that were combined into waste stream ORFWENC-007. The following EPA hazardous waste numbers were assigned to waste stream ORFWENC-007: F001, F002, F004, F005, D004, D005, D006, D007, D008, D009, D010, D011, and D022.

The development of the CCP AK Summary Reports identified several discrepancies with the Weston EPA hazardous waste number assignment. Discrepancy resolution DR005 was prepared to resolve the inconsistencies documented in these two characterization programs. Based on DR005, the following hazardous waste numbers EPA HWNs were assigned to the REDC CH and RH debris waste: F002, F005, D005, D006, D007, D008, D009, D010, D011, and D019.

During the ORNL RH Waste Certification Audit, it was noted that the assignment of EPA hazardous waste numbers for other chemicals was not well supported for chemicals including benzene, methyl ethyl ketone (MEK), 1,1,2-trichloroethane, and selenium. Source document C078 contains an inventory list of chemicals. This inventory list was reviewed by REDC personnel and chemical potentially present were identified with hand written circles, check marks, and notes, which are difficult to interpret. Discrepancy resolution DR602 was written to address the issues resulting from the ORNL RH Waste Certification Audit. It was determined that benzene and 1,1,2-trichloroethane were indeed applicable to the REDC waste, but MEK and selenium were not applicable to the REDC waste.

DR602 also states that ongoing chemical use research is currently being conducted for the process development laboratories, and that during this review of the AK documentation, additional research will be conducted to augment the chemical use in the REDC. As a result of this ongoing research, uses/sources in Building 7920 were identified for arsenic, selenium, and 1,1,1-trichloroethane.

Resolution:

EPA hazardous waste number D004 (arsenic) was originally identified in the Weston AK (U044) as applicable to waste stream ORFWENC-007 which as described above includes waste from Building 7920. A review of the source documentation that supported the assignment of D004 to waste stream ORFWENC-007 (I042) determined that is was not applicable to Building 7920 (refer to DR005) and was therefore not assigned to CCP waste streams OR-REDC-CH-HET and OR-REDC-RH-HET. However, a source has been found for arsenic use in Building 7920. Section 5 of a 1971 Chemical Technology Division report (P114) describes transuranium element processing at the Transuranium Processing Plant and the High Flux Isotope Reactor. The Transuranium Processing Plant was the name used for Building 7920 before being renamed REDC. Section 5.5 of P114 describes transplutonium element research that would most likely have occurred in the Building 7920 process development labs. One of the activities involved actinide and lanthanide hydride and metallide studies in which erbium-arsenic and americium-arsenic compounds were studied. The Weston AK did not identify this activity as a source for arsenic. Based on this finding, EPA hazardous waste number D004 will be applied to CCP waste streams OR-REDC-CH-HET and OR-REDC-RH-HET.

EPA hazardous waste number D010 (selenium) was originally identified in the Weston AK (U044) as applicable to waste stream ORFWENC-007 and was assigned to CCP waste streams OR-REDC-CH-HET and OR-REDC-RH-HET because it was identified in an REDC chemical inventory (C078). As a result of DR602, EPA hazardous waste number D010 was going to be removed from the CCP waste streams, but ongoing research has identified a source for selenium use in Building 7920. Selenium compounds (erbium-selenium and americium-selenium) were used in the same actinide and lanthanide hydride and metallide studies discussed above for arsenic (P114). Based on this finding, EPA hazardous waste number D010 will NOT be removed from CCP waste streams OR-REDC-CH-HET and OR-REDC-RH-HET.

EPA hazardous waste number F002 was originally identified in the Weston AK (U044) as applicable to waste stream ORFWENC-007 due to the use of Freon, 1,1,2,trichloroethane, tetrachloroethylene, and trichloroethylene. Several source documents identified the use of trichloroethylene in Building 7920, but as described in DR005, it was determined that Freon and tetrachloroethylene were not applicable to waste from Building 7920. As described in DR602, the only AK source identified for 1,1,2-trichloroethane was C078 (chemical inventory list). The use of this solvent was not identified and the process of use is unknown; however, without the availability of additional information to verify that this chemical was not used in the REDC areas contaminating the RH and CH debris waste streams, EPA hazardous waste number F002 for 1,1,2-trichloroethane will be assigned to the CCP waste streams. Ongoing research has also identified the F002-listed solvent 1,1,1-trichloroethane as being used in Building 7920. A logbook from the mid-1980s for Labs 110 and 111 in Building 7920 identified the use of a product named Desicote (U529). Desicote is a rinsing aid that contains 1,1,1-trichloroethane (M022). Therefore, EPA hazardous waste number F002 for 1,1,1-trichloroethane, 1,1,2-trichloroethane, and trichloroethylene will be assigned to CCP waste streams OR-REDC-CH-HET and OR-REDC-RH-HET.

Discrepancy Resolved: ☒ Yes ☐ No

Acceptable Knowledge Expert: Jeff Harrison / Jeff Harrison Date: 9/9/08
Print Sign

Site Project Manager: Candice Weston / Candice Weston Date: 09/10/08
Print Sign

* Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR005
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☑ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Discrepancy Resolution, Re: EPA Hazardous Waste Number Discrepancies	
Source Document Reference Information (author(s), document and revision number, date, publisher): Kevin Peters, DR005, NA, 06/24/2008, CCP	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR7, WS2, WS3, WS8, WS12, S13	Throughout	S13 - CCP Discrepancy Resolution Nature of Discrepancy: As described in AK Summary Reports CCP-AK-ORNL-500 (Section 5.4.2) and CCP-AK-ORNL-002 (Section 5.4.3), the assignment of EPA Hazardous Waste Numbers (HWNs) to the REDC waste streams OR-REDC-RH-HET and OR-REDC-CH-HET was based on the review of AK sources including, procedures, personnel interviews, previous AK reports, container packaging and shipping documentation, and material safety data sheet (MSDS) information for commercial products as noted in the AK record. These AK sources were reviewed to determine potential waste material inputs and possible chemical contaminants associated with the Building 7920 REDC operations. Based on this review the following EPA HWNs were assigned to the REDC CH and RH debris waste: F002, F005, D005, D006, D007, D008, D009, D010, D011, and D019. A majority of the AK sources used for development of these CCP AK Summary Reports were originally collected by Weston Solutions, Inc. (Weston) for characterization of ORNL TRU waste streams. Weston's research culminated with the Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations (U044) dated 6/19/2006. This report includes containers of debris waste generated in the REDC (Buildings 7920 and 7930) and the Transuranium Research Laboratory (Building 5505) that were combined into waste stream ORFWENC-007. Based on Weston's characterization of the waste in this stream the following EPA HWNs were assigned: F001, F002, F004, F005, D004, D005, D006, D007, D008, D009, D010, D011, and D022. Resolution: In an effort to determine which of the HWNs assigned by Weston to the waste stream containing debris from buildings 7920, 7930, and 5505 are applicable to the Building 7920 REDC debris waste streams OR-REDC-RH-HET and OR-REDC-CH-HET, Weston's characterization approach and original characterization documentation was reviewed. As described in U044 and I042, Weston assigned HWNs to ORNL waste streams based primarily on reports describing operations conducted by the different divisions operating the numerous facilities at ORNL as described below (I042): "Chemicals used were identified from divisional annual reports and other source documents, but for the most part could not be associated with a building but with a division responsible for the research or process. Based on historical information, the AKEs were able to correlate divisions with buildings and timeframes and then buildings with waste containers. Also, the disposal request information did not include any F-listed solvents, however, there was a number of source documents that indicated solvents were used in many of the processes.

NTPC RECORDS ORIGINAL
DATE REC'D 1/3/14 SP

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR005
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		Waste streams were delineated first by generating facility (ORNL stores waste from several off site facilities). Then streams were further delineated by process, such as analytical chemistry facilities, reactor facilities, isotope facilities. Further delineation was based on hazardous waste codes assigned. Hazardous waste codes were assigned by correlating a building with a division that operated that building. If the divisional reports indicated that the division used hazardous chemicals in their processes or research, the containers from the buildings associated with that division were assigned to the waste streams with the appropriate hazardous waste codes. In the small number of cases where information was available that indicated hazardous chemicals were used in a specific building, the containers from that building were placed in the waste stream with the appropriate hazardous waste codes." For the Weston waste stream (ORFWENC-007) containing the REDC waste, the Chemical Technology and Chemistry Divisions were identified as generators in the REDC and the Transuranium Research Laboratory. However, based on a review of the technical division reports these divisions conducted operations in numerous facilities not associated with the operations in these areas, including research that would not have generated radioactive waste materials. This characterization approach resulted in an extremely conservative assignment of HWNs to the waste streams. In contrast, CCP assigned HWNs based upon a review of AK documentation specific to only the operations identified in Building 7920 of the REDC. Based on this review, HWNs for the following chemicals were not assigned to waste streams OR-REDC-RH-HET and OR-REDC-CH-HET (See attached table) that were assigned to the combined Weston waste stream ORFWENC-007. The list below identifies the EPA HWN not assigned by CCP, the source document(s) sited by Weston Solutions supporting its assignment, and a brief summary of the findings of the review documenting the rational for CCP not assigning the HWN to these non-REDC activities: D004 – Arsenic AK Source P004 – Report describes research conducted prior to 1963 before the REDC was in operation (1966). AK Source P005 – Only reference to arsenic is a non-REDC related study of soil absorption of arsenic in different oxidations states. AK Source P011 – References related to non-REDC research relating to coal studies, food samples, and phenols in tobacco smoke. AK Source P020 – General discussion of research related to metals in fly ash. AK Source P021 – Feasibility study for preparing gel spheres (PUREX raffinate). AK Source P133 – General Analytical Laboratory research relating to coal studies. AK Source P170 – Theoretical study involving electron orbitals, no indication of actual arsenic contamination. D022 – Chloroform AK Source P021 – Non-REDC fossil energy coal liquefaction research. AK Source P097 – Non-REDC biotechnology and environmental studies relating to chlorinated HFIR cooling water. AK Source P099 – Non-REDC coal organic chemistry research. F001 – Carbon Tetrachloride Carbon tetrachloride sources identified both by Weston and CCP research. Since no large-scale degreasing operations identified in REDC operations, F001 not assigned and D019 conservatively assigned. F001 – Trichloroethylene Trichloroethylene sources identified both by Weston and CCP research. Since no large-scale degreasing operations identified in REDC operations, F001 not assigned and F002 assigned by CCP. F001/F002 - 1,1,2-trichloro-1,2,2-trifluoroethane and trichlorofluorometane AK Source P162 – Associated with the Transuranium Research Laboratory in Building 5505. F001/F002 – tretrachloroethylene AK Source P037 – Non-REDC research relating to waste water treatment and disposal. F004 – p-Creosol AK Source P096 – Non-REDC biochemical technology research relating to domestic sewage plant effluent analysis. F005 – 2-ethoxyethanol AK Source P145 – Appears that identification of 2-ethoxyethanol was in error (no reference in P145) and that 2-ethylhexanol identified in the CCP report is correct.

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR005
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		F005 – Pyridine AK Source P021 – Non-REDC fossil energy coal liquefaction research. AK Source P099 – Non-REDC coal organic chemistry research. Several F003 solvents were identified by both Weston and CCP. As described in the Weston AK Report and CCP AK Summary, assignment of the F003 to the waste is not appropriate if liquids are not present in the final waste form. Based on the evaluation summarized above, the following EPA HWNs are assigned to waste streams OR-REDC-RH-HET and OR-REDC-CH-HET; F002, F005, D005, D006, D007, D008, D009, D010, D011, and D019.

Source Document Data Limitations (if any):

1. None.

Acceptable Knowlege Expert:

Travis Smith _____ Date: 12/11/2013
Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

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Attachment 11 – Acceptable Knowledge Source Document Discrepancy Resolution

Waste Stream Number(s): OR-REDC-RH-HET, OR-REDC-CH-HET

Waste Stream Description: REDC Heterogeneous Debris (CH and RH)

AK Documentation Type: [X] TRU Waste Management Program Information [X] Waste Stream Specific Information [X] Supplemental Information							
AK Source Document Discrepancy Form Tracking Number: DR005 – EPA Hazardous Waste Number Discrepancies							
Tracking #	Category[a]	Title	Document/Rev#	Author	Date	Publisher	Page #
N/A	Pub.	Central Characterization Project Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Radiochemical Engineering Development Center Remote-Handled Transuranic Waste, Waste Stream: OR-REDC-RH-HET	CCP-AK-ORNL-500, Rev. 0	CCP	5/2/2008	CCP	Section 5.4.2
N/A	Pub.	Central Characterization Project Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Radiochemical Engineering Development Center Contact-Handled Transuranic Waste, Waste Stream: OR-REDC-CH-HET	CCP-AK-ORNL-002, Rev. 0	CCP	5/2/2008	CCP	Section 5.4.3
I042	Corr.	AKE Memo and Potential Hazardous Constituents in ORNL Wastes	N/A	Betty Humphrey, Jean S. Burt	6/27/05-5/23/06	N/A	Throughout
U044	Pub.	Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations	AK-ORNL-001, Rev. 4	TRU/Alpha Low Level Treatment Project	6/19/2006	N/A	Sections 2.7, 5.7, and Table 4.2

NTPC RECORDS ORIGINAL
DATE REC'D 1/3/14
SP

DR005

Nature of Discrepancy:

As described in AK Summary Reports CCP-AK-ORNL-500 (Section 5.4.2) and CCP-AK-ORNL-002 (Section 5.4.3), the assignment of EPA Hazardous Waste Numbers (HWNs) to the REDC waste streams OR-REDC-RH-HET and OR-REDC-CH-HET was based on the review of AK sources including, procedures, personnel interviews, previous AK reports, container packaging and shipping documentation, and material safety data sheet (MSDS) information for commercial products as noted in the AK record. These AK sources were reviewed to determine potential waste material inputs and possible chemical contaminants associated with the Building 7920 REDC operations. Based on this review the following EPA HWNs were assigned to the REDC CH and RH debris waste: F002, F005, D005, D006, D007, D008, D009, D010, D011, and D019.

A majority of the AK sources used for development of these CCP AK Summary Reports were originally collected by Weston Solutions, Inc. (Weston) for characterization of ORNL TRU waste streams. Weston's research culminated with the *Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations* (U044) dated 6/19/2006. This report includes containers of debris waste generated in the REDC (Buildings 7920 and 7930) and the Transuranium Research Laboratory (Building 5505) that were combined into waste stream ORFWENC-007. Based on Weston's characterization of the waste in this stream the following EPA HWNs were assigned: F001, F002, F004, F005, D004, D005, D006, D007, D008, D009, D010, D011, and D022.

Resolution:

In an effort to determine which of the HWNs assigned by Weston to the waste stream containing debris from buildings 7920, 7930, and 5505 are applicable to the Building 7920 REDC debris waste streams OR-REDC-RH-HET and OR-REDC-CH-HET, Weston's characterization approach and original characterization documentation was reviewed. As described in U044 and t042, Weston assigned HWNs to ORNL waste streams based primarily on reports describing operations conducted by the different divisions operating the numerous facilities at ORNL as described below (I042):

> *"Chemicals used were identified from divisional annual reports and other source documents, but for the most part could not be associated with a building but with a division responsible for the research or process. Based on historical information, the AKEs were able to correlate divisions with buildings and timeframes and then buildings with waste containers. Also, the disposal request information did not include any F-listed solvents, however, there was a number of source documents that indicated solvents were used in many of the processes.*
>
> *Waste streams were delineated first by generating facility (ORNL stores waste from several off site facilities). Then streams were further delineated by process, such as analytical chemistry facilities, reactor facilities, isotope facilities. Further delineation was based on hazardous waste codes assigned.*
>
> *Hazardous waste codes were assigned by correlating a building with a division that operated that building. If the divisional reports indicated that the division used hazardous chemicals in their processes or research, the containers from the buildings associated with that division were assigned to the waste streams with the appropriate hazardous waste codes. In the small number of cases where information was available that indicated hazardous chemicals were used in a specific building, the containers from that building were placed in the waste stream with the appropriate hazardous waste codes."*

For the Weston waste stream (ORFWENC-007) containing the REDC waste, the Chemical Technology and Chemistry Divisions were identified as generators in the REDC and the Transuranium Research Laboratory. However, based on a review of the technical division reports these divisions conducted operations in numerous facilities not associated with the operations in these areas, including research that would not have generated radioactive waste materials. This characterization approach resulted in an extremely conservative assignment of HWNs to the waste streams. In contrast, CCP assigned HWNs based upon a review of AK documentation specific to only the operations identified in Building 7920 of the REDC. Based on this review, HWNs for the following chemicals were not assigned to waste streams OR-REDC-RH-HET and OR-REDC-CH-HET (See attached table) that were assigned to the combined Weston waste stream ORFWENC-007. The list below identifies the EPA HWN not assigned by CCP, the source document(s) sited by Weston Solutions supporting its assignment, and a brief summary of the findings of the review documenting the rational for CCP not assigning the HWN to these non-REDC activities:

D004 – Arsenic

AK Source P004 – Report describes research conducted prior to 1963 before the REDC was in operation (1966).

AK Source P005 – Only reference to arsenic is a non-REDC related study of soil absorption of arsenic in different oxidations states.

AK Source P011 – References related to non-REDC research relating to coal studies, food samples, and phenols in tobacco smoke.

AK Source P020 – General discussion of research related to metals in fly ash.

AK Source P021 – Feasibility study for preparing gel spheres (PUREX raffinate).

AK Source P133 – General Analytical Laboratory research relating to coal studies.

AK Source P170 – Theoretical study involving electron orbitals, no indication of actual arsenic contamination.

D022 – Chloroform

AK Source P021 – Non-REDC fossil energy coal liquefaction research.

AK Source P097 – Non-REDC biotechnology and environmental studies relating to chlorinated HFIR cooling water.

AK Source P099 – Non-REDC coal organic chemistry research.

F001 – Carbon Tetrachloride

Carbon tetrachloride sources identified both by Weston and CCP research. Since no large-scale degreasing operations identified in REDC operations, F001 not assigned and D019 conservatively assigned.

F001 – Trichloroethylene

Trichloroethylene sources identified both by Weston and CCP research. Since no large-scale degreasing operations identified in REDC operations, F001 not assigned and F002 assigned by CCP.

F001/F002 - 1,1,2-trichloro-1,2,2-trifluoroethane and trichlorofluoromotane

AK Source P162 – Associated with the Transuranium Research Laboratory in Building 5505.

F001/F002 – tretrachloroethylene

AK Source P037 – Non-REDC research relating to waste water treatment and disposal.

F004 – p-Creosol

AK Source P096 – Non-REDC biochemical technology research relating to domestic sewage plant effluent analysis.

F005 – 2-ethoxyethanol

AK Source P145 – Appears that identification of 2-ethoxyethanol was in error (no reference in P145) and that 2-ethylhexanol identified in the CCP report is correct.

F005 – Pyridine

AK Source P021 – Non-REDC fossil energy coal liquefaction research.

AK Source P099 – Non-REDC coal organic chemistry research.

Several F003 solvents were identified by both Weston and CCP. As described in the Weston AK Report and CCP AK Summary, assignment of the F003 to the waste is not appropriate if liquids are not present in the final waste form.

Based on the evaluation summarized above, the following EPA HWNs are assigned to waste streams OR-REDC-RH-HET and OR-REDC-CH-HET; F002, F005, D005, D006, D007, D008, D009, D010, D011, and D019.

Discrepancy Resolved: [X] Yes [ ] No

Acceptable Knowledge Expert: Kevin J. Peters (Print) / (Sign) Date: 6/20/2008

Site Project Manager: Hillary J. Neely (Print) / (Sign) Date: 6-24-08

[a] Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

Comparison of CCP HWN Assignment to REDC Waste Materials

EPA Hazardous Waste Number	Constituent	CCP Waste Streams OR-REDC-RH-HET OR-REDC-CH-HET	Weston Waste Stream ORFWENC-007
D004	Arsenic		X
D005	Barium	X	X
D006	Cadmium	X	X
D007	Chromium	X	X
D008	Lead	X	X
D009	Mercury	X	X
D010	Selenium	X	X
D011	Silver	X	X
D019	Carbon tetrachloride	X	
D022	Chloroform		X
F001	Carbon tetrachloride		X
F001/F002	1,1,2-trichloro-1,2,2-trifluoroethane		X
F001/F002	Trichlorofluoromethane		X
F001/F002	Tetrachloroethylene		X
F002	1,1,2-Trichloroethane	X	X
F002	Trichloroethylene	X	X (F001 and F002)
F004	p-Cresol		X
F005	2-Ethoxyethanol		X
F005	Benzene	X	X
F005	Methyl ethyl ketone (MEK)	X	X
F005	Pyridine		X
F005	Toluene	X	X

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR013
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☐ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☑ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Discrepancy Resolution re: NFS Soil and Debris EPA Hazardous Waste Numbers	
Source Document Reference Information (author(s), document and revision number, date, publisher): J. Harrison, DR013, 1, 01/24/2011	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
PR7, WS1, WS2, WS3, WS4, WS8, WS9, WS12, S9	Throughout	Nature of Discrepancy: Nature of Discrepancy: NFS characterized the soil (waste stream OR-NFS-CH-SOIL) and debris (waste stream OR-NFS-CH-HET-A) as nonhazardous waste, and ORNL has continued to manage the soil and debris as nonhazardous waste since receiving it from NFS. The majority of the AK documentation reviewed supports this nonhazardous characterization, but there is evidence that the soil may be an F-listed hazardous waste. Debris waste stream OR-NFS-CH-HET-A includes drums containing small amounts of soil. In addition to being F-listed, the S5000 debris waste stream OR-NFS-CH-HET-A is assigned metal EPA hazardous waste numbers D006 (cadmium), D008 (lead), D009, mercury, and D011 (silver), and even though both the soil and debris waste streams originated from the same locations, these metal codes do not apply to OR-NFS-CH-SOIL. See DR001 for additional information on metals in debris waste stream OR-NFS-CH-HET-A. Resolution: Toxicity Characteristic Metal EPA Hazardous Waste Numbers The sources for the metal codes assigned to S5000 debris waste stream OR-NFS-CH-HET-A is as follows: D006 – Cadmium in paint and cadmium-coated hand tools. D008 – Solder in circuit boards contained in electrical equipment. D009 – Alkaline batteries, cleanup of mercury from a regulator gauge discovered on the bottom of a glovebox, and Building 110 tank contents. D011 – Solder in circuit boards contained in electrical equipment. Both the debris and soil waste streams originated primarily from decommissioning of Building 234. The debris was from within the building and concrete from the building floor, and the soil was from beneath the floor. Other sources contributing to both waste streams were the excavation of waste from the NFS burial ground (1 box) and excavation of the Building 110 underground tank. The drums of soil originating from beneath Building 234 and the Building 110 tank contain only soil, rock, and absorbent. Therefore, the sources for D006, D008, D009, and

NTPC RECORDS ORIGINAL
DATE REC'D 12/18/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR013
AK # [b]	Source Doc. Page #[c]	AK Information Summary
		D011 in the debris waste stream would not apply to the soil waste stream. In addition, NFS sampled and analyzed soil samples from beneath Building 234 and from the area surrounding the Building 110 tank. No metals were detected above the regulatory threshold level (RTL) in any of these samples. The only question is whether the 1 box (X10C0506154) from excavation of the NFS burial ground could contain these metals above regulatory levels. NFS did not sample the soil from the area around the waste generated from excavation of the burial ground. The container paperwork completed by NFS for the box indicated it contained both soil and debris (M003). The soil was interstitial soil from the burial ground (M132). The TWPC recently repackaged the waste in this box into 30 drums and segregated the soil into 5 of these 30 drums (M075). Because of this segregation, the sources for D006, D008, and D011 in the debris waste stream would not apply to this waste. Alkaline batteries containing mercury would also not apply to the soil. The other two sources for mercury (i.e., gauges and tank contents) are possible sources if these materials were disposed of in the NFS burial ground. Three samples were collected from the contents of the Building 110 tank. In two of the samples, all metals were below the RTL, and in the third sample mercury was detected right at the RTL (U043). So overall the tank contents would not be hazardous for mercury. In addition, soil samples from around the tank were below the RTL so one could surmise that if the soil from the burial ground was contaminated with the tank contents, it would be diluted to a point below the RTL. The TWPC uses amalgamating agents for treatment of mercury (P432). The repack forms for the debris waste from the X10C0506154 box do not identify any treated mercury nor do they identify equipment or other items that would have contained mercury (M075). NFS also consistently identified and characterized waste with mercury above the RTL as hazardous and assigned D009. This one box was characterized by NFS as nonhazardous waste (M003). For these reasons, EPA hazardous waste numbers D006, D008, D009, and D011 are not assigned to OR-NFS-CH-SOIL. F-Listed EPA Hazardous Waste Numbers The only listed solvents identified in the MOX fuel production process were methylene chloride and trichlorotrifluoroethane contained in a binder material; however, these solvents do not meet the definition of an F-listed waste (Reference P273). In addition, this binder material would not be a contaminant of the soil. No organic constituents were detected in the 11 soil samples collected from beneath the Building 234 Wet Chemistry Cell, and no organics constituents were detected above the regulatory threshold in any of the seven soil samples from the area around the Building 110 underground waste tank (References I053, U043). The F-listed solvent tetrachloroethylene was detected in one of two composite soil samples from beneath Building 234 in trace amounts (0.042 mg/L). The soil from Building 234 in this waste stream is from beneath the Wet Chemistry Cell, but the sample that contained tetrachloroethylene was collected from other locations beneath and around Building 234, not under the Wet Chemistry Cell (Reference C122). Tetrachloroethylene was not used in the Building 234 Wet Chemistry Cell or any other part of the MOX fuel production process, nor was it used in the decommissioning process. However, at one time this solvent was used in a maintenance facility located elsewhere on the NFS site and has also been detected in groundwater samples up-gradient from Building 234. The source of the tetrachloroethylene in the groundwater may be from its use in off-site facilities and may be the source of contamination for the sampled soil (Reference C309). Even though tetrachloroethylene was detected in a soil sample collected from areas in Building 234 that are not part of this soil waste stream, OR-NFS-CH-SOIL will be assigned EPA hazardous waste number F002. This is because tetrachloroethylene was found in site groundwater and was historically a common industry solvent. And because it was found in groundwater, it is assumed that soil originating anywhere on the NFS site could be contaminated with tetrachloroethylene. Also, the fact that F-listed hazardous waste numbers are assigned

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR013
AK # [b]	Source Doc. Page #[c]	AK Information Summary
		based on process knowledge and are not concentration-based led to this conservative assignment. Also, because debris waste stream OR-NFS-CH-HET-A includes drums containing small amounts of soil, EPA hazardous waste number F002 for tetrachloroethylene is assigned to this waste stream. Analytical data for samples collected in 1993 from beneath the Wet Cell prior to the initial 1993 excavation, which best represent the soil from the initial phase of decommissioning in this waste stream, had not been located until recently. No organic constituents were detected in these three soil samples (Reference P1402). However, as described in Section C4-3b of the WIPP-WAP, "if different sources of information indicate different hazardous wastes are present, then sites shall include all sources of information in its records and may choose to either conservatively assign hazardous waste numbers or assign only those numbers deemed appropriate and consistent with RCRA requirements." Therefore, waste streams OR-NFS-CH-SOIL and OR-NFS-CH-HET-A will retain EPA hazardous waste number F002 for tetrachloroethylene.

Source Document Data Limitations (if any):

1. None.

Acceptable Knowlege Expert:

Travis Smith _____ Date: 11/18/2013
Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution (NFS Soil and Debris EPA Hazardous Waste Numbers)

Waste Stream Number(s): OR-NFS-SOIL, OR-NFS-CH-HET-A

Waste Stream Description: Soil and debris waste from NFS

AK Documentation Type: ☒TRU Waste Management Program Information ☒Waste Stream Specific Information ☒Supporting Info.

AK Source Document Discrepancy Form Tracking Number: **DR013, Revision 1**

Tracking #	*Category* [a]	*Title*	*Doc/Rev #*	*Author*	*Publisher*	*Date*	*Page #*
N/A	Pub.	Central Characterization Project Acceptable Knowledge Summary Report For Nuclear Fuel Services Contact-Handled Transuranic Waste Stored at Oak Ridge National Laboratory, Waste Streams OR-NFS-CH-HET-A and OR-NFS-CH-SOIL	CCP-AK-ORNL-001, Rev. 4	CCP	N/A	5/26/09	33, 34, 48, 49
C122	Corr.	Building 234 Characterization Results, Memo to Heather Little	DCM-03-18, 44T-99-0436, GPC-99-013	G. Craig	N/A	9/30/99	6 of 11
C309	Corr.	Record of Communication. Subject: NFS Soil Sampling/Analysis Data and Tetrachloroethylene Use.	N/A	J. Harrison	N/A	6/4/08	All
I053	Unpub.	KAPL-TN Waste Profile for NFS Building 234 Soil	44G-03-1050, WST-20, JWP-03-009	J. Pugh	N/A	9/11/03	Attachment 3
M003	Unpub.	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork	See title	ORNL/NFS	N/A	Various	X10C0506154
M075	Unpub.	TWPC Contact-Handled Waste Repackaging Forms	Attachment D	EnergX	N/A	Various	X10C0506154
M132	Unpub.	Evaluation of Additional Containers for Waste Stream OR-NFS-CH-SOIL	N/A	J. Harrison	N/A	9/24/08	1

Tracking #	Category [a]	Title	Doc/Rev #	Author	Publisher	Date	Page #
P273	Pub.	Nuclear Fuel Services, Inc., Waste Certification Plan for Transuranic Waste	28G-91-001, DCM-03-05	EcoTek	N/A	7/91, 2/92, 11/92	Appendix A, Pg 10
P432	Pub.	TRU Waste Processing Center Documented Safety Analysis	CM-R-AD-001, Revs. 15, 16, 17	EnergX	N/A	10/31/07 12/20/07 10/24/08	Sec. 2.5.2.1
P1402	Pub.	234 Wet Cell Characterization Summary	DCM-03-017-002	M. Wetherill	N/A	5/28/10	Reference 1
U043	Unpub.	Final Report - Waste Characterization of Wastes Generated from D&D Activity; Buildings 110 and 234 on the NFS Site in Erwin, Tennessee	N/A	Martin Marietta Energy Systems, Inc.	N/A	1/31/92	Lab tank contents

Nature of Discrepancy: NFS characterized the soil (waste stream OR-NFS-CH-SOIL) and debris (waste stream OR-NFS-CH-HET-A) as nonhazardous waste, and ORNL has continued to manage the soil and debris as nonhazardous waste since receiving it from NFS. The majority of the AK documentation reviewed supports this nonhazardous characterization, but there is evidence that the soil may be an F-listed hazardous waste. Debris waste stream OR-NFS-CH-HET-A includes drums containing small amounts of soil. In addition to being F-listed, the S5000 debris waste stream OR-NFS-CH-HET-A is assigned metal EPA hazardous waste numbers D006 (cadmium), D008 (lead), D009, mercury, and D011 (silver), and even though both the soil and debris waste streams originated from the same locations, these metal codes do not apply to OR-NFS-CH-SOIL. See DR001 for additional information on metals in debris waste stream OR-NFS-CH-HET-A.

Resolution:

Toxicity Characteristic Metal EPA Hazardous Waste Numbers

The sources for the metal codes assigned to S5000 debris waste stream OR-NFS-CH-HET-A is as follows:
D006 – Cadmium in paint and cadmium-coated hand tools.
D008 – Solder in circuit boards contained in electrical equipment.
D009 – Alkaline batteries, cleanup of mercury from a regulator gauge discovered on the bottom of a glovebox, and Building 110 tank contents.
D011 – Solder in circuit boards contained in electrical equipment.

Both the debris and soil waste streams originated primarily from decommissioning of Building 234. The debris was from within the building and concrete from the building floor, and the soil was from beneath the floor. Other sources contributing to both waste streams were the excavation of waste from the NFS burial ground (1 box) and excavation of the Building 110 underground tank. The drums of soil originating from beneath Building 234 and the Building 110 tank contain only soil, rock, and absorbent. Therefore, the sources for D006, D008, D009, and D011 in the debris waste stream would not apply to the soil waste stream. In addition, NFS sampled and analyzed soil samples from beneath Building 234 and from the area surrounding the Building 110 tank. No metals were detected above the regulatory threshold level (RTL) in any of these samples.

The only question is whether the 1 box (X10C0506154) from excavation of the NFS burial ground could contain these metals above regulatory levels. NFS did not sample the soil from the area around the waste generated from excavation of the burial ground. The container paperwork completed by NFS for the box indicated it contained both soil and debris (M003). The soil was interstitial soil from the burial ground (M132). The TWPC recently repackaged the waste in this box into 30 drums and segregated the soil into 5 of these 30 drums (M075). Because of this segregation, the sources for D006, D008, and D011 in the debris waste stream would not apply to this waste. Alkaline batteries containing mercury would also not apply to the soil. The other two sources for mercury (i.e., gauges and tank contents) are possible sources if these materials were disposed of in the NFS burial ground. Three samples were collected from the contents of the Building 110 tank. In two of the samples, all metals were below the RTL, and in the third sample mercury was detected right at the RTL (U043). So overall the tank contents would not be hazardous for mercury. In addition, soil samples from around the tank were below the RTL so one could surmise that if the soil from the burial ground was contaminated with the tank contents, it would be diluted to a point below the RTL. The TWPC uses amalgamating agents for treatment of mercury (P432). The repack forms for the debris waste from the X10C0506154 box do not identify any treated mercury nor do they identify equipment or other items that would have contained mercury (M075). NFS also consistently identified and characterized waste with mercury above the RTL as hazardous and assigned D009. This one box was characterized by NFS as nonhazardous waste (M003). For these reasons, EPA hazardous waste numbers D006, D008, D009, and D011 are not assigned to OR-NFS-CH-SOIL.

F-Listed EPA Hazardous Waste Numbers

The only listed solvents identified in the MOX fuel production process were methylene chloride and trichlorotrifluoroethane contained in a binder material; however, these solvents do not meet the definition of an F-listed waste (Reference P273). In addition, this binder material would not be a contaminant of the soil.

No organic constituents were detected in the 11 soil samples collected from beneath the Building 234 Wet Chemistry Cell, and no organics constituents were detected above the regulatory threshold in any of the seven soil samples from the area around the Building 110 underground waste tank (References I053, U043). The F-listed solvent tetrachloroethylene was detected in one of two composite soil samples from beneath Building 234 in trace amounts (0.042 mg/L). The soil from Building 234 in this waste stream is from beneath the Wet Chemistry Cell, but the sample that contained tetrachloroethylene was collected from other locations beneath and around Building 234, not under the Wet Chemistry Cell (Reference C122). Tetrachloroethylene was not used in the Building 234 Wet Chemistry Cell or any other part of the MOX fuel production process, nor was it used in the decommissioning process. However, at one time this solvent was used in a maintenance facility located elsewhere on the NFS site and has also been detected in groundwater samples up-gradient from Building 234. The source of the tetrachloroethylene in the groundwater may be from its use in off-site facilities and may be the source of contamination for the sampled soil (Reference C309).

Even though tetrachloroethylene was detected in a soil sample collected from areas in Building 234 that are not part of this soil waste stream, OR-NFS-CH-SOIL will be assigned EPA hazardous waste number F002. This is because tetrachloroethylene was found in site groundwater and was historically a common industry solvent. And because it was found in groundwater, it is assumed that soil originating anywhere on the NFS site could be contaminated with tetrachloroethylene. Also, the fact that F-listed hazardous waste numbers are assigned based on process knowledge and are not concentration-based led to this conservative assignment. Also, because debris waste stream OR-NFS-CH-HET-A includes drums containing small amounts of soil, EPA hazardous waste number F002 for tetrachloroethylene is assigned to this waste stream.

Analytical data for samples collected in 1993 from beneath the Wet Cell prior to the initial 1993 excavation, which best represent the soil from the initial phase of decommissioning in this waste stream, had not been located until recently. No organic constituents were detected in these three soil samples (Reference P1402). However, as described in Section C4-3b of the WIPP-WAP, "if different sources of information indicate different hazardous wastes are present, then sites shall include all sources of information in its records and may choose to either conservatively assign hazardous waste numbers or assign only those numbers deemed appropriate and consistent with RCRA requirements." Therefore, waste streams OR-NFS-CH-SOIL and OR-NFS-CH-HET-A will retain EPA hazardous waste number F002 for tetrachloroethylene.

Discrepancy Resolved: ☒ Yes ☐ No

Acceptable Knowledge Expert: Jeff Harrison / Jeff Harrison Date: 1/24/11
Print Sign

Site Project Manager: Rich Kantrowitz / Rich Kantrowitz Date: 1/24/11
Print Sign

[a] Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

DIVIDER

PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR025
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☐ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☑ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Discrepancy Resolution – Waste Stream OR-ISTP-CH-HET Generation Location Discrepancies	
Source Document Reference Information (author(s), document and revision number, date, publisher): Jeff Harrison, DR025, NA, 02/22/2011, Tech Specs	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
WS2, WS6, S9	Throughout	Nature of Discrepancy: Several drums have been identified where the generation building in the eMWaste database is incorrect, the UCN-2822 form is incorrect, or there are multiple generation buildings listed on the UCN-2822 form but only one building identified in the eMWaste database. Resolution: X10C9309217: The UCN-2822 form identifies Building 5505 as the origin of the waste (M191). A data log sheet attached to the UCN-2822 says the waste is from Room 45 of Building 5505. However, according to the Trabalka report, given the small quantities of TRU isotopes involved, few NMIT forms were required for Building 5505 waste for meeting NMC&A requirements for waste disposal. With one exception, the Project Numbers on the available NMIT forms from Building 5505 are F-KC-0100-000 (BES-General ORNL, ER) and/or F-KC-0100-003 (Research Materials Collection, BES, ER), and their precursors. The one exception is box X10C9309217 (ATN-3161). The NMIT forms attached to the UCN-2822 form for the box carry Project Numbers relating exclusively to Isotopes-related activities: Research Materials Collection, and Isotopes Sales. Equipment was moved from the 3038 IRML facility to Buildings 5505 and 9204-3 following the shutdown of most of the Isotopes facilities at ORNL circa 1990. However, a planned occupation of part of Building 5505 by the IRML staff never took place, and the equipment was either moved to Building 9204-3 at the Y-12 Plant site or sent to WMO for disposition. It is therefore concluded that this box contains equipment that originated in Building 3038, transferred to Building 5505 but never used there, and then it was declared waste and packaged in Building 5505. X10C9400246: The UCN-2822 form identifies Building 3038 as the origin of the waste (M191). However, according to the Trabalka report, this waste originated in Building 3028 (U038). Trabalka simply says it is an apparent transcription error. An explanation as to why Trabalka believes it to be a transcription error is not given. The eMWaste database (M198) was revised to identify Building 3028 as the generation facility. Since both Building 3028 and 3038 are Isotopes Programs facilities included in waste stream OR-ISTP-CH-HET, the basis for the transcription error is less critical. It is assumed that the waste is from Building 3028.

NTPC RECORDS ORIGINAL
DATE REC'D 12/30/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR025
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		X10C9312064: The eMWaste database identifies Building 3038 as the origin of the waste (M198). There are two UCN-2822 forms for this drum. One is for a 55-gallon drum from Building 3038. The other is for a lead pig containing Ra-226 sources from Building 4501 with a note that says the sources were put into this drum (M191). Building 4501 was reactor safety research facility operated by the Chemical Technology Division and was not an Isotopes Programs facility (U038), and the Ra-226 radiation sources would not have been manufactured in Building 4501. For these reasons, Building 4501 will not be listed in CCP-AK-ORNL-008 as a generation building. X10C9312756: The eMWaste database identifies Building 3038 as the origin of the waste (M198). The UCN-2822 form identifies Buildings 3028, 3033, and 3038 as origin buildings (M191). All three are Isotopes Programs facilities. X10C9312832: The eMWaste database identifies Building 3033A as the origin of the waste (M198). The UCN-2822 form identifies Buildings 3033A & 3047 as origin buildings (M191). Both are Isotopes Programs facilities. X10C9312891: The eMWaste database identifies Building 3038 as the origin of the waste (M198). The UCN-2822 form identifies Buildings 3028, 3033, and 3038 as origin buildings (M191). All three are Isotopes Programs facilities. X10C9313593: The eMWaste database identifies Building 3038 as the origin of the waste (M198). The UCN-2822 form for this drum also identifies Building 3038 as the origin building (M191). A log-in data sheet attached to the UCN-2822 has entries for 7 waste packages. Six of the packages are from Building 3038, and one is from Building 3030. The one item from Building 3030 is Am-241-Beryllium metal radiation sources. Building 3030 was an Isotopes Programs hot cell facility, but it is not believed that the Am-241-Beryllium sources were fabricated there (P101). Presumably these sources were being used in Building 3030, and then were taken to Building 3038 for disposal. Since Building 3030 is an Isotopes Programs facility, this building will be included in CCP-AK-ORNL-008 as a generation building. X10C9400243: The eMWaste database identifies Building 3033A as the origin of the waste (M198). The UCN-2822 form for this drum also identifies Building 3033A as the origin building (M191). However, several nuclear material transaction forms attached to the UCN-2822 indicate material from Building 3047. Both are Isotopes Programs facilities. X10C9902186: The eMWaste database identifies Building 3033A as the origin of the waste (M198). The UCN-2822 form for this drum identifies Building 3033 as the origin building (M191). A log-in data sheet attached to the UCN-2822 has entries for 15 waste packages. Ten of the packages are from Building 3033A, 2 are from Building 3047, and 3 are from Building 3038E. All three are Isotopes Programs facilities. X10C9902200: The eMWaste database identifies Building 3038 as the origin of the waste (M198). There are two UCN-2822 forms for this drum. One is for Building 3038, and the other is for Building 3027. There is also a log-in datasheet attached to the UCN-2822. One of the entries is for U-238/Th-232 material (M191). Building 3027 was a nuclear material storage vault operated by the Laboratory Protection Division and was not an Isotopes Programs facility (U038). For these reasons, Building 3027 will not be listed in CCP-AK-ORNL-008 as a generation building. X10CSATN03194: The eMWaste database identifies Building 3088 as the origin of the waste (M198). There is logsheet included with the UCN-2822 form that identifies Building 3038 as the originating facility (M191). Table 3-4 of the Trabalka report indicates that for ATN 3194, Building 3088 is a typographical error (U038). The correct facility is Building 3038 which is an Isotopes Programs facility.

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR025
AK # [b]	Source Doc. Page # [c]	AK Information Summary

Source Document Data Limitations (if any):

1. None.

Acceptable Knowlege Expert:

Travis Smith _____ Date: 12/11/2013
Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution (Generation Location Discrepancies)

Waste Stream Number(s): OR-ISTP-CH-HET

Waste Stream Description: Heterogeneous debris from the Isotopes Programs facilities

AK Documentation Type: ☐ TRU Waste Management Program Information ☒ Waste Stream Specific Information ☒ Supporting Info.

AK Source Document Discrepancy Form Tracking Number: **DR025**

Tracking #	*Category* [a]	*Title*	*Doc/Rev #*	*Author*	*Publisher*	*Date*	*Page #*
M191	Unpub.	UCN-2109 and UCN-2822 Forms and Associated Container Paperwork for Waste Stream OR-ISTP-CH-HET	NA	ORNL	NA	Various	Drum #s below
M198	Unpub.	ORNL EM Waste Database Query	DR-10-004417	ORNL	NA	8/30/10	Drum #s below
P101	Pub.	Isotopes White Paper, Volume II: Appendices	NA	NA	NA	1/1988	A-26, A-28
U038	Unpub.	ORNL TRU Waste Historical Survey; Volumes 1, 2, and 3, Draft	BJC/OR-395-V/1,2,3	J.R. Trabalka, et. al.	NA	11/2001	Pgs 4-3, 4-73, 4-80; Table B-18

Nature of Discrepancy: Several drums have been identified where the generation building in the *eMWaste* database is incorrect, the UCN-2822 form is incorrect, or there are multiple generation buildings listed on the UCN-2822 form but only one building identified in the *eMWaste* database.

Resolution:

X10C9309217: The UCN-2822 form identifies Building 5505 as the origin of the waste (M191). A data log sheet attached to the UCN-2822 says the waste is from Room 45 of Building 5505. However, according to the Trabalka report, given the small quantities of TRU isotopes involved, few NMIT forms were required for Building 5505 waste for meeting NMC&A requirements for waste disposal. With one exception, the Project Numbers on the available NMIT forms from Building 5505 are F-KC-0100-000 (BES-General ORNL, ER) and/or F-KC-0100-003 (Research Materials Collection, BES, ER), and their precursors. The one exception is box X10C9309217 (ATN-3161). The NMIT forms attached to the UCN-2822 form for the box carry Project Numbers relating exclusively to Isotopes-related activities: Research Materials Collection, and Isotopes Sales. Equipment was moved from the 3038 IRML facility to Buildings 5505 and 9204-3 following the shutdown of most of the Isotopes facilities at ORNL circa 1990. However, a planned occupation of part of Building 5505 by the IRML staff never took place, and the equipment was either moved to Building 9204-3 at the Y-12 Plant site or sent to WMO for disposition. It is therefore concluded that this box contains equipment that originated in Building 3038, transferred to Building 5505 but never used there, and then it was declared waste and packaged in Building 5505.

X10C9400246: The UCN-2822 form identifies Building 3038 as the origin of the waste (M191). However, according to the Trabalka report, this waste originated in Building 3028 (U038). Trabalka simply says it is an apparent transcription error. An explanation as to why Trabalka believes it to be a transcription error is not given. The *eMWaste* database (M198) was revised to identify Building 3028 as the generation facility. Since both Building 3028 and 3038 are Isotopes Programs facilities included in waste stream OR-ISTP-CH-HET, the basis for the transcription error is less critical. It is assumed that the waste is from Building 3028.

X10C9312064: The *eMWaste* database identifies Building 3038 as the origin of the waste (M198). There are two UCN-2822 forms for this drum. One is for a 55-gallon drum from Building 3038. The other is for a lead pig containing Ra-226 sources from Building 4501 with a note that says the sources were put into this drum (M191). Building 4501 was reactor safety research facility operated by the Chemical Technology Division and was not an Isotopes Programs facility (U038), and the Ra-226 radiation sources would not have been manufactured in Building 4501. For these reasons, Building 4501 will not be listed in CCP-AK-ORNL-008 as a generation building.

X10C9312756: The *eMWaste* database identifies Building 3038 as the origin of the waste (M198). The UCN-2822 form identifies Buildings 3028, 3033, and 3038 as origin buildings (M191). All three are Isotopes Programs facilities.

X10C9312832: The *eMWaste* database identifies Building 3033A as the origin of the waste (M198). The UCN-2822 form identifies Buildings 3033A & 3047 as origin buildings (M191). Both are Isotopes Programs facilities.

X10C9312891: The *eMWaste* database identifies Building 3038 as the origin of the waste (M198). The UCN-2822 form identifies Buildings 3028, 3033, and 3038 as origin buildings (M191). All three are Isotopes Programs facilities.

X10C9313593: The *eMWaste* database identifies Building 3038 as the origin of the waste (M198). The UCN-2822 form for this drum also identifies Building 3038 as the origin building (M191). A log-in data sheet attached to the UCN-2822 has entries for 7 waste packages. Six of the packages are from Building 3038, and one is from Building 3030. The one item from Building 3030 is Am-241-Beryllium metal radiation sources. Building 3030 was an Isotopes Programs hot cell facility, but it is not believed that the Am-241-Beryllium sources were fabricated there (P101). Presumably these sources were being used in Building 3030, and then were taken to Building 3038 for disposal. Since Building 3030 is an Isotopes Programs facility, this building will be included in CCP-AK-ORNL-008 as a generation building.

X10C9400243: The *eMWaste* database identifies Building 3033A as the origin of the waste (M198). The UCN-2822 form for this drum also identifies Building 3033A as the origin building (M191). However, several nuclear material transaction forms attached to the UCN-2822 indicate material from Building 3047. Both are Isotopes Programs facilities.

X10C9902186: The *eMWaste* database identifies Building 3033A as the origin of the waste (M198). The UCN-2822 form for this drum identifies Building 3033 as the origin building (M191). A log-in data sheet attached to the UCN-2822 has entries for 15 waste packages. Ten of the packages are from Building 3033A, 2 are from Building 3047, and 3 are from Building 3038E. All three are Isotopes Programs facilities.

X10C9902200: The *eMWaste* database identifies Building 3038 as the origin of the waste (M198). There are two UCN-2822 forms for this drum. One is for Building 3038, and the other is for Building 3027. There is also a log-in datasheet attached to the UCN-2822. One of the entries is for U-238/Th-232 material (M191). Building 3027 was a nuclear material storage vault operated by the Laboratory Protection Division and was not an Isotopes Programs facility (U038). For these reasons, Building 3027 will not be listed in CCP-AK-ORNL-008 as a generation building.

X10CSATN03194: The *eMWaste* database identifies Building 3088 as the origin of the waste (M198). There is logsheet included with the UCN-2822 form that identifies Building 3038 as the originating facility (M191). Table 3-4 of the Trabalka report indicates that for ATN 3194, Building 3088 is a typographical error (U038). The correct facility is Building 3038 which is an Isotopes Programs facility.

Discrepancy Resolved: ☒ Yes ☐ No

Acceptable Knowledge Expert: Jeff Harrison / Jeff Harrison Date: 2/22/11
Print Sign

Site Project Manager: Beverly Schrock / BSSchrock Date: 2/22/11
Print Sign

[a] Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

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PAGE

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR024
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☑ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Discrepancy Resolution – Waste Stream OR-ISTP-CH-HET EPA Hazardous Waste Number Assignment	
Source Document Reference Information (author(s), document and revision number, date, publisher): Jeff Harrison, DR024, NA, 02/22/2011, Tech Specs	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
PR7, WS2, WS12, S9	Throughout	Nature of Discrepancy: Approximately 90 percent of waste stream OR-ISTP-CH-HET was generated prior to ORNL implementing a RCRA program. All of this waste has subsequently been identified by ORNL as RCRA-regulated in the eMWaste database (M171). Most are identified as RCRA suspect (i.e., assumed to contain hazardous constituents but specific EPA hazardous waste numbers have not been assigned by ORNL). The RCRA suspect designation is the result of a 2003 EPA inspection in which EPA pointed out numerous instances of waste in storage that had not been properly characterized (M191). The RCRA suspect designation was removed from a few of the drums and EPA hazardous waste number D008 (lead) was assigned based on RTR conducted by ORNL several years ago (M171, U038). About 10 percent of waste stream OR-ISTP-CH-HET was generated since ORNL implemented a RCRA program. Several of these containers were assigned EPA hazardous waste number D006 (cadmium) and/or D008 (lead) by the generator. However, many were characterized by ORNL as nonhazardous waste (M171, M191). The characterization of several of the nonhazardous containers was changed and assigned EPA hazardous waste numbers D004 – D011, D022, F001, F002, F004, and F005 which correspond to waste stream ORFWENC-008 in the 2006 TWPC AK Summary Report (M171, U044). Resolution: TOXICITY CHARACTERISTIC (TC) METALS Barium (D005): Barium carbonate was used as a precipitation agent in Building 9204-3 to remove the Th-234 daughter from depleted uranium (P526). Cadmium (D006): Cadmium-plated copper was used in Building 9204-3 for neptunium oxide detector foils; see ATN-1537/X10C9400218 (U038). Cadmium was also used in Building 3038 as a coating for plutonium and uranium isotopes; see ATN-3040/X10X9902206 (U038). Cadmium shielding was identified in TRU waste from Building 3033-A; see ATN-3126/X10C9902186 (M191, U038). Cadmium is also common in small batteries in electronic equipment (11, M187).

NTPC RECORDS ORIGINAL
DATE REC'D 12/30/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR024
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		Chromium (D007): Chromium diuranium trinitride was identified in an Isotopes Programs facilities logbook (U587). Chromium was used in the study of uranium-chromium alloys by the Solid State Division and the Isotopes Section of the Operations Division (P225, P1363, U472). The Isotope Separations Section of the Chemical Technology Division conducted waste fixation studies on concrete specimens containing Cm-244. Chromium oxide was one of the components of the simulated waste solids solidified in concrete (P1361). The documentation does not indicate the building(s) where much of this work was done. However, the work described in the Solid State Division report was done by the IRML, and the IRML operated in Building 3038-E from 1977 to 1981 (P225, P1351). The Isotopes Section of the Operations Division operated in Buildings 3028, 3033A, 3038-W, 3047, and 9204-3 in the 1980s (P1351, P1363). The Isotope Separations Section of the Chemical Technology Division operated in Buildings 3028, 3033A, 3038, 3047, and 9204-3 after 1988 (P532, P1361). Lead (D008): Lead is most commonly found in the form of shielding such as bricks, foil, pigs, sheet, rubber glove lining, and leaded glass windows (P101, P289, P335, P348, P876, U038). Other sources of lead include lead-based paint chips and electronic equipment containing circuit boards (11, M187, M191, P335, U038). In addition, lead fluoride and lead indium phosphate were used in Pm-147 experiments (U473). Pm-147 is not a TRU isotope but was reported in drums of TRU waste (M171, M191). Mercury (D009): Mercury vapor lamps were used for lighting during hot cell operations (P289). Alkaline batteries also contain mercury (M187). Other mercury-containing devices (e.g., thermostats) have not been specifically identified in this waste stream, but have been found in other ORNL waste streams (Ref. 11). Nitric acid containing mercury nitrate was used in Building 9204-3 to dissolve uranium/aluminum alloy (P526). Mercury catalyzed nitric acid was evaluated by the Isotopes Section of the Operations Division as a method for dissolving reactor control plates to permit their incorporation into hydrofracture grouts for disposal. The documentation does not indicate the building(s) where this work was done; however, the Isotopes Section of the Operations Division operated in Buildings 3028, 3033A, 3038-W, 3047, and 9204-3 in the 1980s (P1351, P1363). Silver (D011): Electrical devices and equipment have been identified in numerous drums in this waste stream. Circuit boards in this equipment may contain silver solder (References 11, M187, M191, U038). Since analytical data are not available to demonstrate the concentrations of barium, cadmium, chromium, lead, mercury, and silver are less than the toxicity characteristic regulatory level, EPA hazardous waste numbers D005, D006, D007, D008, D009, and D011 are assigned to waste stream OR-ISTP-CH-HET. Arsenic (D004): EPA hazardous waste number D004 was assigned to Isotopes Programs facilities waste stream ORFWENC-008 in the TWPC AK Report compiled by Weston Solutions, Inc. in 2006 (U044). The source documents cited in the TWPC AK Report were reviewed, and it was determined that the arsenic was not associated with TRU waste generated in any of the Isotopes Programs facilities or was not used in these facilities. • Arsenic compounds were identified in a report on the history of ORNL from 1943 to 1963 in the sections on chemical research and solid state physics research. There is no indication that this research was done in an Isotopes Programs facility, and the work described was done before 1963. As-74 is discussed in the section on stable isotope production in the 86-inch cyclotron. As-74 would not be in TRU waste (P004). • Arsenic was used in geological studies including the mineralogy and geochemistry of waste interactions with RCRA hazardous metals. There is no indication that this hazardous waste technology research was done in an Isotopes Programs facility (P005). • The TWPC AK Report cites two Analytical Chemistry Division (ACD) progress reports as a

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR024
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		source for arsenic (P011, P133). The Isotopes Programs facilities were not operated by the ACD so these two reports are irrelevant. • The TWPC AK Report cites two Chemical Technology Division (CTD) progress reports for 1978 to 1979 and 1981 to 1983 as a source for arsenic (P020, P021). Building 9204-3 was operated by the CTD until late-1981, but the other Isotopes Programs facilities were not operated by the CTD until they were deactivated after 1988. These CTD reports identify arsenic used in basic science and technology research and nuclear waste management research (P020, P021). Neither of these would be associated with the calutron separations done in Building 9204-3 and is therefore irrelevant. • The TWPC AK Report cites a Chemistry Division (CD) progress report as a source for arsenic (P170). The Isotopes Programs facilities were not operated by the CD so this report is irrelevant. Selenium (D010): EPA hazardous waste number D010 was assigned to Isotopes Programs facilities waste stream ORFWENC-008 in the TWPC AK Report compiled by Weston Solutions, Inc. in 2006 (U044). The source documents cited in the TWPC AK Report were reviewed, and it was determined that the selenium was not associated with TRU waste generated in any of the Isotopes Programs facilities or was not used in these facilities. • Selenium was identified in a report on the history of ORNL from 1943 to 1963 in the section on calutron production improvements. The production of selenium isotopes would have been associated with stable isotope production in Building 9204-3 and would not be associated with the generation of TRU waste (P004). • Selenium was used in geological studies including the mineralogy and geochemistry of waste interactions with RCRA hazardous metals. There is no indication that this hazardous waste technology research was done in an Isotopes Programs facility (P005). • The TWPC AK Report cites an ACD progress report as a source for selenium (P011). The Isotopes Programs facilities were not operated by the ACD so this report is irrelevant. • The TWPC AK Report cites a CTD progress report for 1978 to 1979 as a source for selenium (P020). Building 9204-3 was operated by the CTD until late-1981, but the other Isotopes Programs facilities were not operated by the CTD until they were deactivated after 1988. This CTD report identifies selenium used in basic science and technology research. This research would not be associated with the calutron separations done in Building 9204-3 and is therefore irrelevant. Since arsenic and selenium were not identified in Isotopes Programs facilities TRU waste, EPA hazardous waste numbers D004 and D010 are not assigned to waste stream OR-ISTP-CH-HET. TOXICITY CHARACTERISTIC (TC) ORGANICS Carbon tetrachloride (D019): Carbon tetrachloride was used in the Building 9204-3 calutron separation process to covert an actinide oxide (e.g., plutonium, uranium, curium, thorium) to a chloride. The carbon tetrachloride was heated and the vapor was passed over the heated actinide oxide (P098, P348, P399, P526, P941, P1357). Chloroform (D022): Although its specific use was not stated, chloroform was identified as a major laboratory solvent used in Building 3047 (P1312). Since analytical data are not available to demonstrate the concentrations of these organics are less than the toxicity characteristic regulatory level, EPA hazardous waste numbers D019 and D022 are assigned to waste stream OR-ISTP-CH-HET. Benzene and trichloroethylene were used in the process that generated this waste stream. However, as described below, the more specific EPA hazardous waste numbers F002 and F005 has been assigned to this waste stream for these solvents, and therefore, EPA hazardous waste numbers D018 and D040 are not assigned to this waste stream.

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory		Source Document Tracking Number: DR024
AK # [b]	Source Doc. Page # [c]	AK Information Summary
		F-LISTED SOLVENTS F002: Trichloroethylene was identified in a logbook for Building 3047. This solvent was used to clean samples prior to acid etching. It is unclear whether the sample was an actinide material (U580). As a conservative measure, EPA hazardous waste number F002 is assigned. F005: Benzene was identified in a Building 3038 plutonium processing procedure. A solution of thenoyltrifluoroacetone and benzene was used for plutonium extraction (P762). Benzene was also identified as a major laboratory solvent used in Building 3047 although its specific use was not stated (P1312). Additionally, an Isotopes Programs facilities assessment report identified benzene as an example of a hazardous chemical used, but the specific building and use were not provided. Since plutonium extraction is a solvent use, EPA hazardous waste number F005 is assigned. Toluene was identified in a safety analysis report for Building 3047. This solvent was utilized only infrequently for maintenance activities such as hot cell window cleaning (P1316). Therefore, EPA hazardous waste number F005 is assigned. F001: As described in this Discrepancy Resolution, the F001-listed solvents carbon tetrachloride and trichloroethylene were used in Isotopes Programs facilities. EPA has provided a regulatory clarification that the F001-listing is only appropriate when the listed solvents are used in a large-scale degreasing operation such as cold cleaning or vapor degreasing on an industrial scale (Ref 10). These solvents were not used by the Isotopes Programs facilities for large-scale degreasing. Therefore, waste stream OR-ISTP-CH-HET is not an F001-listed hazardous waste for carbon tetrachloride and trichloroethylene. The F003-listed solvents acetone, methanol, and xylene were identified as potentially present in this waste stream as contaminants of debris waste (see Table 5-5 in CCP-AK-ORNI-008). However, F003-listed waste is listed solely for ignitability, and this waste stream does not exhibit the characteristic of ignitability because the solvents are not in liquid form. Therefore, this waste stream is not an F003-listed hazardous waste. F004: In the TWPC AK Report compiled by Weston, the basis for the F004 assignment is due to p-Cresol use (UQ44). However, its use was associated with sewage treatment studies by the CTO in 1974 (P096). Sewage treatment studies were not part of the Isotopes Programs facilities mission and would not have been conducted in any of their buildings. Therefore, waste stream OR-ISTP-CH-HET is not an F004-listed hazardous waste.

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR024
Source Document Data Limitations (if any): 1. None.	
Acceptable Knowlege Expert: Travis Smith _____ Date: 12/11/2013 Print /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution - EPA Hazardous Waste Numbers

Waste Stream Number(s): OR-ISTP-CH-HET

Waste Stream Description: Heterogeneous debris from the Isotopes Programs facilities

AK Documentation Type: ☒ TRU Waste Management Program Information ☒ Waste Stream Specific Information ☒ Additional Information

AK Source Document Discrepancy Form Tracking Number: **DR024**

Tracking #	*Category* [a]	*Title*	*Document #*	*Date*	*Page #*
10	Pub.	McCoy's RCRA Unraveled, Electronic Edition	NA	2004	247, 248
11	Pub.	Central Characterization Project Acceptable Knowledge Summary Report For Oak Ridge National Laboratory Radiochemical Engineering Development Center Contact-Handled Transuranic Waste, Waste Stream OR-REDC-CH-HET	CCP-AK-ORNL-002, Rev. 1	10/30/08	18, 43, 45, 46
M171	Unpub.	ORNL EM Waste Database Query	DR-10-000450	11/9/09	See below
M187	Unpub.	EnergX Repack Forms for Waste Stream OR-ISTP-CH-HET	NA	Various	Throughout
M191	Unpub.	UCN-2109 and UCN-2822 Forms and Associated Container Paperwork for Waste Stream OR-ISTP-CH-HET	NA	Various	Throughout
P004	Pub.	History of the Oak Ridge National Laboratory 1943 – 1963	63-8-75	8/23/63	174, 209, 255, 257
P005	Pub.	Oak Ridge National Laboratory Institutional Plan FY1982 – 1987	ORNUPPA-81/8	12/1981	36
P011	Pub.	Analytical Chemistry Division Annual Progress Report, Period Ending November 30, 1976	ORNL-5244	2/1977	Throughout
P020	Pub.	Chemical Technology Division Annual Progress Report Period Ending March 31, 1979	ORNL-5542	11/1979	53
P021	Pub.	Chemical Technology Division Progress Report for the Period April 1, 1981 to March 31, 1983	ORNL-5933	09/1983	9, 70
P096	Pub.	Chemical Technology Division Annual Progress Report for Period Ending March 31, 1974	ORNL-4966	8/1974	41, 42

Tracking #	Category [a]	Title	Document #	Date	Page #
P098	Pub.	Chemical Technology Division Annual Progress Report, for the Period April 1, 1979 to March 31, 1971	ORNL-5757	11/1981	122
P101	Pub.	Isotopes White Paper, Volume II: Appendices	NA	01/1988	A-13, 15
P133	Pub.	Analytical Chemistry Division Annual Progress Report for Period Ending December 31, 1980	ORNL-5738	5/1981	Throughout
P175	Pub.	Isotopes White Paper: Volume 1: Assessments of Selected Isotopes Circle Facilities, Evaluation of Isotope Processing Alternatives, and Funding Justification for LLW-CAT System for Isotopes Area	NA	12/1987	4
P225	Pub.	Solid State Division Annual Progress Report Period Ending December 31, 1975	ORNL-5135	05/1976	135, 138
P289	Pub.	Radioisotope Development Laboratory Building 3047 Hazards Report	ORNL-TM-946	03/1971	5, 21
P335	Pub.	Final Deactivation Report on the Radioactive Gas Processing Facility, Building 3033, and the Actinide Fabrication Facility, Building 3033A, at ORNL	ORNL/ER-419	9/24/97	7
P348	Pub.	Radiation Safety and Control for The Electromagnetic Isotope Separation of the Heavy Metals in Building 9204-3, Y-12 Plant, Including Operational Procedures and Facility Layouts	ORNL-TM-4013	3/1/73	40, 59
P399	Pub.	Isotope Program (5000) Progress Report For Quarter Ending December 31, 1969	ORNL-TM-2889	3/10/70	9
P526	Pub.	The Chemical Processing Procedures of Radioactive Isotopes in the Special Separations Program	NA	05/1983	20, 27, 29, 30, 31, B-1 pg. 4
P532	Pub.	Resource Requirements for A Viable Isotopes Program at Oak Ridge National Laboratory	NA	8/19/88	Throughout
P762	Pub.	Internal Procedures / Radioisotope Development and Technology: Building 3038	IP-205-A IP-205-B	11/18/86 11/19/86	pg. 2 pg. 1

Tracking #	Category [a]	Title	Document #	Date	Page #
P876	Pub.	Procedure for Transuranic Waste Handling in Buildings 3019 Complex, 3028, 3033 Annex, and 3047	RTS-025	11/2/93	22 – 25
P941	Pub.	Electromagnetic Isotope Separations - Special Separations Program	NA	2/64 – 4/64	Pu process
P1312	Pub.	Phase I Safety Documentation The Radioisotope Development Laboratory - Building 3047	HS/3047/F/RT-16	8/7/95	7 – 9
P1316	Pub.	Safety Analysis Report for The Radioisotope Development Laboratory Building 3047	ORNL/CTD/SAR/3047/F/RT-16	1999	3-11
P1351	Pub.	Radioactive Operations Committee Reviews of Isotopes Facilities, Buildings 3028, 3029, 3030, 3031, 3032, 3033A, 3038, 3047, and 9204-3	Multiple	1962 – 1988	Throughout
P1357	Pub.	Isotopes Separations Progress Report for 1976	Multiple	07/1976-12/1976	8 (8/15/76)
P1361	Pub.	Isotope Separations Progress Reports for 1980	Multiple	01/1980-12/1980	7 (3/19/80) 7, 8 (4/22/80) 9 (12/23/80) 11 (1/19/81)
P1363	Pub.	Isotopes Section Progress Reports for 1982	Multiple	01/1982-12/1982	8 (4/22/82) 26 (9/27/82)
U038	Unpub.	ORNL TRU Waste Historical Survey	BJC/OR-395 Vols. 1,2,3	9/2001	4-47, Tables B-10, B-12, B-18, B-19, B-20, B-41, B-43
U044	Unpub.	Acceptable Knowledge Summary Report for Oak Ridge National Laboratory Contact-Handled TRU Debris Waste Facility Maintenance Operations	AK-ORNL-001, Revs. 3A, 4	5/24/06 6/19/06	112
U472	Unpub.	RTS Facility Logbook; Buildings 3038, 3038E, 3033A, 7025, 3047	Misc/1974/0001	5/8/74 – 7/2/80	39

Tracking #	Category [a]	Title	Document #	Date	Page #
U473	Unpub.	RTS Facility Logbook; Buildings 3038, 3038E, 3033A, 7025, 3047	Misc/1986/0001	10/7/87 - 4/29/87	20
U580	Unpub.	Logbook, Building 3047. P.R. Kuehn, Isotopes Facilities	NA	5/28/75 - 9/3/76	Between 97, 98
U587	Unpub.	Logbook - RTS Facility Buildings 3038, 3038E, 3033A, 7025, 3047	Misc/1975/0001	9/23/75 - 11/11/77	9

Nature of Discrepancy: Approximately 90 percent of waste stream OR-ISTP-CH-HET was generated prior to ORNL implementing a RCRA program. All of this waste has subsequently been identified by ORNL as RCRA-regulated in the *eMWaste* database (M171). Most are identified as RCRA suspect (i.e., assumed to contain hazardous constituents but specific EPA hazardous waste numbers have not been assigned by ORNL). The RCRA suspect designation is the result of a 2003 EPA inspection in which EPA pointed out numerous instances of waste in storage that had not been properly characterized (M191). The RCRA suspect designation was removed from a few of the drums and EPA hazardous waste number D008 (lead) was assigned based on RTR conducted by ORNL several years ago (M171, U038).

About 10 percent of waste stream OR-ISTP-CH-HET was generated since ORNL implemented a RCRA program. Several of these containers were assigned EPA hazardous waste number D006 (cadmium) and/or D008 (lead) by the generator. However, many were characterized by ORNL as nonhazardous waste (M171, M191). The characterization of several of the nonhazardous containers was changed and assigned EPA hazardous waste numbers D004 – D011, D022, F001, F002, F004, and F005 which correspond to waste stream ORFWENC-008 in the 2006 TWPC AK Summary Report (M171, U044).

Resolution:

TOXICITY CHARACTERISTIC (TC) METALS

Barium (D005): Barium carbonate was used as a precipitation agent in Building 9204-3 to remove the Th-234 daughter from depleted uranium (P526).

Cadmium (D006): Cadmium-plated copper was used in Building 9204-3 for neptunium oxide detector foils; see ATN-1537/X10C9400218 (U038). Cadmium was also used in Building 3038 as a coating for plutonium and uranium isotopes; see ATN-3040/X10X9902206 (U038). Cadmium shielding was identified in TRU waste from Building 3033-A; see ATN-3126/X10C9902186 (M191, U038). Cadmium is also common in small batteries in electronic equipment (11, M187).

Chromium (D007): Chromium diuranium trinitride was identified in an Isotopes Programs facilities logbook (U587). Chromium was used in the study of uranium-chromium alloys by the Solid State Division and the Isotopes Section of the Operations Division (P225, P1363, U472). The Isotope Separations Section of the Chemical Technology Division conducted waste fixation studies on concrete specimens containing Cm-244. Chromium oxide was one of the components of the simulated waste solids solidified in concrete (P1361). The documentation does not indicate the building(s) where much of this work was done. However, the work described in the Solid State Division report was done by the IRML, and the IRML operated in Building 3038-E from 1977 to 1981 (P225, P1351). The Isotopes Section of the Operations Division operated in Buildings 3028, 3033A, 3038-W, 3047, and 9204-3 in the 1980s (P1351, P1363). The Isotope Separations Section of the Chemical Technology Division operated in Buildings 3028, 3033A, 3038, 3047, and 9204-3 after 1988 (P532, P1361).

Lead (D008): Lead is most commonly found in the form of shielding such as bricks, foil, pigs, sheet, rubber glove lining, and leaded glass windows (P101, P289, P335, P348, P876, U038). Other sources of lead include lead-based paint chips and electronic equipment containing circuit boards (11, M187, M191, P335, U038). In addition, lead fluoride and lead indium phosphate were used in Pm-147 experiments (U473). Pm-147 is not a TRU isotope but was reported in drums of TRU waste (M171, M191).

Mercury (D009): Mercury vapor lamps were used for lighting during hot cell operations (P289). Alkaline batteries also contain mercury (M187). Other mercury-containing devices (e.g., thermostats) have not been specifically identified in this waste stream, but have been found in other ORNL waste streams (Ref. 11). Nitric acid containing mercury nitrate was used in Building 9204-3 to dissolve uranium/aluminum alloy (P526). Mercury catalyzed nitric acid was evaluated by the Isotopes Section of the Operations Division as a method for dissolving reactor control plates to permit their incorporation into hydrofracture grouts for disposal. The documentation does not indicate the building(s) where this work was done; however, the Isotopes Section of the Operations Division operated in Buildings 3028, 3033A, 3038-W, 3047, and 9204-3 in the 1980s (P1351, P1363).

Silver (D011): Electrical devices and equipment have been identified in numerous drums in this waste stream. Circuit boards in this equipment may contain silver solder (References 11, M187, M191, U038).

Since analytical data are not available to demonstrate the concentrations of barium, cadmium, chromium, lead, mercury, and silver are less than the toxicity characteristic regulatory level, EPA hazardous waste numbers D005, D006, D007, D008, D009, and D011 are assigned to waste stream OR-ISTP-CH-HET.

Arsenic (D004): EPA hazardous waste number D004 was assigned to Isotopes Programs facilities waste stream ORFWENC-008 in the TWPC AK Report compiled by Weston Solutions, Inc. in 2006 (U044). The source documents cited in the TWPC AK Report were reviewed, and it was determined that the arsenic was not associated with TRU waste generated in any of the Isotopes Programs facilities or was not used in these facilities.

- Arsenic compounds were identified in a report on the history of ORNL from 1943 to 1963 in the sections on chemical research and solid state physics research. There is no indication that this research was done in an Isotopes Programs facility, and the work described was done before 1963. As-74 is discussed in the section on stable isotope production in the 86-inch cyclotron. As-74 would not be in TRU waste (P004).
- Arsenic was used in geological studies including the mineralogy and geochemistry of waste interactions with RCRA hazardous metals. There is no indication that this hazardous waste technology research was done in an Isotopes Programs facility (P005).
- The TWPC AK Report cites two Analytical Chemistry Division (ACD) progress reports as a source for arsenic (P011, P133). The Isotopes Programs facilities were not operated by the ACD so these two reports are irrelevant.
- The TWPC AK Report cites two Chemical Technology Division (CTD) progress reports for 1978 to 1979 and 1981 to 1983 as a source for arsenic (P020, P021). Building 9204-3 was operated by the CTD until late-1981, but the other Isotopes Programs facilities were not operated by the CTD until they were deactivated after 1988. These CTD reports identify arsenic used in basic science and technology research and nuclear waste management research (P020, P021). Neither of these would be associated with the calutron separations done in Building 9204-3 and is therefore irrelevant.
- The TWPC AK Report cites a Chemistry Division (CD) progress report as a source for arsenic (P170). The Isotopes Programs facilities were not operated by the CD so this report is irrelevant.

Selenium (D010): EPA hazardous waste number D010 was assigned to Isotopes Programs facilities waste stream ORFWENC-008 in the TWPC AK Report compiled by Weston Solutions, Inc. in 2006 (U044). The source documents cited in the TWPC AK Report were reviewed, and it was determined that the selenium was not associated with TRU waste generated in any of the Isotopes Programs facilities or was not used in these facilities.

- Selenium was identified in a report on the history of ORNL from 1943 to 1963 in the section on calutron production improvements. The production of selenium isotopes would have been associated with stable isotope production in Building 9204-3 and would not be associated with the generation of TRU waste (P004).
- Selenium was used in geological studies including the mineralogy and geochemistry of waste interactions with RCRA hazardous metals. There is no indication that this hazardous waste technology research was done in an Isotopes Programs facility (P005).

- The TWPC AK Report cites an ACD progress report as a source for selenium (P011). The Isotopes Programs facilities were not operated by the ACD so this report is irrelevant.
- The TWPC AK Report cites a CTD progress report for 1978 to 1979 as a source for selenium (P020). Building 9204-3 was operated by the CTD until late-1981, but the other Isotopes Programs facilities were not operated by the CTD until they were deactivated after 1988. This CTD report identifies selenium used in basic science and technology research. This research would not be associated with the calutron separations done in Building 9204-3 and is therefore irrelevant.

Since arsenic and selenium were not identified in Isotopes Programs facilities TRU waste, EPA hazardous waste numbers D004 and D010 are not assigned to waste stream OR-ISTP-CH-HET.

TOXICITY CHARACTERISTIC (TC) ORGANICS

Carbon tetrachloride (D019): Carbon tetrachloride was used in the Building 9204-3 calutron separation process to covert an actinide oxide (e.g., plutonium, uranium, curium, thorium) to a chloride. The carbon tetrachloride was heated and the vapor was passed over the heated actinide oxide (P098, P348, P399, P526, P941, P1357).

Chloroform (D022): Although its specific use was not stated, chloroform was identified as a major laboratory solvent used in Building 3047 (P1312).

Since analytical data are not available to demonstrate the concentrations of these organics are less than the toxicity characteristic regulatory level, EPA hazardous waste numbers D019 and D022 are assigned to waste stream OR-ISTP-CH-HET.

Benzene and trichloroethylene were used in the process that generated this waste stream. However, as described below, the more specific EPA hazardous waste numbers F002 and F005 has been assigned to this waste stream for these solvents, and therefore, EPA hazardous waste numbers D018 and D040 are not assigned to this waste stream.

F-LISTED SOLVENTS

F002: Trichloroethylene was identified in a logbook for Building 3047. This solvent was used to clean samples prior to acid etching. It is unclear whether the sample was an actinide material (U580). As a conservative measure, EPA hazardous waste number F002 is assigned.

F005: Benzene was identified in a Building 3038 plutonium processing procedure. A solution of thenoyltrifluoroacetone and benzene was used for plutonium extraction (P762). Benzene was also identified as a major laboratory solvent used in Building 3047 although its specific use was not stated (P1312). Additionally, an Isotopes Programs facilities assessment report identified benzene as an example of a hazardous chemical used, but the specific building and use were not provided (P175). Since plutonium extraction is a solvent use, EPA hazardous waste number F005 is assigned.

Toluene was identified in a safety analysis report for Building 3047. This solvent was utilized only infrequently for maintenance activities such as hot cell window cleaning (P1316). Therefore, EPA hazardous waste number F005 is assigned.

F001: As described in this Discrepancy Resolution, the F001-listed solvents carbon tetrachloride and trichloroethylene were used in Isotopes Programs facilities. EPA has provided a regulatory clarification that the F001-listing is only appropriate when the listed solvents are used in a large-scale degreasing operation such as cold cleaning or vapor degreasing on an industrial scale (Ref 10). These solvents were not used by the Isotopes Programs facilities for large-scale degreasing. Therefore, waste stream OR-ISTP-CH-HET is not an F001-listed hazardous waste for carbon tetrachloride and trichloroethylene.

F003: The F003-listed solvents acetone, methanol, and xylene were identified as potentially present in this waste stream as contaminants of debris waste (see Table 5-5 in CCP-AK-ORNL-008). However, F003-listed waste is listed solely for ignitability, and this waste stream does not exhibit the characteristic of ignitability because the solvents are not in liquid form. Therefore, this waste stream is not an F003-listed hazardous waste.

F004: In the TWPC AK Report compiled by Weston, the basis for the F004 assignment is due to p-Cresol use (U044). However, its use was associated with sewage treatment studies by the CTD in 1974 (P096). Sewage treatment studies were not part of the Isotopes Programs facilities mission and would not have been conducted in any of their buildings. Therefore, waste stream OR-ISTP-CH-HET is not an F004-listed hazardous waste.

Discrepancy Resolved: ☒ Yes ☐ No

Acceptable Knowledge Expert: Jeff Harrison / Jeff Harrison — Date: 2/22/11
Print / Sign

Site Project Manager: Beverly Schrock / BSSchrock — Date: 2/22/11
Print / Sign

[a] Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR022
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☑ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Discrepency Resolution re: OR-NFS-CH-SOIL and OR-NFS-CH-HET-A Waste Stream Designation	
Source Document Reference Information (author(s), document and revision number, date, publisher): Jeff Harrison, NA, NA, 03/05/10	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR7, WS1, WS6, WS9, S9	Throughout	AK originally identified drum XIOC0506047 as soil (S4000), but RTR (BDR# OR-RTR6-0103) determined that it was predominantly debris (see NCR-ORNL-0652-08). An AK Re-evaluation was written 1/8/09 and a discrepancy resolution (DR010) was also written to move this drum from OR-NFS-CH-SOIL to OR-NFS-CH-HET. This drum was processed through RTR once again as debris (BDR# OR-RTR6-0233). It was subsequently determined that this drum did contain greater than 50%, by volume, soil as was originally thought (se NCR-ORNL-O5O5-10).

Source Document Data Limitations (if any):

1. None.

Acceptable Knowlege Expert:

Travis Smith _____ Date: 11/18/2013
Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

NTPC RECORDS ORIGINAL
DATE REC'D 12/18/13

Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution (X10C0506047)

Waste Stream Number(s): OR-NFS-CH-SOIL, OR-NFS-CH-HET-A

Waste Stream Description: Contaminated NFS soil and debris waste stored at ORNL

AK Documentation Type: ☒TRU Waste Management Program Information ☒Waste Stream Specific Information ☒Supporting Info.

AK Source Document Discrepancy Form Tracking Number: **DR022**

Tracking #	*Category*	*Title*	*Doc/Rev #*	*Author*	*Publisher*	*Date*	*Page #*
N/A	N/A	Acceptable Knowledge Re-evaluation Checklist, Waste Streams OR-NFS-CH-SOIL and OR-NFS-CH-HET	CCP-TP-005, Rev. 18, Attachment 10	CCP	N/A	1/8/09	All
N/A	N/A	Acceptable Knowledge Re-evaluation Checklist, Waste Streams OR-NFS-CH-SOIL and OR-NFS-CH-HET-A (X10C0506047)	CCP-TP-005, Rev. 18, Attachment 10	CCP	N/A	3/5/10	All
N/A	N/A	CCP Nonconformance Report	NCR-ORNL-0652-08, Rev. 2	CCP	N/A	6/25/09	All
N/A	N/A	CCP Nonconformance Report	NCR-ORNL-0505-10, Rev. 1	CCP	N/A	3/4/10	All
N/A	N/A	CCP Radiography Data Sheet	OR-RTR6-0103	CCP	N/A	9/2/08	X10C0506047
N/A	N/A	CCP Radiography Data Sheet	OR-RTR6-0233	CCP	N/A	8/27/09	X10C0506047
DR010	Disc.	Acceptable Knowledge Source Document Discrepancy Resolution, Incorrect Waste Stream Assignment for Soil Waste Containers	CCP-TP-005, Rev. 18, Attachment 11	CCP	N/A	1/12/09	All
M003	Unpub.	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork	See title	NFS	N/A	9/3/01	X10C0506047

Discrepancy Resolution DR022
Incorrect Waste Stream Assignment for X10C0506047

NTPC RECORDS ORIGINAL
DATE REC'D 12/18/13

Nature of Discrepancy: AK originally identified drum X10C0506047 as soil (S4000), but RTR (BDR# OR-RTR6-0103) determined that it was predominantly debris (see NCR-ORNL-0652-08). An AK Re-evaluation was written 1/8/09 and a discrepancy resolution (DR010) was also written to move this drum from OR-NFS-CH-SOIL to OR-NFS-CH-HET. This drum was processed through RTR once again as debris (BDR# OR-RTR6-0233). It was subsequently determined that this drum did contain greater than 50%, by volume, soil as was originally thought (se NCR-ORNL-0505-10).

Resolution: As described in Acceptable Knowledge Re-evaluation Checklist for X10C0506047 dated 3/5/10, this drum is being moved back to waste stream OR-NFS-CH-SOIL.

Discrepancy Resolved: ☒ Yes ☐ No

Acceptable Knowledge Expert: Jeff Harrison / Jeff Harrison Date: 3/5/10
Print Sign

Site Project Manager: Richard Kantrowitz / Richard Kantrowitz Date: 3/5/10
Print Sign

[a] Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

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Attachment 3 - Acceptable Knowledge Source Document Summary

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR010
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☑ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: Discrepancy Resolution re: Incorrect Waste Stream Assignment of Soil Waste Containers	
Source Document Reference Information (author(s), document and revision number, date, publisher): Jeff Harrison, DR010, NA, 01/12/2009	

AK # [b]	Source Doc. Page #[c]	AK Information Summary
PR5, PR7, WS1, WS2, WS3, WS4, WS6, WS8, WS9, WS12, S9	All	AK identified 7 drums as soil (S4000), but RTR has determined that 5 of the drums (NFS0821, NFS0839, NFS0840, NFS0927, and X10C0506047) are predominantly debris waste (S5000) and 2 of the drums (NFS0816 and NFS0817) are predominantly absorbent (S3000). Because drums NFS0821, NFS0839, NFS0840, NFS0927, and X10C0506047 are predominantly debris waste, they are potential candidates to be included in waste stream OR-NFS-CH-HET. RTR describes these 5 drums as containing broken concrete, cinder block, reinforcement wire (i.e., rebar), rocks, scrap metal, absorbent, wire, a metal nut, nails, plastic bags, and plastic jars with soil and rock samples. These waste materials are identified in waste stream OR NFS-CH-HET. The container paperwork for these 5 drums indicate the origin of the waste is NFS 110/234 and have generation dates from September 1993 to September 2001. Waste stream OR NFS-CH-HET was generated from activities associated with the decommissioning of Buildings 110 and 234 at NFS from August 1993 to September 2003. Waste stream OR-NFS-CH-SOIL is assigned F002, and NFS debris waste stream OR-NFS-CH-HET is assigned D006, D008, D009, and D011 but not F002. Therefore, F002 needs to be added to the waste stream. However, since there is already an approved waste stream profile form for OR-NFS-CH-HET, this waste stream number will be replaced with a new waste stream number; OR-NFS-CH-HET.001 which will be assigned F002, D006, D008, D009, and D011. NFS0816 and NFS0817 are predominantly absorbent which is consistent with Summary Category Group S3000. Since there is currently no waste stream in CCP-AK-ORNL-001 for these 2 drums, they will be excluded from AK and re-evaluated in the future for assignment to a new waste stream. This discrepancy is also documented in an AK Re-evaluation.

NTPC RECORDS ORIGINAL
DATE REC'D 12/15/13

Attachment 3 - Acceptable Knowledge Source Document Summary (continued)

Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR010
Source Document Data Limitations (if any): 1. None.	
Acceptable Knowlege Expert: Travis Smith _____ Date: 11/18/2013 Print /Sign	
[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc) [b] Obtain from Acceptable Knowledge Documentation Checklist [c] For microfilm or microfiche, identify box, tape, reel number and location.	

Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution

Waste Stream Number(s): OR-NFS-CH-SOIL, OR-NFS-CH-HET

Waste Stream Description: Contaminated NFS soil and debris waste stored at ORNL

AK Documentation Type: ☒TRU Waste Management Program Information ☒Waste Stream Specific Information ☒Supporting Info.

AK Source Document Discrepancy Form Tracking Number: **DR010**

Tracking #	Category	Title	Doc/Rev #	Author	Publisher	Date	Page #
N/A	N/A	Central Characterization Project Acceptable Knowledge Summary Report For Nuclear Fuel Services Contact-Handled Transuranic Waste Stored at Oak Ridge National Laboratory, Waste Streams OR-NFS-CH-HET and OR-NFS-CH-SOIL	CCP-AK-ORNL-001, Rev. 3	CCP	N/A	8/11/08	Throughout
N/A	N/A	Acceptable Knowledge Re-evaluation Checklist	CCP-TP-005, Attachment 10	J. Harrison	N/A	1/8/09	All

Nature of Discrepancy: AK identified 7 drums as soil (S4000), but RTR has determined that 5 of the drums (NFS0821, NFS0839, NFS0840, NFS0927, and X10C0506047) are predominantly debris waste (S5000) and 2 of the drums (NFS0816 and NFS0817) are predominantly absorbent (S3000).

NTPC RECORDS ORIGINAL
DATE REC'D 12/18/13

Resolution: Because drums NFS0821, NFS0839, NFS0840, NFS0927, and X10C0506047 are predominantly debris waste, they are potential candidates to be included in waste stream OR-NFS-CH-HET.

RTR describes these 5 drums as containing broken concrete, cinder block, reinforcement wire (i.e., rebar), rocks, scrap metal, absorbent, wire, a metal nut, nails, plastic bags, and plastic jars with soil and rock samples. These waste materials are identified in waste stream OR-NFS-CH-HET. The container paperwork for these 5 drums indicate the origin of the waste is NFS 110/234 and have generation dates from September 1993 to September 2001. Waste stream OR-NFS-CH-HET was generated from activities associated with the decommissioning of Buildings 110 and 234 at NFS from August 1993 to September 2003.

Waste stream OR-NFS-CH-SOIL is assigned F002, and NFS debris waste stream OR-NFS-CH-HET is assigned D006, D008, D009, and D011 but not F002. Therefore, F002 needs to be added to the waste stream. However, since there is already an approved waste stream profile form for OR-NFS-CH-HET, this waste stream number will be replaced with a new waste stream number; OR-NFS-CH-HET.001 which will be assigned
F002, D006, D008, D009, and D011.

NFS0816 and NFS0817 are predominantly absorbent which is consistent with Summary Category Group S3000. Since there is currently no waste stream in CCP-AK-ORNL-001 for these 2 drums, they will be excluded from AK and re-evaluated in the future for assignment to a new waste stream.

This discrepancy is also documented in an AK Re-evaluation.

Discrepancy Resolved: ☒ Yes ☐ No

Acceptable Knowledge Expert: Jeff Harrison / Jeff Harrison Date: 1/12/09
Print Sign

Site Project Manager: Candice Weston / Candice Weston Date: 01/12/09
Print Sign

[a] Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

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Attachment 10 - Acceptable Knowledge Re-evaluation Checklist (X10C0506047)

Site(s): Oak Ridge National Laboratory
Waste Stream Number(s): OR-NFS-CH-SOIL, OR-NFS-CH-HET-A
Waste Stream Description: Contaminated NFS soil and debris stored at ORNL
NCR numbers(s) if applicable: NCR-ORNL-0652-08 and NCR-ORNL-0505-10
Inconsistency between waste characterization and acceptable knowledge information (describe): AK originally identified drum X10C0506047 as soil (S4000), but RTR (BDR# OR-RTR6-0103) determined that it was predominantly debris (see NCR-ORNL-0652-08). An AK Re-evaluation was written 1/8/09 and a discrepancy resolution (DR010) was also written to move this drum from OR-NFS-CH-SOIL to OR-NFS-CH-HET. This drum was processed through RTR once again as debris (BDR# OR-RTR6-0233). It was subsequently determined that this drum did contain greater than 50%, by volume, soil as was originally thought. This drum is therefore being moved back to OR-NFS-CH-SOIL and another discrepancy resolution (DR022) is being written.

Requirements	Completed? Yes/No	Supporting Documentation [a]
Review existing information based on the container identification number and document all differences in EPA hazardous waste number assignments. [c]	Yes	X10C0506047 is being moved from waste stream OR-NFS-CH-HET-A back to waste stream OR-NFS-CH-SOIL. OR-NFS-CH-SOIL is assigned F002. OR-NFS-CH-HET-A is assigned D006, D008, D009, D011, and F002.
If differences exist in the EPA hazardous waste numbers that were assigned, reassess and document all required AK information associated with the new designation. [b,c]	Yes	The D006, D008, D009, D011 metal codes in OR-NFS-CH-HET-A are due to the presence of circuit boards, batteries, mercury-containing gauges, mercury in tank waste, paint, and cadmium-coated hand tools. The original container paperwork for X10C0506047 indicates only soil. RTR describes this drum as plastic bags and plastic jars containing soil material. There are no sources for these metals in this drum; and therefore; D006, D008, D009, and D011 would not apply.
Reassess and document all sampling and analytical data associated with the waste. [c]	Yes	X10C0506047 was not sampled by CCP. Since this drum contains jars with soil, it is likely that these are soil samples from NFS sampling campaigns that were discarded; however, there is no traceability in the container paperwork to the sample IDs.
Verify and document that the reassigned Waste Matrix Code was generated within the specified time period, area and buildings, waste generating process, and that the process material inputs are consistent with the waste material parameters identified during RTR or VE.	Yes	Sections 6.2 and 6.3 of CCP-AK-ORNL-001 state that waste stream OR-NFS-CH-SOIL was generated from activities associated with the NFS decommissioning from February 1993 to October 1993; however, some of the soil remained in Building 234 and was not packaged at NFS until 2001. The NFS container paperwork indicates this drum is from Building 234 and was packaged 9/3/2001. Table 6-1 in CCP-AK-ORNL-001 identifies plastic, soil, and organic matrix (RADSORB absorbent) waste material parameters which is consistent with RTR for this drum which identified plastic and soil.

ORIGINAL

Requirements	Completed? Yes/No	Supporting Documentation [a]
If NDA results indicate the presence of additional or different radionuclides in the waste, reassess and document AK and characterization information associated with the new information. [c]	No	N/A – Radionuclides are not discrepant. The default isotopics and two most prevalent radionuclides, by mass, for waste streams OR-NFS-CH-SOIL and OR-NFS-CH-HET-A are the same.
Record all changes to the AK records on the appropriate Attachments and resubmit to the CCP Facility Records Custodian.	Yes	Attachments 1 and 4 and CCP-AK-ORNL-001 will be revised to include Discrepancy Resolution DR022. The waste material parameter weight estimates on Attachment 6 and the radionuclide percentages on Attachment 7 do not need revision because they were never revised when this drum was moved from OR-NFS-CH-SOIL to OR-NFS-CH-HET-A. Attachment 8 for OR-NFS-CH-SOIL and OR-NFS-CH-HET-A will be revised so that X10C0506047 is in OR-NFS-CH-SOIL.
If unresolved discrepancies exist in the AK information for the reassigned Waste Matrix Code, EPA hazardous waste numbers, or radionuclides, document the segregation of this container, and define the actions necessary to fully characterize the waste.	No	N/A. There are no unresolved discrepancies with this reassignment.

a. Cite the source document, nonconformance report number, attachment, or other documentation used to support a change or no change.
b. Ensure that if a toxicity characteristic contaminant is identified, it is not included as a listed waste, and analytical data regarding the concentration are not available, the corresponding EPA Hazardous Waste Number is applied.
c. Not applicable for LANL sealed source waste stream.

Acceptable Knowledge Expert:

Jeff Harrison _____ Date: 3/5/10
Print **Sign**

Site Project Manager:

Richard Kantrowitz _____ Date: 3/5/10
Print **Sign**

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*** TX REPORT ***
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TRANSMISSION OK

TX/RX NO	4112
DESTINATION TEL #	96283238
DESTINATION ID	LANL CBAD
ST. TIME	04/12 11:23
TIME USE	00'16
PAGES SENT	1
RESULT	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523 or 575-234-7431
Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Jason P. Montoya
Ship to:	CCP Central Records/CCP Records Custodian	Site:	ORNL (ORNL-001)
		Company:	LANL-CO
	4021 National Parks Highway – MS	Telephone Number:	575-499-9732
	GSA 212, Carlsbad, NM 88220	Date Sent:	3/08/2010
Telephone Number:	575-234-7523		

NA	Attachment 10 – Acceptable Knowledge Re-evaluation Checklist for OR-NFS-CH-SOIL/OR-NFS-CH-HET-A (ORNL-001) (X10C0506047).	3/05/2010	2

None.

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted	[X]	Signature	CHERYL ARMIJO (Printed Name)	4-12-10 (Date)
Records Rejected	[ ]	Signature	Printed Name	Date

Reason for Rejection:

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523 or 575-234-7431
Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Jason P. Montoya
Ship to:	CCP Central Records/CCP Records Custodian	Site:	ORNL (ORNL-001)
		Company:	LANL-CO
	4021 National Parks Highway – MS	Telephone Number:	575-499-9732
	GSA 212, Carlsbad, NM 88220	Date Sent:	3/08/2010
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
NA	Attachment 10 – Acceptable Knowledge Re-evaluation Checklist for OR-NFS-CH-SOIL/OR-NFS-CH-HET-A (ORNL-001) (X10C0506047).	3/05/2010	2

Comments

None.

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X]	Signature	CHERYL ARMIJO (Printed Name)	4-12-10 (Date)
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

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Attachment 3 - Acceptable Knowledge Source Document Summary

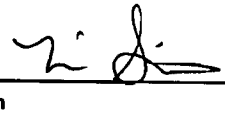
Site(s): Oak Ridge National Laboratory	Source Document Tracking Number: DR026
Waste Stream Number(s): ORNL Non-specific Library Files (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☑ TRU Waste Management Program Information ☑ Waste Stream-Specific Information ☑ Additional Information	Category: ☐ Correspondence ☑ Discrepancy Resolution ☐ Internal Procedure ☐ Miscellaneous ☐ Published Document or Internal Procedure ☐ Unpublished Documents
Title or Description of Source Document [a]: ~~Discrepancy~~ Resolution re: Reassignment of NFS815 to OR-NFS-CH-SOIL Discrepancy 11/18/13	
Source Document Reference Information (author(s), document and revision number, date, publisher): Jeff Harrison, NA, NA, 07/07/2010	

AK # [b]	Source Doc. Page # [c]	AK Information Summary
PR7, WS1, WS9, S9	Throughout	AK originally identified drum NF5815 as soil (54000), but RTR (BDR# OR-RTR6-0071) determined that it was predominantly debris (see NCR-ORNL-0509-10). An AK Re-evaluation was written 3/22/10 and a discrepancy resolution (DR023) was also written to move this drum from OR-NFS-CH-SOIL to OR-NFS-CH-HET-A. This drum was processed through RTR once again as debris (BDR# OR-RTR6-0317). It was subsequently determined that this drum did contain greater than 50%, by volume, soil as was originally thought (see NCR-ORNL-0119-10). As described in Acceptable Knowledge Re-evaluation Checklist for NFS815 dated 7/7/2010, this drum is being moved back to waste stream OR-NFS-CH-SOIL.

Source Document Data Limitations (if any):

1. None.

Acceptable Knowlege Expert:

Travis Smith /  Date: 11/18/2013

Print /Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

NTPC RECORDS ORIGINAL
DATE REC'D 12/18/13

Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution (NFS815)

Waste Stream Number(s): OR-NFS-CH-SOIL, OR-NFS-CH-HET-A

Waste Stream Description: Contaminated NFS soil and debris waste stored at ORNL

AK Documentation Type: ☒TRU Waste Management Program Information ☒Waste Stream Specific Information ☒Supporting Info.

AK Source Document Discrepancy Form Tracking Number: **DR026**

Tracking #	*Category*[a]	*Title*	*Doc/Rev #*	*Author*	*Publisher*	*Date*	*Page #*
N/A	N/A	Acceptable Knowledge Re-evaluation Checklist (NFS0815 & X10C0506069), Waste Streams OR-NFS-CH-SOIL and OR-NFS-CH-HET-A	CCP-TP-005, Rev. 18, Attachment 10	CCP	N/A	3/22/10	All
N/A	N/A	Acceptable Knowledge Re-evaluation Checklist (NFS0815), Waste Streams OR-NFS-CH-SOIL and OR-NFS-CH-HET-A	CCP-TP-005, Rev. 19, Attachment 10	CCP	N/A	7/7/10	All
N/A	N/A	CCP Nonconformance Report	NCR-ORNL-0509-10, Rev. 0	CCP	N/A	3/5/10	All
N/A	N/A	CCP Nonconformance Report	NCR-ORNL-0119-10, Rev. 0	CCP	N/A	6/9/10	All
N/A	N/A	CCP Radiography Data Sheet	OR-RTR6-0071	CCP	N/A	7/10/08	NFS815
N/A	N/A	CCP Radiography Data Sheet	OR-RTR6-0317	CCP	N/A	6/9/10	NFS815
DR023	Disc.	Acceptable Knowledge Source Document Discrepancy Resolution, Incorrect Waste Stream Assignment for NFS0815 & X10C0506069	CCP-TP-005, Rev. 18, Attachment 11	CCP	N/A	3/22/10	All
M003	Unpub.	ORNL UCN-2109 and UCN-2822 Forms for NFS TRU Waste and Related Paperwork	See title	NFS	N/A	9/3/01	NFS815

Discrepancy Resolution DR026
Incorrect Waste Stream Assignment for NFS815

NTPC RECORDS ORIGINAL
DATE REC'D 12/18/13

Nature of Discrepancy: AK originally identified drum NFS815 as soil (S4000), but RTR (BDR# OR-RTR6-0071) determined that it was predominantly debris (see NCR-ORNL-0509-10). An AK Re-evaluation was written 3/22/10 and a discrepancy resolution (DR023) was also written to move this drum from OR-NFS-CH-SOIL to OR-NFS-CH-HET-A. This drum was processed through RTR once again as debris (BDR# OR-RTR6-0317). It was subsequently determined that this drum did contain greater than 50%, by volume, soil as was originally thought (see NCR-ORNL-0119-10).

Resolution: As described in Acceptable Knowledge Re-evaluation Checklist for NFS815 dated 7/7/2010, this drum is being moved back to waste stream OR-NFS-CH-SOIL.

Discrepancy Resolved: ☒ Yes ☐ No

Acceptable Knowledge Expert: Jeff Harrison / Jeff Harrison Date: 7/7/10
Print Sign

Site Project Manager: Candice Weston / Candice Weston Date: 07/07/10
Print Sign

* Published Document or Controlled Database (Pub.); Unpublished Data (Unpub.); Internal Procedure or Note (Proc.); Correspondence (Corr.) or Discrepancy (Disc.)

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Attachment 10 - Acceptable Knowledge Re-evaluation Checklist (NFS0815)

Site(s): Oak Ridge National Laboratory
Waste Stream Number(s): OR-NFS-CH-SOIL, OR-NFS-CH-HET-A
Waste Stream Description: Contaminated NFS soil and debris stored at ORNL
NCR numbers(s) if applicable: NCR-ORNL-0509-10 and NCR-ORNL-0119-10
Inconsistency between waste characterization and acceptable knowledge information (describe): AK originally identified drum NFS0815 as soil (S4000), but RTR (BDR# OR-RTR6-0071) determined that it was predominantly debris (see NCR-ORNL-0509-10). An AK Re-evaluation was written 3/22/2010 and a discrepancy resolution (DR023) was also written to move this drum from OR-NFS-CH-SOIL to OR-NFS-CH-HET-A. This drum was processed through RTR once again as debris (BDR# OR-RTR6-0317). It was subsequently determined that this drum did contain greater than 50%, by volume, soil as was originally thought. This drum is therefore being moved back to OR-NFS-CH-SOIL and another discrepancy resolution (DR026) is being written.

Requirements	Completed? Yes/No	Supporting Documentation [a]
Review existing information based on the container identification number and document all differences in EPA hazardous waste number assignments. [c]	Yes	NFS0815 is being moved from waste stream OR-NFS-CH-HET-A back to waste stream OR-NFS-CH-SOIL. OR-NFS-CH-SOIL is assigned F002. OR-NFS-CH-HET-A is assigned D006, D008, D009, D011, and F002.
If differences exist in the EPA hazardous waste numbers that were assigned, reassess and document all required AK information associated with the new designation. [b,c]	Yes	The D006, D008, D009, D011 metal codes in OR-NFS-CH-HET-A are due to the presence of circuit boards, batteries, mercury-containing gauges, mercury in tank waste, paint, and cadmium-coated hand tools. The original container paperwork for NFS0815 indicates only soil. RTR describes this drum as reinforcement wire, chunks of concrete, and soil. There are no sources for these metals in this drum; and therefore; D006, D008, D009, and D011 would not apply.
Reassess and document all sampling and analytical data associated with the waste. [c]	Yes	NFS0815 was not sampled by CCP.
Verify and document that the reassigned Waste Matrix Code was generated within the specified time period, area and buildings, waste generating process, and that the process material inputs are consistent with the waste material parameters identified during RTR or VE.	Yes	Sections 6.2 and 6.3 of CCP-AK-ORNL-001 state that waste stream OR-NFS-CH-SOIL was generated from activities associated with the NFS decommissioning from February 1993 to October 1993. The NFS container paperwork indicates NFS0815 is from Building 110/234 and was packaged 9/25/1993. Section 6.4.1 in CCP-AK-ORNL-001 identifies soil, rock, and gravel, concrete pieces, and concrete block which is consistent with RTR for this drum.

ORIGINAL

Requirements	Completed? Yes/No	Supporting Documentation [a]
If NDA results indicate the presence of additional or different radionuclides in the waste, reassess and document AK and characterization information associated with the new information. [c]	No	N/A – Radionuclides are not discrepant. The default isotopics and two most prevalent radionuclides, by mass, for waste streams OR-NFS-CH-SOIL and OR-NFS-CH-HET-A are the same.
Record all changes to the AK records on the appropriate Attachments and resubmit to the CCP Facility Records Custodian.	Yes	Attachments 1 and 4 and CCP-AK-ORNL-001 will be revised to include Discrepancy Resolution DR026. The waste material parameter weight estimates on Attachment 6 and the radionuclide percentages on Attachment 7 do not need revision because they were never revised when this drum was moved from OR-NFS-CH-SOIL to OR-NFS-CH-HET-A. Attachment 8 for OR-NFS-CH-SOIL and OR-NFS-CH-HET-A will be revised so that NFS0815 is in OR-NFS-CH-SOIL.
If unresolved discrepancies exist in the AK information for the reassigned Waste Matrix Code, EPA hazardous waste numbers, or radionuclides, document the segregation of this container, and define the actions necessary to fully characterize the waste.	No	N/A. There are no unresolved discrepancies with this reassignment.

a. Cite the source document, nonconformance report number, attachment, or other documentation used to support a change or no change.
b. Ensure that if a toxicity characteristic contaminant is identified, it is not included as a listed waste, and analytical data regarding the concentration are not available, the corresponding EPA Hazardous Waste Number is applied.
c. Not applicable for LANL sealed source waste stream.

Acceptable Knowledge Expert:

Jeff Harrison — Jeff Harrison — Date: 7/7/10
Print **Sign**

Site Project Manager:

Candice Weston — Candice Weston — Date: 07/07/10
Print **Sign**

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Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523 or 575-234-7431

Fax Number: 575-234-7033

[X] Original Record [ ] Copy

[ ] Fax Record

[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Jason Montoya
Ship to:	CCP Central Records / CCP Records Custodian	Site:	ORNL
		Company:	Los Alamos National Laboratory
	4021 National Parks Highway	Telephone Number:	575-628-3018
	MS GSA 212	Date Sent:	07/07/2010
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
NA	Attachment 10 – Acceptable Knowledge Re-evaluation Checklist for OR-NFS-CH-SOIL, OR-NFS-CH-HET-A of CCP-AK-ORNL-001	07/07/2010	2

Comments

None.

CJC
08/10/2010

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted	[X]	Cheryl Armijo	CHERYL ARMIJO	8-10-10
		Signature	Printed Name	Date
Records Rejected	[ ]			
		Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	4762
DESTINATION TEL #	96283238
DESTINATION ID	LANL CBAD
ST. TIME	08/10 16:10
TIME USE	00'15
PAGES SENT	1
RESULT	OK

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523 or 575-234-7431
Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Jason Montoya
Ship to:	CCP Central Records / CCP Records Custodian	Site:	ORNL
		Company:	Los Alamos National Laboratory
	4021 National Parks Highway	Telephone Number:	575-628-3018
	MS GSA 212	Date Sent:	07/07/2010
Telephone Number:	575-234-7523		

NA	Attachment 10 – Acceptable Knowledge Re-evaluation Checklist for OR-NFS-CH-SOIL, OR-NFS-CH-HET-A of CCP-AK-ORNL-001	07/07/2010	2

None.

CJC
08/10/2010

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted	[X]	Cheryl Armijo	CHERYL ARMIJO	8-10-10
		Signature	Printed Name	Date
Records Rejected	[ ]			
		Signature	Printed Name	Date

Reason for Rejection:

Wednesday, January 15, 2014

CONTAINERID: X10C0506151E

ORNL

AK DATA

Container ID	Container Type	AKA Matrix	WDS Status	AK Excluded	WSID	LOTID	LOT Excluded
X10C0506151E	55G		APPROVED_CERT	NO		OR-NFS-CH-SOIL-011 (ORNL AK 1 OR-NFS-CH-SOIL Lot 11)	
					OR-NFS-CH-SOIL		

BDR DATA

BDRID	Type	Status	Generation Date
OR-DWAS-0131	NDA	Complete	2008-09-13
OR-IQ3-0228	NDA	Complete	2013-12-11
OR-RTR6-0110	RTR	Complete	2008-09-10
OR-RTR7-0003	RTR	Complete	2013-12-04
OR08FG4039	HSG_TRANS	Complete	2008-10-01

NCR DATA

Container ID	NCRID	Status	Release Code
X10C0506151E	NO DATA		

REJECT DATA

Container ID	BDRID	NCRID	NCR Status	Release Code	Actual Condition
X10C0506151E	NO DATA				

CONTAINERID: X10C0506151B

ORNL

AK DATA

Container ID	Container Type	AKA Matrix	WDS Status	AK Excluded	WSID	LOTID	LOT Excluded
X10C0506151B	55G		APPROVED_CERT	NO	OR-NFS-CH-SOIL	OR-NFS-CH-SOIL-011 (ORNL AK 1 OR-NFS-CH-SOIL Lot 11)	

BDR DATA

BDRID	Type	Status	Generation Date
OR-DWAS-0131	NDA	Complete	2008-09-13
OR-IQ3-0228	NDA	Complete	2013-12-11
OR-RTR6-0111	RTR	Complete	2008-09-12
OR-RTR7-0002	RTR	Complete	2013-12-03
OR09FG4023	HSG_TRANS	Complete	2009-03-26

NCR DATA

Container ID	NCRID	Status	Release Code
X10C0506151B	NO DATA		

REJECT DATA

Container ID	BDRID	NCRID	NCR Status	Release Code	Actual Condition
X10C0506151B	NO DATA				

DIVIDER

PAGE

Wednesday, January 15, 2014

CONTAINERID: NFS0929A

ORNL

AK DATA

Container ID	Container Type	AKA Matrix	WDS Status	AK Excluded	WSID	LOTID	LOT Excluded
NFS0929A	55G		NO WDS STATUS	NO	OR-NFS-CH-HOM-A	NONE	SITE CERT NEEDED/ SITE C

BDR DATA

BDRID	Type	Status	Generation Date
OR-IQ3-0225	NDA	Complete	2013-12-05
OR-RTR6-0438	RTR	Complete	2013-12-04

NCR DATA

Container ID	NCRID	Status	Release Code
NFS0929A	NO DATA		

REJECT DATA

Container ID	BDRID	NCRID	NCR Status	Release Code	Actual Condition
NFS0929A	NO DATA				

CONTAINERID: NFS0478A

ORNL

AK DATA

Container ID	Container Type	AKA Matrix	WDS Status	AK Excluded	WSID	LOTID	LOT Excluded
NFS0478A	55G		NO WDS STATUS	NO	OR-NFS-CH-HOM-A	OR-NFS-CH-HOM-A-Lot 1 (OR-NFS-CH-HOM-A-Lot 1)	

BDR DATA

BDRID	Type	Status	Generation Date
OR-IQ3-0163	NDA	Complete	2011-01-12
OR-IQ3-0224	NDA	Complete	2013-12-04
OR-RTR6-0384	RTR	Complete	2011-01-11
OR-RTR6-0437	RTR	Complete	2013-12-03
OR11FG11005	HSG_TRANS	Complete	2011-01-20
OR13FG4003	HSG_TRANS	Complete	2013-12-17

NCR DATA

Container ID	NCRID	Status	Release Code
NFS0478A	NO DATA		

REJECT DATA

Container ID	BDRID	NCRID	NCR Status	Release Code	Actual Condition
NFS0478A	NO DATA				

DIVIDER

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Thursday, January 09, 2014

CONTAINERID: X10C0501534

ORNL

AK DATA

Container ID	Container Type	AKA Matrix	WDS Status	AK Excluded	WSID	LOTID	LOT Excluded
X10C0501534	55G		EMPLACED_CNTR	NO	OR-ISTP-CH-HET	OR-ISTP-CH-HET-Lot 2 (New Lot)	

BDR DATA

BDRID	Type	Status	Generation Date
OR-IQ3-0119	NDA	Complete	2010-09-16
OR-RTR6-0342	RTR	Complete	2010-08-23
OR10FG11010	HSG_TRANS	Complete	2010-10-28

NCR DATA

Container ID	NCRID	Status	Release Code
X10C0501534	NO DATA		

COPY

REJECT DATA

Container ID	BDRID	NCRID	NCR Status	Release Code	Actual Condition
X10C0501534	NO DATA				

Thursday, January 09, 2014

CONTAINERID: NFS0773

ORNL

AK DATA

Container ID	Container Type	AKA Matrix	WDS Status	AK Excluded	WSID	LOTID	LOT Excluded
NFS0773	55G		EMPLACED_CNTR	NO	OR-NFS-CH-SOIL	OR-NFS-CH-SOIL-005 (ORNL AK 1 OR-NFS-CH-SOIL Lot 5)	

BDR DATA

BDRID	Type	Status	Generation Date
OR-DWAS-0110NDA		Complete	2008-08-19
OR-RTR6-0092	RTR	Complete	2008-08-18
OR08FG4030	HSG_TRANS	Complete	2008-09-10

COPY

NCR DATA

Container ID	NCRID	Status	Release Code
NFS0773	NO DATA		

REJECT DATA

Container ID	BDRID	NCRID	NCR Status	Release Code	Actual Condition
NFS0773	NO DATA				

DIVIDER

PAGE

Thursday, January 09, 2014

CONTAINERID: X10C0501650

ORNL

AK DATA

Container ID	Container Type	AKA Matrix	WDS Status	AK Excluded	WSID	LOTID	LOT Excluded
X10C0501650	55G		EMPLACED_CNTR	NO	OR-ISTP-CH-HET	OR-ISTP-CH-HET-Lot 2 (New Lot)	

BDR DATA

BDRID	Type	Status	Generation Date
OR-IQ3-0125	NDA	Complete	2010-09-22
OR-RTR6-0353	RTR	Complete	2010-09-15
OR10FG4135	HSG_TRANS	Complete	2010-09-28

NCR DATA

Container ID	NCRID	Status	Release Code
X10C0501650	NO DATA		

COPY

REJECT DATA

Container ID	BDRID	NCRID	NCR Status	Release Code	Actual Condition
X10C0501650	NO DATA				

DIVIDER

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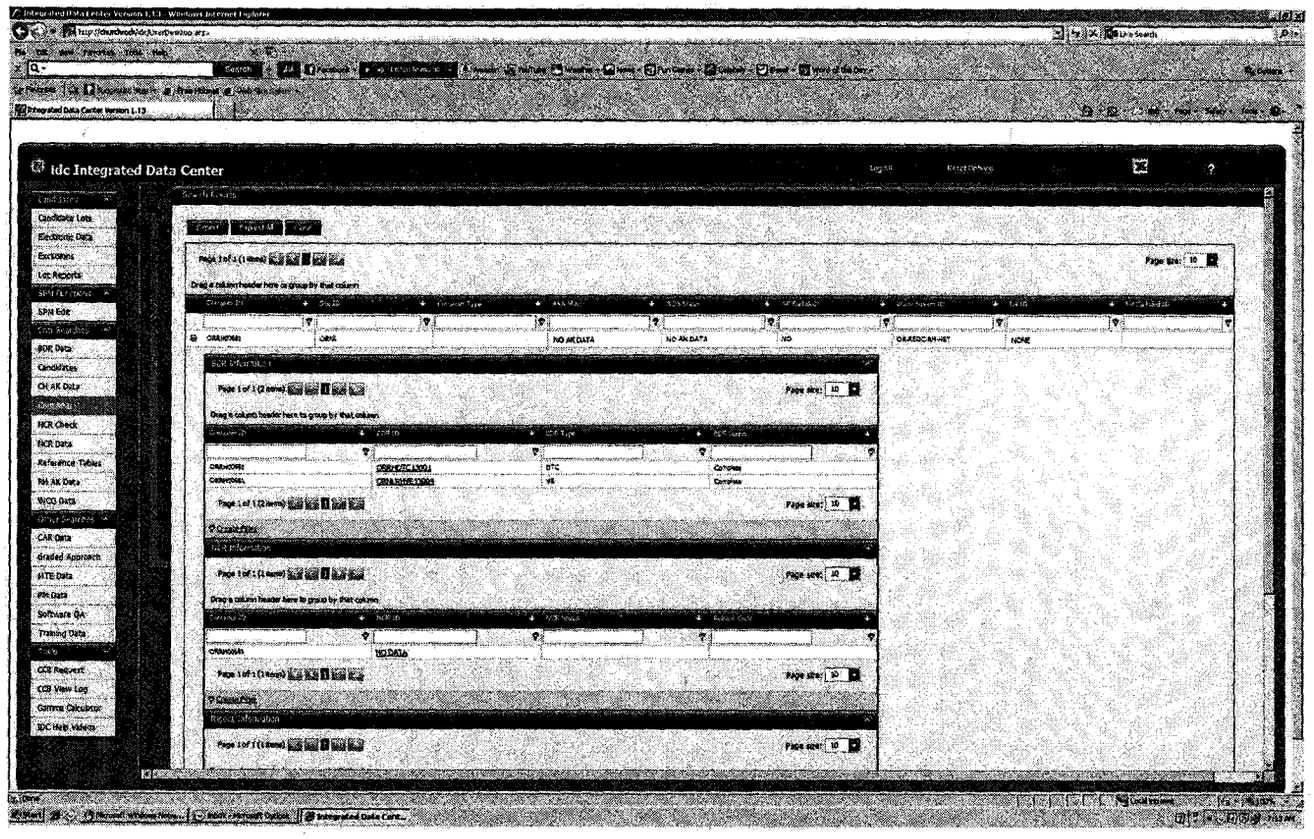
AK20



CONTAINERID: X10CSATN02240J2

ORNL

AK DATA

Container ID	Container Type	AKA Matrix	WDS Status	AK Excluded	WSID	LOTID	LOT Excluded
X10CSATN02240J2	55G		NO WDS STATUS	NO	OR-REDC-CH-HET	NONE	

BDR DATA

BDRID	Type	Status	Generation Date
NO DATA			1900-01-01

NCR DATA

Container ID	NCRID	Status	Release Code
X10CSATN02240J2	NCR-ORNL0230140	Open	None

REJECT DATA

Container ID	BDRID	NCRID	NCR Status	Release Code	Actual Condition
X10CSATN02240J2	OR-RTR6-0443	NCR-ORNL0230140	Open	None	50 mL of (PCB) liquid in pump at 25°

AK21

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	CONTAINERID	CONTAINER_TYPE	WDS_STATUS	DISPOSAL_DATE	RECLASTUPDATE	RECLASTUPDATEUSER	WASTESTREAM	AK_REPORT	WASTE_MATRIX_CODE	REPACKED_BOX_DAUGHTER	CLOSUREDATE	CLOSUREDATE1	VENTDATE	VENTDATE1	COMMENTS	SPECIAL_INFO	PCB	OUT_OF_SERVICE_DATE	PARENTID	GRANDPARENTID	REPACK_METHOD
2	X10C0303312	85G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	12/4/1970										
3	X10C0303313	85G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	12/4/1972										
4	X10C0401430A	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/3/2002	1/14/2010		1/14/2010					X10C0401430		Repack
5	X10C0404147A	55G			10/21/2013 16:07	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/6/1994	4/19/2012		4/19/2012		- Rpkgd was X10C0404147			X10C0404147		Repack
6	X10C0501524	55G	EMPLACED_CNTR	11/30/2011 11:00	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	10/19/1989	10/9/2006		10/9/2006					X10C9311139		Repack
7	X10C0501526	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	10/19/1989	10/9/2006		10/9/2006					X10C9311139		Repack
8	X10C0501534	55G	EMPLACED_CNTR	11/13/2011 13:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	10/19/1989	10/17/2006		10/17/2006	Potential PCB-electric motor				X10C9311139		Repack
9	X10C0501590	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	10/19/1989	10/23/2006		10/23/2006					X10C9311139		Repack
10	X10C0501598	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	10/19/1989	10/23/2006		10/23/2006					X10C9311139		Repack
11	X10C0501601A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/19/1989	6/15/2010		6/15/2010					X10C0501601		Repack
12	X10C0501602	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	10/19/1989	10/26/2006		10/26/2006					X10C9311139		Repack
13	X10C0501650	55G	EMPLACED_CNTR	11/30/2011 11:00	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/25/1971	12/21/2006		12/21/2006					X10C9312391		Repack
14	X10C0501673	55G			10/31/2013 18:22	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/22/1980	2/6/2007		2/6/2007		Rad Dist FP-35			X10C9400149		Repack
15	X10C0501721A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/1/1982	11/22/2010		11/22/2010	Potential PCB item-electric motor				X10C0501721	X10C9312282	Repack
16	X10C0501748	55G			10/31/2013 18:23	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/26/1979	4/2/2007		4/2/2007		Rad Dist FP-35			X10C9311475		Repack
17	X10C0501810	55G	EMPLACED_CNTR	12/1/2011 15:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/19/1971	4/11/2007		4/11/2007					X10C9400265		Repack
18	X10C0505885	110G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	11/23/1971	4/25/2007		4/25/2007							
19	X10C0600035C	55G			10/21/2013 16:11	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/21/1975	9/12/2012		9/12/2012		- Rpkgd was X10C0600035			X10C0600035		Repack
20	X10C0600035D	55G			10/21/2013 16:11	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/21/1975	9/12/2012		9/12/2012		- Rpkgd was X10C0600035			X10C0600035		Repack
21	X10C0600038A	55G			10/21/2013 16:12	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/22/1972	1/8/2013		1/8/2013		- Rpkgd was X10C0600038			X10C0600038		Repack
22	X10C0600039	110G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/16/1971	4/25/2007		4/25/2007							
23	X10C0600041	110G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/4/1971	4/25/2007		4/25/2007							
24	X10C0800015	110G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	3/22/1972	4/15/2008		4/15/2008							
25	X10C0800017A	55G			10/21/2013 16:13	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/19/1974	1/9/2013		1/9/2013		- Rpkgd was X10C0800017			X10C0800017		Repack
26	X10C9307318A	55G			10/21/2013 16:15	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/22/1994	8/1/2012		8/1/2012		- Rpkgd was X10C9307318			X10C9307318		Repack
27	X10C9307318B	55G			10/21/2013 16:23	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/22/1994	8/1/2012		8/1/2012		- Rpkgd was X10C9307318			X10C9307318		Repack
28	X10C9308367	55G			10/29/2013 10:42	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	3/15/1994				PCB Item-vacuum pump		Yes	3/15/1994			
29	X10C9308368A	55G	EMPLACED_CNTR	11/30/2011 14:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/19/1994	1/26/2010		1/26/2010	Potential PCB-electrical motor				X10C9308368		Repack
30	X10C9308369A1	55G			5/10/2011 17:21	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/7/1994	4/27/2011		4/27/2011		- Rpkgd was X10C9308369A			X10C9308369A	X10C9308369	Repack
31	X10C9309168A	55G	APPROVED_CHARZ		4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/22/1973	7/3/2007		7/3/2007	Added back per CWeston email 110910				X10C9309168		Repack
32	X10C9309201A	55G			10/31/2013 18:26	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/24/2007		10/24/2007		Rad Dist FP-35			X10C9309201		Repack
33	X10C9309201A1	55G			10/31/2013 18:27	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/16/2007		11/16/2007		Rad Dist FP-35			X10C9309201		Repack
34	X10C9309201B	55G			10/31/2013 18:27	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/24/2007		10/24/2007		Rad Dist FP-35			X10C9309201		Repack
35	X10C9309201B1	55G			11/1/2013 7:16	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/16/2007		11/16/2007		Rad Dist FP-35			X10C9309201		Repack
36	X10C9309201C	55G			11/1/2013 7:17	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
37	X10C9309201C1	55G			11/1/2013 7:17	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/16/2007		11/16/2007		Rad Dist FP-35			X10C9309201		Repack
38	X10C9309201D	55G			11/1/2013 7:18	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
39	X10C9309201D1	55G			11/1/2013 7:18	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/16/2007		11/16/2007		Rad Dist FP-35			X10C9309201		Repack
40	X10C9309201E	55G			11/1/2013 7:19	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
41	X10C9309201E1	55G			11/1/2013 7:19	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/16/2007		11/16/2007		Rad Dist FP-35			X10C9309201		Repack
42	X10C9309201F	55G			11/1/2013 7:26	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
43	X10C9309201G	55G			11/1/2013 7:27	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
44	X10C9309201H	55G			11/1/2013 7:27	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
45	X10C9309201I	55G			11/1/2013 7:28	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
46	X10C9309201J	55G			11/1/2013 7:28	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
47	X10C9309201K	55G			11/1/2013 7:41	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
48	X10C9309201L	55G			11/1/2013 7:42	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
49	X10C9309201M	55G			11/1/2013 7:42	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
50	X10C9309201N	55G			11/1/2013 7:43	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
51	X10C9309201O	55G			11/1/2013 7:43	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/29/2007		10/29/2007		Rad Dist FP-35			X10C9309201		Repack
52	X10C9309201P	55G			11/1/2013 7:44	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/30/2007		10/30/2007		Rad Dist FP-35			X10C9309201		Repack
53	X10C9309201Q	55G			11/1/2013 7:44	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/30/2007		10/30/2007		Rad Dist FP-35			X10C9309201		Repack
54	X10C9309201R	55G			11/1/2013 7:45	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/30/2007		10/30/2007		Rad Dist FP-35			X10C9309201		Repack
55	X10C9309201S	55G			11/1/2013 7:45	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	10/30/2007		10/30/2007		Rad Dist FP-35			X10C9309201		Repack
56	X10C9309201T	55G			11/1/2013 8:10	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/12/2007		11/12/2007		Rad Dist FP-35			X10C9309201		Repack
57	X10C9309201U	55G			11/1/2013 8:11	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/12/2007		11/12/2007		Rad Dist FP-35			X10C9309201		Repack
58	X10C9309201V	55G			11/1/2013 8:11	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/12/2007		11/12/2007		Rad Dist FP-35			X10C9309201		Repack
59	X10C9309201W	55G			11/1/2013 8:12	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/12/2007		11/12/2007		Rad Dist FP-35			X10C9309201		Repack
60	X10C9309201X	55G			11/1/2013 8:12	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/12/2007		11/12/2007		Rad Dist FP-35			X10C9309201		Repack
61	X10C9309201Y	55G			11/1/2013 8:13	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/16/2007		11/16/2007		Rad Dist FP-35			X10C9309201		Repack
62	X10C9309201Z	55G			11/1/2013 8:13	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/29/1989	11/16/2007		11/16/2007		Rad Dist FP-35			X10C9309201		Repack
63	X10C9309204A	55G			10/21/2013 16:24	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/11/1984	12/14/2011		12/14/2011		- Rpkgd was X10C9309204			X10C9309204		Repack
64	X10C9309217AH	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	12/30/1991	2/22/2010		2/22/2010					X10C9309217		Repack
65	X10C9309217AI	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	12/30/1991	2/22/2010		2/22/2010					X10C9309217		Repack
66	X10C9309217B	55G	EMPLACED_CNTR	12/1/2011 15:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	12/30/1991	2/17/2010		2/17/2010					X10C9309217		Repack
67	X10C9309217D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	12/30/1991	2/17/2010		2/17/2010					X10C9309217		Repack
68	X10C9309217H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	12/30/1991	2/17/2010		2/17/2010					X10C9309217		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
69	X10C9309217I	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	12/30/1991	2/17/2010		2/17/2010					X10C9309217		Repack
70	X10C9309217J	55G	EMPLACED_CNTR	11/30/2011 14:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	12/30/1991	2/17/2010		2/17/2010					X10C9309217		Repack
71	X10C9309217S	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	12/30/1991	2/22/2010		2/22/2010					X10C9309217		Repack
72	X10C9309217T	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	12/30/1991	2/22/2010		2/22/2010					X10C9309217		Repack
73	X10C9309217V	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	12/30/1991	2/22/2010		2/22/2010					X10C9309217		Repack
74	X10C9309217X	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	12/30/1991	2/22/2010		2/22/2010					X10C9309217		Repack
75	X10C9310152	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	6/10/1995										
76	X10C9310218A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/18/1997	8/23/2010		8/23/2010					X10C9310218 and X10C9312832		Repack
77	X10C9311031A	55G			10/21/2013 16:25	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/20/1971	7/15/2011		7/15/2011		- Rpkgd was X10C9311031			X10C9311031		Repack
78	X10C9311032	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	2/8/1972										
79	X10C9311033A	55G			10/21/2013 16:25	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/13/1971	7/28/2011		7/28/2011		- Rpkgd was X10C9311033			X10C9311033		Repack
80	X10C9311034	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	5/3/1972										
81	X10C9311035A	55G			10/21/2013 16:26	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/2/1972	4/18/2012		4/18/2012		- Rpkgd was X10C9311035			X10C9311035		Repack
82	X10C9311035B	55G			10/21/2013 16:26	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/2/1972	4/18/2012		4/18/2012		- Rpkgd was X10C9311035			X10C9311035		Repack
83	X10C9311041A	55G			10/21/2013 16:27	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/6/1971	8/23/2011		8/23/2011		- Rpkgd was X10C9311041			X10C9311041		Repack
84	X10C9311049	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	9/22/1971										
85	X10C9311051A	55G			10/21/2013 16:28	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/6/1971	1/24/2012		1/24/2012	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311051	Yes	10/6/1971	X10C9311051		Repack
86	X10C9311051B	55G			10/21/2013 16:31	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/6/1971	1/24/2012		1/24/2012	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311051	Yes	10/6/1971	X10C9311051		Repack
87	X10C9311054C	55G			10/21/2013 16:34	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/13/1971	9/19/2012		9/19/2012		- Rpkgd was X10C9311054			X10C9311054		Repack
88	X10C9311055	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	1/6/1972										
89	X10C9311059B	55G			10/21/2013 16:38	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/16/1981	2/8/2012		2/8/2012		- Rpkgd was X10C9311059			X10C9311059		Repack
90	X10C9311059C	55G			10/21/2013 16:38	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/16/1981	2/8/2012		2/8/2012		- Rpkgd was X10C9311059			X10C9311059		Repack
91	X10C9311059D	55G			10/21/2013 16:38	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/16/1981	2/8/2012		2/8/2012		- Rpkgd was X10C9311059			X10C9311059		Repack
92	X10C9311059E	55G			10/21/2013 16:39	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/16/1981	2/8/2012		2/8/2012		- Rpkgd was X10C9311059			X10C9311059		Repack
93	X10C9311059F	55G			10/21/2013 16:39	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/16/1981	2/8/2012		2/8/2012		- Rpkgd was X10C9311059			X10C9311059		Repack
94	X10C9311062A	55G			10/21/2013 16:39	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1981	2/15/2012		2/15/2012		- Rpkgd was X10C9311062			X10C9311062		Repack
95	X10C9311062C	55G			10/21/2013 16:40	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1981	2/15/2012		2/15/2012		- Rpkgd was X10C9311062			X10C9311062		Repack
96	X10C9311062D	55G			10/21/2013 16:40	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1981	2/15/2012		2/15/2012		- Rpkgd was X10C9311062			X10C9311062		Repack
97	X10C9311062F	55G			10/21/2013 16:40	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1981	2/15/2012		2/15/2012		- Rpkgd was X10C9311062			X10C9311062		Repack
98	X10C9311063A1	55G			10/21/2013 16:42	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/19/1981	12/22/2011		12/22/2011		- Rpkgd was X10C9311063 - Rpkgd was X10C9311063A			X10C9311063A	X10C9311063	Repack
99	X10C9311066A	55G			10/21/2013 16:42	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/28/1981	3/21/2012		3/21/2012		- Rpkgd was X10C9311066			X10C9311066		Repack
100	X10C9311066B	55G			10/21/2013 16:42	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/28/1981	3/21/2012		3/21/2012		- Rpkgd was X10C9311066			X10C9311066		Repack
101	X10C9311066C	55G			10/21/2013 16:43	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/28/1981	3/21/2012		3/21/2012		- Rpkgd was X10C9311066			X10C9311066		Repack
102	X10C9311066D	55G			10/21/2013 16:45	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/28/1981	3/21/2012		3/21/2012		- Rpkgd was X10C9311066			X10C9311066		Repack
103	X10C9311066E	55G			10/21/2013 16:45	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/28/1981	3/22/2012		3/22/2012		- Rpkgd was X10C9311066			X10C9311066		Repack
104	X10C9311066F	55G			10/21/2013 16:46	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/28/1981	3/22/2012		3/22/2012		- Rpkgd was X10C9311066			X10C9311066		Repack
105	X10C9311067A	55G			10/21/2013 16:47	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1981	10/6/2011		10/6/2011		- Rpkgd was X10C9311067			X10C9311067		Repack
106	X10C9311067B	55G			10/21/2013 16:47	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1981	10/6/2011		10/6/2011		- Rpkgd was X10C9311067			X10C9311067		Repack
107	X10C9311067C1	55G			10/21/2013 16:49	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1981	1/26/2012		1/26/2012		- Rpkgd was X10C9311067 - Rpkgd was X10C9311067C			X10C9311067C	X10C9311067	Repack
108	X10C9311067D	55G			10/21/2013 16:47	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1981	10/6/2011		10/6/2011		- Rpkgd was X10C9311067			X10C9311067		Repack
109	X10C9311067E	55G			10/21/2013 16:48	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1981	10/6/2011		10/6/2011		- Rpkgd was X10C9311067			X10C9311067		Repack
110	X10C9311069A	55G			10/21/2013 16:50	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/13/1981	10/11/2011		10/11/2011		- Rpkgd was X10C9311069			X10C9311069		Repack
111	X10C9311069B	55G			10/21/2013 16:50	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/13/1981	10/11/2011		10/11/2011		- Rpkgd was X10C9311069			X10C9311069		Repack
112	X10C9311069C1	55G			10/21/2013 16:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/13/1981	10/10/2012		10/10/2012		- Rpkgd was X10C9311069 - Rpkgd was X10C9311069C			X10C9311069C	X10C9311069	Repack
113	X10C9311069D	55G			10/21/2013 16:51	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/13/1981	10/11/2011		10/11/2011		- Rpkgd was X10C9311069			X10C9311069		Repack
114	X10C9311072A	55G			10/21/2013 16:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/4/1972	11/15/2012		11/15/2012		- Rpkgd was X10C9311072			X10C9311072		Repack
115	X10C9311089A	55G			10/21/2013 16:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/23/1982	9/22/2011		9/22/2011		- Rpkgd was X10C9311089			X10C9311089		Repack
116	X10C9311113A	55G			10/21/2013 16:55	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/18/1978	11/2/2011		11/2/2011		- Rpkgd was X10C9311113			X10C9311113		Repack
117	X10C9311119A	55G			10/21/2013 16:55	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/20/1977	3/21/2012		3/21/2012		- Rpkgd was X10C9311119			X10C9311119		Repack
118	X10C9311133A	55G			10/21/2013 16:56	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/8/1978	11/27/2012		11/27/2012		- Rpkgd was X10C9311133			X10C9311133		Repack
119	X10C9311173	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	1/16/1973										
120	X10C9311174A	85G			10/22/2013 7:14	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/16/1973	8/2/2012		8/2/2012	PCB Item - PCB electric pump.	- Rpkgd was X10C9311174	Yes	1/16/1973	X10C9311174		Repack
121	X10C9311193A	55G	EMPLACED_CNTR	12/3/2011 10:48	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/13/1980	1/11/2010		1/11/2010	Potential PCB Item-electric motor				X10C9311193		Repack
122	X10C9311194	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/10/1983										
123	X10C9311196A	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/17/1981	1/27/2010		1/27/2010					X10C9311196		Repack
124	X10C9311206A	55G	EMPLACED_CNTR	11/8/2011 23:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/26/1983	1/2/2010		1/2/2010					X10C9311206		Repack
125	X10C9311210A	55G			10/22/2013 7:16	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/5/1972	8/31/2011		8/31/2011		- Rpkgd was X10C9311210			X10C9311210		Repack
126	X10C9311211A	55G			10/22/2013 7:18	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/23/1971	8/9/2011		8/9/2011		- Rpkgd was X10C9311211			X10C9311211		Repack
127	X10C9311212	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	12/13/1971										
128	X10C9311216A	55G			10/22/2013 7:20	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/21/1970	9/27/2011		9/27/2011		- Rpkgd was X10C9311216			X10C9311216		Repack
129	X10C9311218A	55G			10/22/2013 7:20	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	10/6/2011		10/6/2011		- Rpkgd was X10C9311218			X10C9311218		Repack
130	X10C9311218B	55G			10/22/2013 7:20	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	10/6/2011		10/6/2011		- Rpkgd was X10C9311218			X10C9311218		Repack
131	X10C9311220A	55G			10/22/2013 7:21	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/28/1981	1/12/2012		1/12/2012		- Rpkgd was X10C9311220			X10C9311220		Repack
132	X10C9311220B	55G			10/22/2013 7:21	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/28/1981	1/12/2012		1/12/2012		- Rpkgd was X10C9311220			X10C9311220		Repack
133	X10C9311220C1	55G			10/22/2013 7:26	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/28/1981	7/26/2012		7/26/2012		- Rpkgd was X10C9311220 - Rpkgd was X10C9311220C			X10C9311220C	X10C9311220	Repack
134	X10C9311220E	55G			10/22/2013 7:22	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/28/1981	1/12/2012		1/12/2012		- Rpkgd was X10C9311220			X10C9311220		Repack
135	X10C9311221E	55G			10/22/2013 7:35	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/16/1981	2/27/2012		2/27/2012		- Rpkgd was X10C9311221			X10C9311221		Repack
136	X10C9311221F	55G			10/22/2013 7:35	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/16/1981	2/27/2012		2/27/2012		- Rpkgd was X10C9311221			X10C9311221		Repack
137	X10C9311222A	55G			10/22/2013 7:36	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/4/1981	10/12/2011		10/12/2011		- Rpkgd was X10C9311222			X10C9311222		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
138	X10C9311222B	55G			10/22/2013 7:36	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/4/1981	10/12/2011		10/12/2011		- Rpkgd was X10C9311222			X10C9311222		Repack
139	X10C9311222C	55G			10/22/2013 7:36	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/4/1981	10/12/2011		10/12/2011		- Rpkgd was X10C9311222			X10C9311222		Repack
140	X10C9311222D	55G			10/22/2013 7:36	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/4/1981	10/12/2011		10/12/2011		- Rpkgd was X10C9311222			X10C9311222		Repack
141	X10C9311223F	55G			10/22/2013 7:37	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/22/1973	10/19/2011		10/19/2011		- Rpkgd was X10C9311223			X10C9311223		Repack
142	X10C9311223G	55G			10/22/2013 7:37	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/22/1973	10/19/2011		10/19/2011		- Rpkgd was X10C9311223			X10C9311223		Repack
143	X10C9311223J	55G			10/22/2013 7:37	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/22/1973	10/19/2011		10/19/2011		- Rpkgd was X10C9311223			X10C9311223		Repack
144	X10C9311223K	55G			10/22/2013 7:38	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/22/1973	10/19/2011		10/19/2011		- Rpkgd was X10C9311223			X10C9311223		Repack
145	X10C9311225A	55G			10/22/2013 7:38	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/14/1982	2/14/2012		2/14/2012		- Rpkgd was X10C9311225			X10C9311225		Repack
146	X10C9311225C	55G			10/22/2013 7:39	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/14/1982	2/14/2012		2/14/2012		- Rpkgd was X10C9311225			X10C9311225		Repack
147	X10C9311225E	55G			10/22/2013 7:39	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/14/1982	2/14/2012		2/14/2012		- Rpkgd was X10C9311225			X10C9311225		Repack
148	X10C9311225F1	55G			10/22/2013 7:41	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/14/1982	7/9/2012		7/9/2012		- Rpkgd was X10C9311225 - Rpkgd was X10C9311225F			X10C9311225F	X10C9311225	Repack
149	X10C9311225F2	55G			10/22/2013 7:43	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/14/1982	7/10/2012		7/10/2012		- Rpkgd was X10C9311225 - Rpkgd was X10C9311225F			X10C9311225F	X10C9311225	Repack
150	X10C9311225G1	55G			10/22/2013 7:43	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/14/1982	6/11/2013		6/11/2013		- Rpkgd was X10C9311225 - Rpkgd was X10C9311225G			X10C9311225G	X10C9311225	Repack
151	X10C9311225H	55G			10/22/2013 7:41	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/14/1982	2/14/2012		2/14/2012		- Rpkgd was X10C9311225			X10C9311225		Repack
152	X10C9311226A	55G			10/22/2013 7:45	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/29/1972	9/27/2011		9/27/2011	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311226	Yes	3/29/1972	X10C9311226		Repack
153	X10C9311226B	55G			10/22/2013 7:45	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/29/1972	9/27/2011		9/27/2011	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311226	Yes	3/29/1972	X10C9311226		Repack
154	X10C9311226D	55G			10/22/2013 7:46	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/29/1972	9/29/2011		9/29/2011	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311226	Yes	3/29/1972	X10C9311226		Repack
155	X10C9311226E	55G			10/22/2013 7:46	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/29/1972	9/29/2011		9/29/2011	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311226	Yes	3/29/1972	X10C9311226		Repack
156	X10C9311226F	55G			10/22/2013 7:47	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/29/1972	9/29/2011		9/29/2011	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311226	Yes	3/29/1972	X10C9311226		Repack
157	X10C9311226M	55G			10/22/2013 7:47	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/29/1972	9/29/2011		9/29/2011	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311226	Yes	3/29/1972	X10C9311226		Repack
158	X10C9311229A	55G			10/22/2013 7:48	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/22/1981	8/9/2011		8/9/2011		- Rpkgd was X10C9311229			X10C9311229		Repack
159	X10C9311230A	55G			10/22/2013 7:49	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/16/1981	9/13/2011		9/13/2011		- Rpkgd was X10C9311230			X10C9311230		Repack
160	X10C9311230B	55G			10/22/2013 7:49	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/16/1981	9/13/2011		9/13/2011		- Rpkgd was X10C9311230			X10C9311230		Repack
161	X10C9311231	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	5/31/1973										
162	X10C9311233A	55G			10/22/2013 7:50	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/16/1972	8/3/2011		8/3/2011		- Rpkgd was X10C9311233			X10C9311233		Repack
163	X10C9311234A	55G			10/22/2013 7:50	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/14/1982	8/25/2011		8/25/2011		- Rpkgd was X10C9311234			X10C9311234		Repack
164	X10C9311237A	55G			10/22/2013 7:51	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/7/1972	9/28/2011		9/28/2011		- Rpkgd was X10C9311237			X10C9311237		Repack
165	X10C9311238A	55G			10/22/2013 7:51	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/16/1981	12/12/2011		12/12/2011		- Rpkgd was X10C9311238			X10C9311238		Repack
166	X10C9311238B	55G			10/22/2013 7:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/16/1981	12/12/2011		12/12/2011		- Rpkgd was X10C9311238			X10C9311238		Repack
167	X10C9311238D	55G			10/22/2013 7:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/16/1981	12/12/2011		12/12/2011		- Rpkgd was X10C9311238			X10C9311238		Repack
168	X10C9311238F	55G			10/22/2013 7:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/16/1981	12/12/2011		12/12/2011		- Rpkgd was X10C9311238			X10C9311238		Repack
169	X10C9311238G	55G			10/22/2013 7:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/16/1981	12/12/2011		12/12/2011		- Rpkgd was X10C9311238			X10C9311238		Repack
170	X10C9311238H	55G			10/22/2013 7:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/16/1981	12/12/2011		12/12/2011		- Rpkgd was X10C9311238			X10C9311238		Repack
171	X10C9311239B	55G			10/22/2013 7:53	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/4/1976	4/25/2012		4/25/2012		- Rpkgd was X10C9311239			X10C9311239		Repack
172	X10C9311239C	55G			10/22/2013 7:53	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/4/1976	4/30/2012		4/30/2012		- Rpkgd was X10C9311239			X10C9311239		Repack
173	X10C931124O	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	1/22/1976										
174	X10C9311241	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	6/17/1971										
175	X10C9311245A	55G			10/22/2013 7:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/6/1971	8/10/2011		8/10/2011		- Rpkgd was X10C9311245			X10C9311245		Repack
176	X10C9311252A	55G	EMPLACED_CNTR	11/8/2011 23:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/6/1972	1/25/2010		1/25/2010					X10C9311252		Repack
177	X10C9311261A	55G			10/22/2013 7:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/5/1976	12/1/2011		12/1/2011		- Rpkgd was X10C9311261			X10C9311261		Repack
178	X10C9311267A	55G	EMPLACED_CNTR	12/4/2011 13:46	10/27/2011 13:40	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/18/1972	7/27/2010		7/27/2010					X10C9311267		Repack
179	X10C9311278A	55G			10/29/2013 10:41	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/2/1971	1/21/2010		1/21/2010	PCB Item-pump		Yes	6/2/1971	X10C9311278		Repack
180	X10C9311279A	55G			11/1/2013 8:14	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/26/1979	1/28/2010		1/28/2010	Potential PCB-electrical motor	Rad Dist FP-35			X10C9311279		Repack
181	X10C9311281A	55G			11/1/2013 8:15	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/26/1979	2/2/2010		2/2/2010		Rad Dist FP-35			X10C9311281		Repack
182	X10C9311285A	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/6/1972	2/11/2010		2/11/2010					X10C9311285		Repack
183	X10C9311289	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	11/7/1973										
184	X10C9311290A	55G	EMPLACED_CNTR	11/30/2011 14:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/23/1972	2/22/2010		2/22/2010					X10C9311290		Repack
185	X10C9311298A	55G			11/1/2013 8:37	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/30/1980	2/9/2010		2/9/2010		Rad Dist FP-35			X10C9311298		Repack
186	X10C9311302A	55G	EMPLACED_CNTR	11/30/2011 13:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/16/1972	1/26/2010		1/26/2010					X10C9311302		Repack
187	X10C9311303A	55G			11/1/2013 15:53	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/26/1979	2/3/2010		2/3/2010		Rad Dist FP-35			X10C9311303		Repack
188	X10C9311304A	55G			4/29/2011 15:15	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/8/1972	4/11/2011		4/11/2011		Rpkgd Was X10C9311304			X10C9311304		Repack
189	X10C9311313A	55G			10/22/2013 7:55	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/21/1977	11/19/2012		11/19/2012		- Rpkgd was X10C9311313			X10C9311313		Repack
190	X10C9311317A	55G			10/22/2013 7:56	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/8/1972	7/13/2011		7/13/2011		- Rpkgd was X10C9311317			X10C9311317		Repack
191	X10C9311320A	55G			10/22/2013 7:56	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/13/1971	11/20/2012		11/20/2012		- Rpkgd was X10C9311320			X10C9311320		Repack
192	X10C9311322	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	7/12/1974										
193	X10C9311323C	55G			10/22/2013 7:57	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/19/1972	9/17/2012		9/17/2012		- Rpkgd was X10C9311323			X10C9311323		Repack
194	X10C9311323D	55G			10/22/2013 7:59	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/19/1972	9/17/2012		9/17/2012	Potential PCB - electric motor.	- Rpkgd was X10C9311323			X10C9311323		Repack
195	X10C9311323E	55G			10/22/2013 7:59	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/19/1972	9/17/2012		9/17/2012		- Rpkgd was X10C9311323			X10C9311323		Repack
196	X10C9311326A	55G			10/22/2013 8:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/9/1972	11/29/2012		11/29/2012		- Rpkgd was X10C9311326			X10C9311326		Repack
197	X10C9311330A	55G			10/22/2013 8:08	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/3/1971	9/30/2011		9/30/2011		- Rpkgd was X10C9311330			X10C9311330		Repack
198	X10C9311332A	55G			10/22/2013 8:09	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/16/1970	8/10/2011		8/10/2011		- Rpkgd was X10C9311332			X10C9311332		Repack
199	X10C9311333A	55G			10/22/2013 8:09	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/13/1971	11/27/2012		11/27/2012		- Rpkgd was X10C9311333			X10C9311333		Repack
200	X10C9311334C	55G			10/22/2013 8:10	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/12/1972	10/2/2012		10/2/2012		- Rpkgd was X10C9311334			X10C9311334		Repack
201	X10C9311336A	55G			10/22/2013 8:24	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/9/1971	1/17/2012		1/17/2012		- Rpkgd was X10C9311336			X10C9311336		Repack
202	X10C9311340C	55G			10/22/2013 8:24	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/13/1971	9/18/2012		9/18/2012		- Rpkgd was X10C9311340			X10C9311340		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
203	X10C9311341B	55G			10/22/2013 8:25	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/6/1972	7/12/2011		7/12/2011	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311341	Yes	1/6/1972	X10C9311341		Repack
204	X10C9311342A	55G			10/22/2013 8:26	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/27/1971	8/23/2011		8/23/2011		- Rpkgd was X10C9311342			X10C9311342		Repack
205	X10C9311343	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/4/1971										
206	X10C9311344A	55G			10/22/2013 8:26	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/19/1972	7/13/2011		7/13/2011		- Rpkgd was X10C9311344			X10C9311344		Repack
207	X10C9311351A1	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/23/1972	4/14/2011		4/14/2011		Rpkgd Was X10C9311351A			X10C9311351A	X10C9311351	Repack
208	X10C9311353A	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/5/1973	2/20/2008		2/20/2008					X10C9311353		Repack
209	X10C9311353B1	55G			10/22/2013 8:38	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/17/1995	2/15/2012		2/15/2012		- Rpkgd was X10C9311353B			X10C9311353B	X10C9310151A, X10C9311353, X10C9313025	Repack
210	X10C9311354A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1973	8/10/2010		8/10/2010	Potential PCB-light fixtures				X10C9311354 and X10C9310218		Repack
211	X10C9311360A	55G	EMPLACED_CNTR	11/30/2011 13:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/7/1977	2/2/2011		2/2/2011					X10C9311360		Repack
212	X10C9311360B1	55G			10/22/2013 8:41	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/7/1977	2/14/2013		2/14/2013		- Rpkgd was X10C9311360 - Rpkgd was X10C9311360B			X10C9311360B	X10C9311360	Repack
213	X10C9311364A	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/21/1972	2/8/2010		2/8/2010					X10C9311364		Repack
214	X10C9311369A	55G			10/22/2013 8:46	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/15/1974	11/27/2012		11/27/2012		- Rpkgd was X10C9311369			X10C9311369		Repack
215	X10C9311370A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/21/1975	1/7/2010		1/7/2010					X10C9311370		Repack
216	X10C9311374A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/12/1972	7/27/2010		7/27/2010					X10C9311374		Repack
217	X10C9311380A1	55G			10/22/2013 8:48	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/27/1982	3/19/2013		3/19/2013		- Rpkgd was X10C9311380 - Rpkgd was X10C9311380A			X10C9311380A	X10C9311380	Repack
218	X10C9311386A1	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/19/1981	9/2/2010		9/2/2010					X10C9311386A	X10C9311386	Repack
219	X10C9311396A	55G	EMPLACED_CNTR	12/3/2011 10:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/1/1984	2/3/2010		2/3/2010					X10C9311396		Repack
220	X10C9311403A	55G			10/22/2013 8:49	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/4/1971	8/26/2011		8/26/2011		- Rpkgd was X10C9311403			X10C9311403		Repack
221	X10C9311416A	55G			10/22/2013 8:49	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/28/1971	10/4/2011		10/4/2011		- Rpkgd was X10C9311416			X10C9311416		Repack
222	X10C9311419A	55G			10/22/2013 8:50	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1971	8/2/2011		8/2/2011		- Rpkgd was X10C9311419			X10C9311419		Repack
223	X10C9311421	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/18/1971										
224	X10C9311422A	55G			10/22/2013 8:50	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1971	8/23/2011		8/23/2011		- Rpkgd was X10C9311422			X10C9311422		Repack
225	X10C9311423	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/27/1971										
226	X10C9311426A	55G			10/22/2013 8:51	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/27/1971	10/5/2011		10/5/2011		- Rpkgd was X10C9311426			X10C9311426		Repack
227	X10C9311429C	55G			10/22/2013 8:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	9/26/2012		9/26/2012		- Rpkgd was X10C9311429			X10C9311429		Repack
228	X10C9311429D	55G			10/22/2013 8:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	9/26/2012		9/26/2012		- Rpkgd was X10C9311429			X10C9311429		Repack
229	X10C9311429F	55G			10/22/2013 8:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	9/26/2012		9/26/2012		- Rpkgd was X10C9311429			X10C9311429		Repack
230	X10C9311429J	55G			10/22/2013 8:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	9/26/2012		9/26/2012		- Rpkgd was X10C9311429			X10C9311429		Repack
231	X10C9311431A	55G			10/22/2013 8:53	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/27/1971	12/20/2011		12/20/2011		- Rpkgd was X10C9311431			X10C9311431		Repack
232	X10C9311434A	55G			10/22/2013 8:53	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	8/24/2011		8/24/2011		- Rpkgd was X10C9311434			X10C9311434		Repack
233	X10C9311440	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/4/1971										
234	X10C9311452A	55G	EMPLACED_CNTR	12/3/2011 10:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/27/1974	1/14/2011		1/14/2011					X10C9311452		Repack
235	X10C9311454A	55G	APPROVED_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/7/1973	12/8/2010		12/8/2010					X10C9311454		Repack
236	X10C9311459A	55G			10/22/2013 8:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/4/1973	2/8/2012		2/8/2012		- Rpkgd was X10C9311459			X10C9311459		Repack
237	X10C9311461A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/8/1979	1/19/2011		1/19/2011					X10C9311461		Repack
238	X10C9311466A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/20/1970	2/10/2011		2/10/2011					X10C9311466		Repack
239	X10C9311471A	55G	EMPLACED_CNTR	12/4/2011 13:47	4/28/2011 6:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/13/1975	4/5/2011		4/5/2011		Rpkgd Was X10C9311471			X10C9311471		Repack
240	X10C9311476A	55G	EMPLACED_CNTR	12/3/2011 10:48	4/28/2011 6:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/12/1973	4/6/2011		4/6/2011		Rpkgd Was X10C9311476			X10C9311476		Repack
241	X10C9311480A	55G			10/22/2013 8:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/19/1974	2/9/2012		2/9/2012		- Rpkgd was X10C9311480			X10C9311480		Repack
242	X10C9311484A	55G			5/25/2011 17:06	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/11/1976	4/19/2011		4/19/2011		- Rpkgd was X10C9311484			X10C9311484		Repack
243	X10C9311490A	55G			10/22/2013 8:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/28/1972	3/20/2012		3/20/2012		- Rpkgd was X10C9311490			X10C9311490		Repack
244	X10C9311492A1	55G			5/10/2011 17:15	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/31/1973	4/28/2011		4/28/2011		- Rpkgd was X10C9311492A			X10C9311492A	X10C9311492	Repack
245	X10C9311501	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	11/7/1973										
246	X10C9311509A1	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/25/1977	2/10/2011		2/10/2011	Potential PCB Item: electric motor				X10C9311509A	X10C9311509	Repack
247	X10C9311511A	55G	EMPLACED_CNTR	12/1/2011 15:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/18/1972	1/20/2010		1/20/2010					X10C9311511		Repack
248	X10C9311512A1	55G			10/22/2013 8:56	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/25/1977	11/7/2012		11/7/2012		- Rpkgd was X10C9311512 - Rpkgd was X10C9311512A			X10C9311512A	X10C9311512	Repack
249	X10C9311517A	55G	EMPLACED_CNTR	12/4/2011 13:47	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/11/1972	11/13/2007		11/13/2007					X10C9311517		Repack
250	X10C9311520A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/6/1972	1/18/2011		1/18/2011					X10C9311520		Repack
251	X10C9311523B	55G			10/22/2013 8:57	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1973	2/29/2012		2/29/2012	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311523	Yes	9/25/1973	X10C9311523		Repack
252	X10C9311525A1	55G	EMPLACED_CNTR	12/1/2011 15:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/27/1975	1/31/2011		1/31/2011					X10C9311525A	X10C9311525	Repack
253	X10C9311529A	55G	EMPLACED_CNTR	12/3/2011 10:23	4/28/2011 6:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/9/1973	3/31/2011		3/31/2011	Potential PCB Item: Disassembled motor	Rpkgd Was X10C9311529			X10C9311529		Repack
254	X10C9311552C	55G			10/22/2013 8:58	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/6/1972	12/6/2012		12/6/2012		- Rpkgd was X10C9311552			X10C9311552		Repack
255	X10C9311552G	55G			10/22/2013 8:59	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/6/1972	12/7/2012		12/7/2012	PCB Item - absorbed suspect PCB oil.	- Rpkgd was X10C9311552	Yes	3/6/1972	X10C9311552		Repack
256	X10C9311553A	55G	EMPLACED_CNTR	12/1/2011 15:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/2/1975	3/29/2010		3/29/2010					X10C9311553		Repack
257	X10C9311555A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/28/1972	1/19/2011		1/19/2011					X10C9311555		Repack
258	X10C9311556A	55G			10/22/2013 9:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/9/1972	7/25/2013		7/25/2013		- Rpkgd was X10C9311556			X10C9311556		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
259	X10C9311558A	55G	APPROVED_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/3/1977	12/8/2010		12/8/2010					X10C9311558		Repack
260	X10C9311559	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	3/18/1974										
261	X10C9311561A	55G	EMPLACED_CNTR	12/3/2011 10:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/18/1974	12/8/2010		12/8/2010					X10C9311561		Repack
262	X10C9311571A	55G			10/22/2013 9:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/16/1975	4/24/2012		4/24/2012		- Rpkgd was X10C9311571			X10C9311571		Repack
263	X10C9311598A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1974	8/11/2010		8/11/2010					X10C9311598		Repack
264	X10C9311605A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/17/1974	2/15/2010		2/15/2010					X10C9311605		Repack
265	X10C9311669	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	6/21/1974										
266	X10C9311671A	55G			11/1/2013 15:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/26/1979	2/5/2010		2/5/2010		Rad Dist FP-35			X10C9311671		Repack
267	X10C9311674	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	11/3/1980										
268	X10C9311680A	55G	EMPLACED_CNTR	12/1/2011 15:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/2/1981	5/19/2008		5/19/2008					X10C9311680		Repack
269	X10C9311680B	55G	EMPLACED_CNTR	11/30/2011 14:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/2/1981	5/19/2008		5/19/2008					X10C9311386, X10C9311680		Repack
270	X10C9311681	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	11/11/1981										
271	X10C9311685A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/23/1971	2/9/2011		2/9/2011					X10C9311685		Repack
272	X10C9311688A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/23/1971	1/20/2011		1/20/2011					X10C9311688		Repack
273	X10C9311697A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/24/1982	1/19/2011		1/19/2011					X10C9311697		Repack
274	X10C9311698A	55G			10/22/2013 9:05	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/8/1979	3/1/2012		3/1/2012		- Rpkgd was X10C9311698			X10C9311698		Repack
275	X10C9311700A	55G	EMPLACED_CNTR	11/30/2011 14:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/10/1971	1/17/2011		1/17/2011					X10C9311700		Repack
276	X10C9311709A1	55G			10/31/2013 18:20	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/11/1973	4/20/2011		4/20/2011		Rad Dist FP-27 - Rpkgd Was X10C9311709 - Rpkgd Was X10C9311709A			X10C9311709A	X10C9311709	Repack
277	X10C9311710A	55G			10/22/2013 9:06	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/14/1972	2/8/2012		2/8/2012		- Rpkgd was X10C9311710			X10C9311710		Repack
278	X10C9311726A	55G	EMPLACED_CNTR	12/7/2011 14:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/30/1974	1/25/2010		1/25/2010					X10C9311726		Repack
279	X10C9311726B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/30/1974	1/25/2010		1/25/2010					X10C9311726		Repack
280	X10C9311727	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	3/6/1986										
281	X10C9311731E	55G			10/22/2013 9:14	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/19/1974	2/22/2012		2/22/2012	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311731	Yes	2/19/1974	X10C9311731		Repack
282	X10C9311739A	55G			10/22/2013 9:14	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/22/1973	6/22/2011		6/22/2011		- Rpkgd was X10C9311739			X10C9311739		Repack
283	X10C9311757A	55G	EMPLACED_CNTR	11/30/2011 14:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/2/1985	2/18/2010		2/18/2010					X10C9311757		Repack
284	X10C9311765A	55G	EMPLACED_CNTR	12/3/2011 10:48	10/27/2011 13:42	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/20/1986	8/13/2010		8/13/2010					X10C9311765		Repack
285	X10C9311769A	55G			10/22/2013 9:24	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/23/1971	1/4/2012		1/4/2012		- Rpkgd was X10C9311769			X10C9311769		Repack
286	X10C9311772A	55G			10/22/2013 9:25	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/19/1974	12/6/2012		12/6/2012		- Rpkgd was X10C9311772			X10C9311772		Repack
287	X10C9311774A	55G			8/4/2011 11:32	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/27/1971	5/20/2011		5/20/2011		- Rpkgd was X10C9311774			X10C9311774		Repack
288	X10C9311775A	55G			10/22/2013 9:25	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/23/1971	8/10/2011		8/10/2011		- Rpkgd was X10C9311775			X10C9311775		Repack
289	X10C9311775B	55G			10/22/2013 9:26	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/23/1971	8/10/2011		8/10/2011	PCB Item - PCB contaminated debris.	- Rpkgd was X10C9311775	Yes	11/23/1971	X10C9311775		Repack
290	X10C9311776A	55G			10/22/2013 9:26	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/26/1971	8/3/2011		8/3/2011		- Rpkgd was X10C9311776			X10C9311776		Repack
291	X10C9311777	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	6/21/1972										
292	X10C9311778A	55G			10/22/2013 9:27	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/26/1971	10/6/2011		10/6/2011		- Rpkgd was X10C9311778			X10C9311778		Repack
293	X10C9311779	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	11/3/1971										
294	X10C9311780A	55G			10/22/2013 9:27	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/12/1971	12/20/2011		12/20/2011		- Rpkgd was X10C9311780			X10C9311780		Repack
295	X10C9311781A	55G			10/22/2013 9:28	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/27/1982	2/7/2012		2/7/2012		- Rpkgd was X10C9311781			X10C9311781		Repack
296	X10C9311795A	55G	EMPLACED_CNTR	12/3/2011 10:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/10/1971	1/7/2011		1/7/2011					X10C9311795		Repack
297	X10C9311797A	55G			10/22/2013 9:28	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/30/1971	3/14/2012		3/14/2012		- Rpkgd was X10C9311797			X10C9311797		Repack
298	X10C9311810A	85G			10/22/2013 9:30	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/16/1973	2/6/2012		2/6/2012	PCB Item - pump.	- Rpkgd was X10C9311810	Yes	1/16/1973	X10C9311810		Repack
299	X10C9311811A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/10/1971	2/8/2011		2/8/2011					X10C9311811		Repack
300	X10C9311812A	55G	EMPLACED_CNTR	12/3/2011 10:48	10/27/2011 13:47	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/5/1985	9/29/2010		9/29/2010					X10C9311812		Repack
301	X10C9311818A	55G	EMPLACED_CNTR	12/7/2011 14:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/17/1971	1/7/2010		1/7/2010					X10C9311818		Repack
302	X10C9311834A	55G			10/22/2013 9:30	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/17/1986	2/14/2012		2/14/2012		- Rpkgd was X10C9311834			X10C9311834		Repack
303	X10C9311886A	55G	EMPLACED_CNTR	12/1/2011 15:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/26/1987	2/17/2010		2/17/2010					X10C9311886		Repack
304	X10C9311894A	55G	EMPLACED_CNTR	11/30/2011 13:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/10/1989	2/16/2010		2/16/2010					X10C9311894		Repack
305	X10C9311915A	55G	EMPLACED_CNTR	11/30/2011 13:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/14/1989	1/26/2010		1/26/2010					X10C9311915		Repack
306	X10C9311954A	55G			10/22/2013 9:31	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/22/1977	9/22/2011		9/22/2011		- Rpkgd was X10C9311954			X10C9311954		Repack
307	X10C9311954B	55G			10/22/2013 9:32	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/22/1977	9/22/2011		9/22/2011	PCB Item - absorbed suspect PCB oil.	- Rpkgd was X10C9311954	Yes	9/22/1977	X10C9311954		Repack
308	X10C9311954C	55G			10/22/2013 9:32	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/22/1977	9/22/2011		9/22/2011		- Rpkgd was X10C9311954	NA		X10C9311954		Repack
309	X10C9311954D	55G			10/22/2013 9:32	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/22/1977	9/22/2011		9/22/2011		- Rpkgd was X10C9311954	NA		X10C9311954		Repack
310	X10C9311999A	55G	EMPLACED_CNTR	12/7/2011 14:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/4/1970	11/30/2010		11/30/2010					X10C9311999		Repack
311	X10C9312003A	55G	EMPLACED_CNTR	11/30/2011 10:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/11/1972	11/14/2007		11/14/2007					X10C9312003		Repack
312	X10C9312020A	55G	EMPLACED_CNTR	12/1/2011 15:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/18/1972	8/17/2010		8/17/2010					X10C9312020		Repack
313	X10C9312021A	55G			5/23/2011 17:38	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/31/1971	5/17/2011		5/17/2011		- Rpkgd was X10C9312021			X10C9312021		Repack
314	X10C9312021B	55G			5/23/2011 17:40	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/31/1971	5/17/2011		5/17/2011		- Rpkgd was X10C9312021			X10C9312021		Repack
315	X10C9312021C	55G			5/23/2011 17:40	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/31/1971	5/17/2011		5/17/2011		- Rpkgd was X10C9312021			X10C9312021		Repack
316	X10C9312021D	55G			5/23/2011 17:40	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/31/1971	5/17/2011		5/17/2011		- Rpkgd was X10C9312021			X10C9312021		Repack
317	X10C9312029A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/17/1981	1/21/2010		1/21/2010					X10C9312029		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
318	X10C9312037A	55G			10/22/2013 9:33	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/6/1972	11/23/2011		11/23/2011	PCB Item - vacuum pump, grease, and debris.	- Rpkgd was X10C9312037	Yes	9/6/1972	X10C9312037		Repack
319	X10C9312056A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/2/1977	2/11/2010		2/11/2010					X10C9312056		Repack
320	X10C9312056B1	55G			10/22/2013 9:34	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/2/1977	7/6/2011		7/6/2011		- Rpkgd was X10C9312056B			X10C9312056B	X10C9312056	Repack
321	X10C9312063A	55G			10/22/2013 9:35	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/5/1976	2/6/2012		2/6/2012		- Rpkgd was X10C9312063			X10C9312063		Repack
322	X10C9312063B	55G			10/22/2013 9:35	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/5/1976	2/6/2012		2/6/2012		- Rpkgd was X10C9312063			X10C9312063		Repack
323	X10C9312063C	55G			10/22/2013 9:35	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/5/1976	2/6/2012		2/6/2012		- Rpkgd was X10C9312063			X10C9312063		Repack
324	X10C9312064	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	9/21/1983										
325	X10C9312084	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	3/25/1977										
326	X10C9312092	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	9/25/1973				Potential PCB-light fixtures						
327	X10C9312096A	55G	EMPLACED_CNTR	11/13/2011 13:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/10/1971	7/11/2007		7/11/2007					X10C9312096		Repack
328	X10C9312098A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/25/1977	12/17/2010		12/17/2010					X10C9312098		Repack
329	X10C9312100A	55G	EMPLACED_CNTR	11/13/2011 13:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/23/1979	1/21/2010		1/21/2010					X10C9312100		Repack
330	X10C9312107A1	55G	EMPLACED_CNTR	11/8/2011 23:51	10/27/2011 13:49	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/28/1972	12/1/2010		12/1/2010					X10C9312107A	X10C9312107	Repack
331	X10C9312108A	55G			11/1/2013 15:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/18/1979	2/1/2010		2/1/2010		Rad Dist FP-35			X10C9312108		Repack
332	X10C9312108B	55G			11/1/2013 15:55	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/18/1979	2/1/2010		2/1/2010		Rad Dist FP-35			X10C9312108		Repack
333	X10C9312110A	55G	EMPLACED_CNTR	12/7/2011 14:27	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/18/1972	1/6/2010		1/6/2010					X10C9312110		Repack
334	X10C9312135	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	11/4/1970										
335	X10C9312143A	55G	EMPLACED_CNTR	12/1/2011 15:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/30/1971	1/12/2011		1/12/2011					X10C9312143		Repack
336	X10C9312144	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	4/26/1978										
337	X10C9312157A	55G	EMPLACED_CNTR	12/4/2011 13:47	10/27/2011 13:50	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/21/1979	8/18/2010		8/18/2010					X10C9312157		Repack
338	X10C9312160A1	55G			10/22/2013 9:59	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/25/1973	7/31/2012		7/31/2012		- Rpkgd was X10C9312160 - Rpkgd was X10C9312160A			X10C9312160A	X10C9312160	Repack
339	X10C9312162A	55G			10/31/2013 18:21	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/4/1973	3/30/2011		3/30/2011		Rad Dist FP-27 - Rpkgd Was X10C9312162			X10C9312162		Repack
340	X10C9312162B	55G			10/31/2013 18:21	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/4/1973	3/30/2011		3/30/2011		Rad Dist FP-27 - Rpkgd Was X10C9312162			X10C9312162		Repack
341	X10C9312163	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	1/9/1974										
342	X10C9312170A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/27/1975	10/24/2007		10/24/2007					X10C9312170		Repack
343	X10C9312171	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	9/29/1971										
344	X10C9312174A	55G	EMPLACED_CNTR	12/1/2011 15:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/31/1973	2/2/2010		2/2/2010					X10C9312174		Repack
345	X10C9312176A	55G			10/22/2013 10:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/12/1973	1/7/2013		1/7/2013		- Rpkgd was X10C9312176			X10C9312176		Repack
346	X10C9312192A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/12/1973	8/17/2010		8/17/2010					X10C9312192		Repack
347	X10C9312198A	55G	EMPLACED_CNTR	11/30/2011 13:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/6/1971	1/20/2011		1/20/2011					X10C9312198		Repack
348	X10C9312214A	55G	EMPLACED_CNTR	12/3/2011 10:23	4/28/2011 6:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/3/1975	4/4/2011		4/4/2011		Rpkgd Was X10C9312214			X10C9312214		Repack
349	X10C9312222A	55G			11/1/2013 15:55	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/22/1980	9/10/2007		9/10/2007		Rad Dist FP-35			X10C9312222		Repack
350	X10C9312223A	55G	EMPLACED_CNTR	12/1/2011	10/27/2011 13:51	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/5/1973	8/19/2010		8/19/2010	PCB Item-pump; Potential PCB Item-motor				X10C9312223		Repack
351	X10C9312227A1	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/6/1970	12/1/2010		12/1/2010					X10C9312227A	X10C9312227	Repack
352	X10C9312229A	55G			11/1/2013 15:56	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/22/1979	8/10/2010		8/10/2010		Rad Dist FP-35			X10C9312229		Repack
353	X10C9312231	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	5/15/1974										
354	X10C9312235A	55G			10/31/2013 18:19	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/30/1975	8/30/2007		8/30/2007		Rad Dist FP-26R			X10C9312235		Repack
355	X10C9312235B	55G			10/31/2013 18:19	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/30/1975	8/30/2007		8/30/2007		Rad Dist FP-26R			X10C9312235		Repack
356	X10C9312238A1	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/6/1972	9/23/2010		9/23/2010	Added back per DMooney email 012011				X10C9312238A		Repack
357	X10C9312253	55G			10/29/2013 10:43	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	9/22/1981				PCB Item-vacuum pump		Yes	9/22/1981			
358	X10C9312256A	55G			10/22/2013 10:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/28/1972	11/15/2011		11/15/2011		- Rpkgd was X10C9312256			X10C9312256		Repack
359	X10C9312269	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	9/11/1978										
360	X10C9312272A	55G	EMPLACED_CNTR	11/30/2011 14:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/5/1976	1/22/2010		1/22/2010					X10C9312272		Repack
361	X10C9312311B	55G			10/22/2013 10:01	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/11/1981	2/21/2012		2/21/2012		- Rpkgd was X10C9312311			X10C9312311		Repack
362	X10C9312311C	55G			10/22/2013 10:01	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/11/1981	2/21/2012		2/21/2012		- Rpkgd was X10C9312311			X10C9312311		Repack
363	X10C9312311D	55G			10/22/2013 10:01	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/11/1981	2/21/2012		2/21/2012		- Rpkgd was X10C9312311			X10C9312311		Repack
364	X10C9312328A	55G	EMPLACED_CNTR	11/30/2011 14:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/27/1975	3/31/2010		3/31/2010					X10C9312328		Repack
365	X10C9312328B	55G	EMPLACED_CNTR	11/8/2011 23:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/27/1975	3/31/2010		3/31/2010					X10C9312328		Repack
366	X10C9312335A	55G	EMPLACED_CNTR	12/1/2011 15:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/22/1981	2/16/2010		2/16/2010	PCB Item-vacuum pump				X10C9312335		Repack
367	X10C9312337A	55G	EMPLACED_CNTR	11/30/2011 13:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/20/1977	1/25/2011		1/25/2011					X10C9312337		Repack
368	X10C9312348A	55G	EMPLACED_CNTR	12/7/2011 14:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/21/1981	1/28/2010		1/28/2010					X10C9312348		Repack
369	X10C9312366A	55G			10/22/2013 10:02	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1970	6/22/2011		6/22/2011		- Rpkgd was X10C9312366			X10C9312366		Repack
370	X10C9312387A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/23/1979	2/4/2010		2/4/2010					X10C9312387		Repack
371	X10C9312387B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/23/1979	2/8/2010		2/8/2010					X10C9312387		Repack
372	X10C9312387C	55G	EMPLACED_CNTR	12/1/2011	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/23/1979	2/8/2010		2/8/2010					X10C9312387		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
373	X10C9312394A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1977	2/23/2010		2/23/2010					X10C9312394		Repack
374	X10C9312405	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	2/24/1982										
375	X10C9312419A	55G			10/22/2013 10:02	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/5/1976	12/13/2011		12/13/2011		- Rpkgd was X10C9312419			X10C9312419		Repack
376	X10C9312454A	55G	EMPLACED_CNTR	11/2/2011 23:12	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/18/1981	1/20/2010		1/20/2010					X10C9312454		Repack
377	X10C9312458A	55G			11/1/2013 15:56	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/17/1979	2/18/2010		2/18/2010		Rad Dist FP-35			X10C9312458		Repack
378	X10C9312460	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/18/1981										
379	X10C9312467A	55G			11/1/2013 15:57	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/28/1979	1/27/2010		1/27/2010	Potential PCB-electrical motor	Rad Dist FP-35			X10C9312467		Repack
380	X10C9312473A	55G	EMPLACED_CNTR	11/3/2011 23:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/24/1982	2/2/2010		2/2/2010					X10C9312473		Repack
381	X10C9312474A	55G	EMPLACED_CNTR	11/30/2011 13:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1975	12/8/2010		12/8/2010					X10C9312474		Repack
382	X10C9312484	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/25/1981										
383	X10C9312486	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	9/8/1982										
384	X10C9312520	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	1/11/1972										
385	X10C9312521A	55G			10/22/2013 10:13	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/22/1972	9/23/2011		9/23/2011		- Rpkgd was X10C9312521			X10C9312521		Repack
386	X10C9312527	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/7/1971										
387	X10C9312530A	55G			10/22/2013 10:13	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/28/1972	11/20/2012		11/20/2012		- Rpkgd was X10C9312530			X10C9312530		Repack
388	X10C9312532A	55G			10/22/2013 10:14	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/24/1973	7/27/2011		7/27/2011		- Rpkgd was X10C9312532			X10C9312532		Repack
389	X10C9312533A	55G			10/22/2013 10:15	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/14/1973	9/14/2011		9/14/2011		- Rpkgd was X10C9312533			X10C9312533		Repack
390	X10C9312533B	55G			10/22/2013 10:15	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/14/1973	9/14/2011		9/14/2011		- Rpkgd was X10C9312533			X10C9312533		Repack
391	X10C9312538A	55G			10/22/2013 10:15	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/4/1971	8/4/2011		8/4/2011		- Rpkgd was X10C9312538			X10C9312538		Repack
392	X10C9312539A	55G			10/22/2013 10:16	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/15/1971	12/4/2012		12/4/2012		- Rpkgd was X10C9312539			X10C9312539		Repack
393	X10C9312540A	55G			10/22/2013 10:16	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/11/1972	6/22/2011		6/22/2011		- Rpkgd was X10C9312540			X10C9312540		Repack
394	X10C9312542	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	7/20/1971										
395	X10C9312544A	55G			10/22/2013 10:17	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1971	10/3/2011		10/3/2011		- Rpkgd was X10C9312544			X10C9312544		Repack
396	X10C9312547A	55G			10/22/2013 10:18	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/30/1973	12/4/2012		12/4/2012		- Rpkgd was X10C9312547			X10C9312547		Repack
397	X10C9312548A	55G			10/22/2013 10:18	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/24/1973	7/18/2011		7/18/2011		- Rpkgd was X10C9312548			X10C9312548		Repack
398	X10C9312548B	55G			10/22/2013 10:19	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/24/1973	7/19/2011		7/19/2011		- Rpkgd was X10C9312548			X10C9312548		Repack
399	X10C9312550A	55G			10/22/2013 10:19	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/12/1971	10/4/2011		10/4/2011		- Rpkgd was X10C9312550			X10C9312550		Repack
400	X10C9312550B	55G			10/22/2013 10:20	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/12/1971	10/4/2011		10/4/2011		- Rpkgd was X10C9312550			X10C9312550		Repack
401	X10C9312551C	55G			10/22/2013 10:20	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/12/1972	9/13/2012		9/13/2012		- Rpkgd was X10C9312551			X10C9312551		Repack
402	X10C9312551D	55G			10/22/2013 10:20	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/12/1972	9/13/2012		9/13/2012		- Rpkgd was X10C9312551			X10C9312551		Repack
403	X10C9312553A	55G	EMPLACED_CNTR	11/6/2011 13:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/15/1972	7/5/2007		7/5/2007					X10C9312553		Repack
404	X10C9312555A	55G			10/31/2013 18:22	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/6/1973	9/20/2011		9/20/2011		Rad Dist FP-27 - Rpkgd was X10C9312555			X10C9312555		Repack
405	X10C9312569A	55G	EMPLACED_CNTR	11/30/2011 10:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/19/1973	12/15/2010		12/15/2010					X10C9312569		Repack
406	X10C9312576A	55G			10/22/2013 10:27	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/25/1974	4/24/2012		4/24/2012		- Rpkgd was X10C9312576			X10C9312576		Repack
407	X10C9312587B	55G			10/22/2013 10:29	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/20/1979	7/28/2011		7/28/2011	PCB Item - absorbed suspect PCB oil.	- Rpkgd was X10C9312587	Yes	3/20/1979	X10C9312587		Repack
408	X10C9312590A	55G			10/22/2013 10:32	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/7/1973	7/20/2011		7/20/2011		- Rpkgd was X10C9312590			X10C9312590		Repack
409	X10C9312590B	55G			10/22/2013 10:32	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/7/1973	7/20/2011		7/20/2011	PCB Item - capacitors.	- Rpkgd was X10C9312590	Yes	5/7/1973	X10C9312590		Repack
410	X10C9312599A	55G			10/22/2013 10:33	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/9/1973	1/10/2013		1/10/2013	PCB Item - transformer.	- Rpkgd was X10C9312599	Yes	8/9/1973	X10C9312599		Repack
411	X10C9312601A	55G			10/22/2013 10:34	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/26/1971	1/5/2013		1/5/2013		- Rpkgd was X10C9312601			X10C9312601		Repack
412	X10C9312610B	55G			10/22/2013 10:35	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1971	11/20/2011		11/20/2011		- Rpkgd was X10C9312610			X10C9312610		Repack
413	X10C9312610E	55G			10/22/2013 10:35	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1971	12/6/2011		12/6/2011		- Rpkgd was X10C9312610			X10C9312610		Repack
414	X10C9312610F	55G			10/22/2013 10:36	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1971	12/5/2011		12/5/2011		- Rpkgd was X10C9312610			X10C9312610		Repack
415	X10C9312613	110G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	1/6/1972										
416	X10C9312615A	55G			10/22/2013 10:37	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1971	10/6/2011		10/6/2011	PCB Item - transformer.	- Rpkgd was X10C9312615	Yes	9/29/1971	X10C9312615		Repack
417	X10C9312617A	55G			10/22/2013 10:38	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/22/1972	2/7/2012		2/7/2012		- Rpkgd was X10C9312617			X10C9312617		Repack
418	X10C9312620A	55G			10/22/2013 10:39	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/2/1971	8/12/2011		8/12/2011		- Rpkgd was X10C9312620			X10C9312620		Repack
419	X10C9312621A	55G			10/22/2013 10:40	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/13/1971	10/3/2011		10/3/2011		- Rpkgd was X10C9312621			X10C9312621		Repack
420	X10C9312622	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	1/11/1972										
421	X10C9312623A	55G			10/22/2013 10:48	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1971	8/8/2011		8/8/2011		- Rpkgd was X10C9312623			X10C9312623		Repack
422	X10C9312625A	55G			10/22/2013 10:49	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/8/1972	11/29/2012		11/29/2012		- Rpkgd was X10C9312625			X10C9312625		Repack
423	X10C9312626	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	9/22/1971										
424	X10C9312627A	55G			10/22/2013 10:49	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	10/9/2012		10/9/2012		- Rpkgd was X10C9312627			X10C9312627		Repack
425	X10C9312631A	55G			10/22/2013 10:53	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/21/1972	4/25/2012		4/25/2012	Potential PCB - electric motor.	- Rpkgd was X10C9312631			X10C9312631		Repack
426	X10C9312633	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	3/1/1972										
427	X10C9312634C	55G			10/22/2013 10:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/25/1971	9/20/2012		9/20/2012	Potential PCB - electric motor.	- Rpkgd was X10C9312634			X10C9312634		Repack
428	X10C9312642A	55G	EMPLACED_CNTR	11/30/2011 13:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/24/1974	2/9/2010		2/9/2010					X10C9312642		Repack
429	X10C9312642B	55G	EMPLACED_CNTR	11/3/2011 23:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/24/1974	2/9/2010		2/9/2010					X10C9312642		Repack
430	X10C9312644	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	9/6/1972										
431	X10C9312647A	55G			10/22/2013 10:53	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/31/1974	3/21/2012		3/21/2012		- Rpkgd was X10C9312647			X10C9312647		Repack
432	X10C9312659A	55G	EMPLACED_CNTR	12/1/2011	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/17/1971	2/15/2010		2/15/2010					X10C9312659		Repack
433	X10C9312666A	55G			5/25/2011 17:02	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1973	5/19/2011		5/19/2011		- Rpkgd was X10C9312666			X10C9312666		Repack
434	X10C9312666B	55G			5/25/2011 17:02	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1973	5/19/2011		5/19/2011		- Rpkgd was X10C9312666			X10C9312666		Repack
435	X10C9312666C	55G			5/25/2011 17:03	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1973	5/19/2011		5/19/2011		- Rpkgd was X10C9312666			X10C9312666		Repack
436	X10C9312666D	55G			5/25/2011 17:03	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1973	5/19/2011		5/19/2011		- Rpkgd was X10C9312666			X10C9312666		Repack
437	X10C9312666E	55G			5/25/2011 17:03	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1973	5/19/2011		5/19/2011		- Rpkgd was X10C9312666			X10C9312666		Repack
438	X10C9312666F	55G			5/25/2011 17:04	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1973	5/19/2011		5/19/2011		- Rpkgd was X10C9312666			X10C9312666		Repack
439	X10C9312666G1	55G			10/22/2013 10:55	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1973	1/3/2012		1/3/2012		- Rpkgd was X10C9312666 - Rpkgd was X10C9312666G			X10C9312666G	X10C9312666	Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
440	X10C9312666H	55G			5/25/2011 17:04	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1973	5/19/2011		5/19/2011		- Rpkgd was X10C9312666			X10C9312666		Repack
441	X10C9312666I	55G			5/25/2011 17:05	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1973	5/19/2011		5/19/2011		- Rpkgd was X10C9312666			X10C9312666		Repack
442	X10C9312666J	55G			5/25/2011 17:05	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1973	5/19/2011		5/19/2011		- Rpkgd was X10C9312666			X10C9312666		Repack
443	X10C9312667	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/15/1973										
444	X10C9312674A	55G	EMPLACED_CNTR	11/8/2011 23:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/7/1976	12/14/2010		12/14/2010					X10C9312674		Repack
445	X10C9312674B1	55G			10/22/2013 10:57	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/7/1976	11/21/2011		11/21/2011		- Rpkgd was X10C9312674 - Rpkgd was X10C9312674B			X10C9312674B	X10C9312674	Repack
446	X10C9312676A	55G	EMPLACED_CNTR	11/30/2011 13:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/13/1972	2/15/2010		2/15/2010					X10C9312676		Repack
447	X10C9312694	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/7/1973										
448	X10C9312696A	55G	EMPLACED_CNTR	12/1/2011	10/27/2011 13:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/19/1978	7/29/2010		7/29/2010					X10C9312696		Repack
449	X10C9312698A	55G			10/22/2013 10:57	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/8/1972	3/20/2012		3/20/2012		- Rpkgd was X10C9312698			X10C9312698		Repack
450	X10C9312716A	55G	EMPLACED_CNTR	11/8/2011 23:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/5/1972	2/18/2010		2/18/2010					X10C9312716		Repack
451	X10C9312719A	55G			10/22/2013 10:58	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/3/1977	2/16/2012		2/16/2012		- Rpkgd was X10C9312719			X10C9312719		Repack
452	X10C9312719C	55G			10/22/2013 10:58	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/3/1977	2/16/2012		2/16/2012		- Rpkgd was X10C9312719			X10C9312719		Repack
453	X10C9312719D	55G			10/22/2013 10:58	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/3/1977	2/16/2012		2/16/2012		- Rpkgd was X10C9312719			X10C9312719		Repack
454	X10C9312721A	55G	EMPLACED_CNTR	11/8/2011 23:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/13/1972	7/3/2007		7/3/2007					X10C9312721		Repack
455	X10C9312723A	55G	EMPLACED_CNTR	12/1/2011	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/8/1972	7/10/2007		7/10/2007					X10C9312723		Repack
456	X10C9312740A	55G			11/1/2013 15:57	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/23/1980	1/7/2010		1/7/2010		Rad Dist FP-35			X10C9312740		Repack
457	X10C9312745A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/5/1971	8/10/2010		8/10/2010					X10C9312745		Repack
458	X10C9312747A	55G			10/22/2013 10:59	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/31/1973	1/24/2012		1/24/2012	Potential PCB - electric motor with gear box.	- Rpkgd was X10C9312747	NA		X10C9312747		Repack
459	X10C9312753	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	12/21/1970										
460	X10C9312754A	55G			10/22/2013 11:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/2/1971	12/10/2012		12/10/2012		- Rpkgd was X10C9312754			X10C9312754		Repack
461	X10C9312754C	55G			10/22/2013 11:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/2/1971	12/11/2012		12/11/2012		- Rpkgd was X10C9312754			X10C9312754		Repack
462	X10C9312756A	55G			10/22/2013 11:01	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1974	10/13/2011		10/13/2011		- Rpkgd was X10C9312756			X10C9312756		Repack
463	X10C9312760	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	7/26/1971										
464	X10C9312761	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/3/1971										
465	X10C9312765A	55G			10/22/2013 11:01	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/21/1981	9/27/2011		9/27/2011		- Rpkgd was X10C9312765			X10C9312765		Repack
466	X10C9312766	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/16/1971										
467	X10C9312768	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	5/3/1972										
468	X10C9312770A	55G			10/22/2013 11:02	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/27/1971	7/19/2011		7/19/2011		- Rpkgd was X10C9312770			X10C9312770		Repack
469	X10C9312775A	55G			10/22/2013 11:02	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/4/1970	4/18/2012		4/18/2012		- Rpkgd was X10C9312775			X10C9312775		Repack
470	X10C9312779A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/21/1981	1/18/2010		1/18/2010					X10C9312779		Repack
471	X10C9312787A	55G			10/22/2013 11:03	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/20/1970	3/19/2012		3/19/2012		- Rpkgd was X10C9312787			X10C9312787		Repack
472	X10C9312789A	55G	EMPLACED_CNTR	11/2/2011 23:12	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/9/1971	4/29/2008		4/29/2008					X10C9312789		Repack
473	X10C9312790	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	7/19/1972										
474	X10C9312795A1	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/13/1974	10/21/2010		10/21/2010					X10C9312795A	X10C9312795	Repack
475	X10C9312803A	55G	EMPLACED_CNTR	12/3/2011 10:48	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/6/1971	1/17/2011		1/17/2011					X10C9312803		Repack
476	X10C9312805A	55G	EMPLACED_CNTR	11/2/2011 23:12	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/6/1970	8/13/2007		8/13/2007					X10C9312805		Repack
477	X10C9312806	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	4/28/1981										
478	X10C9312807	55G			10/29/2013 10:43	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	2/19/1974				PCB item-vacuum pump		Yes	2/19/1974			
479	X10C9312818	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	12/4/1970										
480	X10C9312822A	55G	EMPLACED_CNTR	11/2/2011 23:15	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/6/1972	8/29/2007		8/29/2007					X10C9312822		Repack
481	X10C9312824	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	6/21/1974										
482	X10C9312826A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/21/1975	1/13/2010		1/13/2010	Potential PCB item-electric motor				X10C9312826		Repack
483	X10C9312828A	55G			10/22/2013 11:04	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/11/1972	8/24/2011		8/24/2011		- Rpkgd was X10C9312828			X10C9312828		Repack
484	X10C9312831A	55G			4/29/2011 15:18	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/24/1992	4/7/2011		4/7/2011		Rpkgd Was X10C9312831			X10C9312831		Repack
485	X10C9312832A	55G	EMPLACED_CNTR	12/7/2011 10:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/22/1992	8/20/2010		8/20/2010					X10C9312832		Repack
486	X10C9312832B1	55G			10/22/2013 11:04	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/22/1992	3/21/2013		3/21/2013		- Rpkgd was X10C9312832B			X10C9312832B	X10C9312832	Repack
487	X10C9312834A	55G	EMPLACED_CNTR	12/1/2011 15:09	10/27/2011 13:55	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/1/1992	9/10/2010		9/10/2010	PCB item-hydraulic pump; Potential PCB item-electric motor				X10C9312834		Repack
488	X10C9312842A	55G			10/22/2013 11:05	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/12/1971	9/22/2011		9/22/2011		- Rpkgd was X10C9312842			X10C9312842		Repack
489	X10C9312843A	55G			10/22/2013 11:05	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/1/1972	7/14/2011		7/14/2011		- Rpkgd was X10C9312843			X10C9312843		Repack
490	X10C9312853A	55G	EMPLACED_CNTR	11/8/2011 23:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/25/1971	1/22/2010		1/22/2010					X10C9312853		Repack
491	X10C9312857A	55G	EMPLACED_CNTR	11/3/2011 23:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/5/1971	1/26/2010		1/26/2010					X10C9312857		Repack
492	X10C9312861A	55G	EMPLACED_CNTR	11/8/2011 23:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/19/1973	2/22/2010		2/22/2010					X10C9312861		Repack
493	X10C9312884A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/14/1982	11/30/2010		11/30/2010					X10C9312884		Repack
494	X10C9312890A	55G			10/22/2013 11:06	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/14/1973	12/10/2012		12/10/2012		- Rpkgd was X10C9312890			X10C9312890		Repack
495	X10C9312891A	55G			10/22/2013 11:06	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/7/1974	2/29/2012		2/29/2012		- Rpkgd was X10C9312891			X10C9312891		Repack
496	X10C9312906	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	6/26/1987										
497	X10C9312909	79G			10/29/2013 10:44	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	2/19/1974				PCB item-vacuum pump		Yes	2/19/1974			
498	X10C9312911A	55G			10/22/2013 11:07	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/26/1987	7/13/2011		7/13/2011	Potential PCB - electrical device.	- Rpkgd was X10C9312911			X10C9312911		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
499	X10C9312912	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	2/2/1972										
500	X10C9312913	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	9/29/1971										
501	X10C9312915A	55G			10/22/2013 11:08	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/19/1972	7/19/2011		7/19/2011		- Rpkgd was X10C9312915			X10C9312915		Repack
502	X10C9312917A	55G			10/22/2013 11:08	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/3/1971	9/20/2011		9/20/2011		- Rpkgd was X10C9312917			X10C9312917		Repack
503	X10C9312918A	55G			10/22/2013 11:09	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/12/1973	12/4/2012		12/4/2012		- Rpkgd was X10C9312918			X10C9312918		Repack
504	X10C9312922A	55G			10/22/2013 11:10	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/4/1971	2/15/2012		2/15/2012		- Rpkgd was X10C9312922			X10C9312922		Repack
505	X10C9312923A	55G			10/22/2013 11:10	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/7/1972	7/29/2011		7/29/2011		- Rpkgd was X10C9312923			X10C9312923		Repack
506	X10C9312924A	55G			10/22/2013 11:11	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	10/2/2012		10/2/2012		- Rpkgd was X10C9312924			X10C9312924		Repack
507	X10C9312926A	55G			10/22/2013 11:18	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/26/1971	7/27/2011		7/27/2011		- Rpkgd was X10C9312926			X10C9312926		Repack
508	X10C9312938A	55G			10/22/2013 11:19	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/16/1972	2/2/2012		2/2/2012		- Rpkgd was X10C9312938			X10C9312938		Repack
509	X10C9312942A	55G			10/22/2013 11:29	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/6/1971	1/24/2012		1/24/2012		- Rpkgd was X10C9312942			X10C9312942		Repack
510	X10C9312945A	55G	EMPLACED_CNTR	11/2/2011 23:12	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/15/1971	1/17/2011		1/17/2011					X10C9312945		Repack
511	X10C9312946A	55G	EMPLACED_CNTR	11/30/2011 11:00	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/16/1975	1/18/2011		1/18/2011					X10C9312946		Repack
512	X10C9312947	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/25/1971										
513	X10C9312958A	55G			10/22/2013 11:30	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/11/1978	11/11/2011		11/11/2011		- Rpkgd was X10C9312958			X10C9312958		Repack
514	X10C9312972A	55G			11/1/2013 15:58	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/6/1980	8/25/2010		8/25/2010		Rad Dist FP-35			X10C9312972		Repack
515	X10C9312973A	55G			10/22/2013 11:30	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/20/1970	3/19/2012		3/19/2012		- Rpkgd was X10C9312973			X10C9312973		Repack
516	X10C9312980C	55G			10/22/2013 11:31	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	9/13/2012		9/13/2012		- Rpkgd was X10C9312980			X10C9312980		Repack
517	X10C9312980D	55G			10/22/2013 11:31	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	9/13/2012		9/13/2012		- Rpkgd was X10C9312980			X10C9312980		Repack
518	X10C9312980F	55G			10/22/2013 11:31	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/4/1971	9/13/2012		9/13/2012		- Rpkgd was X10C9312980			X10C9312980		Repack
519	X10C9312982	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/25/1971										
520	X10C9312983A	55G			10/22/2013 11:32	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1971	7/20/2011		7/20/2011		- Rpkgd was X10C9312983			X10C9312983		Repack
521	X10C9312985A	55G			10/22/2013 11:36	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/13/1971	1/7/2013		1/7/2013		- Rpkgd was X10C9312985			X10C9312985		Repack
522	X10C9312987A	55G			10/22/2013 11:36	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/4/1971	7/26/2011		7/26/2011		- Rpkgd was X10C9312987			X10C9312987		Repack
523	X10C9312988A	55G			10/22/2013 11:37	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/27/1971	7/19/2011		7/19/2011	Potential PCB - electric motor.	- Rpkgd was X10C9312988			X10C9312988		Repack
524	X10C9312989A	55G			10/22/2013 11:38	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/30/1972	7/14/2011		7/14/2011		- Rpkgd was X10C9312989			X10C9312989		Repack
525	X10C9312990	110G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/25/1971										
526	X10C9312993A	55G			10/22/2013 11:38	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/26/1973	7/14/2011		7/14/2011		- Rpkgd was X10C9312993			X10C9312993		Repack
527	X10C9312995A	55G			10/22/2013 11:39	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/14/1972	8/23/2011		8/23/2011		- Rpkgd was X10C9312995			X10C9312995		Repack
528	X10C9313001A	55G			10/22/2013 11:39	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/10/1971	11/15/2011		11/15/2011		- Rpkgd was X10C9313001			X10C9313001		Repack
529	X10C9313003	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	9/9/1971										
530	X10C9313005	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	5/1/1972										
531	X10C9313006A	55G			10/22/2013 11:40	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/26/1972	5/12/2011		5/12/2011	PCB item - absorbed suspect PCB oil.	- Rpkgd was X10C9313006	Yes	5/26/1972	X10C9313006		Repack
532	X10C9313013A	55G			10/22/2013 11:41	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/26/1972	7/12/2011		7/12/2011		- Rpkgd was X10C9313013			X10C9313013		Repack
533	X10C9313014A	55G			5/5/2011 11:24	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/26/2011		4/26/2011			- Rpkgd was X10C9313014			X10C9313014		Repack
534	X10C9313016A	55G			5/23/2011 17:41	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/3/1971	5/18/2011		5/18/2011		- Rpkgd was X10C9313016			X10C9313016		Repack
535	X10C9313017A	55G			10/22/2013 11:42	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/28/1971	10/10/2011		10/10/2011		- Rpkgd was X10C9313017			X10C9313017		Repack
536	X10C9313025A	55G	EMPLACED_CNTR	11/2/2011 23:12	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/25/1981	2/21/2008		2/21/2008					X10C9313025		Repack
537	X10C9313031	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	11/22/1972										
538	X10C9313046B	55G	EMPLACED_CNTR	11/8/2011 23:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/27/1983	2/10/2010		2/10/2010					X10C9313046		Repack
539	X10C9313063A	55G	APPROVED_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/31/1973	1/7/2011		1/7/2011					X10C9313063		Repack
540	X10C9313065A	55G	EMPLACED_CNTR	12/7/2011 10:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/15/1974	12/7/2010		12/7/2010					X10C9313065		Repack
541	X10C9313087	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	1/6/1971										
542	X10C9313089A	55G	EMPLACED_CNTR	12/7/2011 14:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/7/1973	1/7/2011		1/7/2011	Potential PCB Item-electric motor				X10C9313089		Repack
543	X10C9313094A	55G			10/22/2013 11:42	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/17/1972	4/17/2012		4/17/2012		- Rpkgd was X10C9313094			X10C9313094		Repack
544	X10C9313095A	55G			10/22/2013 11:42	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/28/1972	3/13/2012		3/13/2012		- Rpkgd was X10C9313095			X10C9313095		Repack
545	X10C9313096A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/25/1977	12/8/2010		12/8/2010					X10C9313096		Repack
546	X10C9313101A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/22/1979	8/9/2010		8/9/2010					X10C9313101		Repack
547	X10C9313102A	55G	EMPLACED_CNTR	11/2/2011 23:15	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/15/1975	12/9/2010		12/9/2010					X10C9313102		Repack
548	X10C9313103	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	2/23/1972										
549	X10C9313104A	55G	EMPLACED_CNTR	12/7/2011 10:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/14/1973	1/18/2011		1/18/2011					X10C9313104		Repack
550	X10C9313105	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	2/1/1971										
551	X10C9313106A	55G	EMPLACED_CNTR	11/2/2011 23:15	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/6/1977	12/22/2010		12/22/2010					X10C9313106		Repack
552	X10C9313107	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	2/1/1971										
553	X10C9313108A	55G			10/22/2013 11:43	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/12/1972	6/21/2011		6/21/2011		- Rpkgd was X10C9313108			X10C9313108		Repack
554	X10C9313110A	55G			10/22/2013 11:43	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/16/1972	4/19/2012		4/19/2012		- Rpkgd was X10C9313110			X10C9313110		Repack
555	X10C9313111A	55G			11/1/2013 15:58	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/26/1979	2/3/2010		2/3/2010		Rad Dist FP-35			X10C9313111		Repack
556	X10C9313112A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/1/1972	2/3/2011		2/3/2011					X10C9313112		Repack
557	X10C9313113A	55G			10/22/2013 11:44	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/4/1970	3/15/2012		3/15/2012		- Rpkgd was X10C9313113			X10C9313113		Repack
558	X10C9313119A	55G	EMPLACED_CNTR	11/13/2011 13:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/6/1972	2/3/2010		2/3/2010					X10C9313119		Repack
559	X10C9313119B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/6/1972	2/4/2010		2/4/2010					X10C9313119		Repack
560	X10C9313138	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/27/1976										
561	X10C9313591	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/24/1990										
562	X10C9313593	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	3/29/1989										
563	X10C9313665	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/9/1972										
564	X10C9313670A	55G	EMPLACED_CNTR	11/8/2011 23:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/31/1973	2/3/2010		2/3/2010					X10C9313670		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
565	X10C9313671A	55G	EMPLACED_CNTR	12/7/2011 10:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/24/1974	2/8/2010		2/8/2010					X10C9313671		Repack
566	X10C9313672A	55G	EMPLACED_CNTR	11/3/2011 23:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/24/1974	1/29/2010		1/29/2010					X10C9313672		Repack
567	X10C9400001A	55G			4/28/2011 6:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/26/1987	4/13/2011		4/13/2011		Rpkgd Was X10C9400001			X10C9400001		Repack
568	X10C9400031A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/29/1989	12/23/2010		12/23/2010					X10C9400031		Repack
569	X10C9400032A1	55G			10/22/2013 11:45	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/10/1988	9/20/2011		9/20/2011		- Rpkgd was X10C9400032 - Rpkgd was X10C9400032A			X10C9400032A	X10C9400032	Repack
570	X10C9400038A	55G	EMPLACED_CNTR	12/1/2011	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/14/1986	1/21/2010		1/21/2010	Potential PCB-electrical motor				X10C9400038		Repack
571	X10C9400045	55G			10/29/2013 10:45	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	12/8/1986				PCB Item-vacuum pump		Yes	12/8/1986			
572	X10C9400066A	55G	APPROVED_CHARZ		10/29/2013 10:46	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/20/1987	7/12/2007		7/12/2007	PCB Item-vacuum pump; Added back per CWeston email 102010		Yes	4/20/1987	X10C9400066		Repack
573	X10C9400070	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	3/8/1990										
574	X10C9400090A	55G			10/22/2013 11:46	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1971	8/22/2011		8/22/2011		- Rpkgd was X10C9400090			X10C9400090		Repack
575	X10C9400097	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	3/18/1974										
576	X10C9400102A	55G			10/22/2013 11:46	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/22/1971	7/8/2011		7/8/2011		- Rpkgd was X10C9400102			X10C9400102		Repack
577	X10C9400103A	55G			10/22/2013 11:47	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/29/1972	7/20/2011		7/20/2011		- Rpkgd was X10C9400103			X10C9400103		Repack
578	X10C9400105A	55G			10/22/2013 11:47	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/29/1971	11/1/2011		11/1/2011		- Rpkgd was X10C9400105			X10C9400105		Repack
579	X10C9400110	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/25/1971										
580	X10C9400117A	55G			5/23/2011 17:49	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	11/23/1971	5/13/2011		5/13/2011		- Rpkgd was X10C9400117			X10C9400117		Repack
581	X10C9400120A	55G			10/22/2013 11:48	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/25/1971	8/2/2011		8/2/2011		- Rpkgd was X10C9400120			X10C9400120		Repack
582	X10C9400121	79G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	8/9/1972										
583	X10C9400123A	55G			10/22/2013 11:48	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/2/1972	7/20/2011		7/20/2011		- Rpkgd was X10C9400123			X10C9400123		Repack
584	X10C9400125A	55G			10/22/2013 11:49	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/19/1971	1/18/2012		1/18/2012		- Rpkgd was X10C9400125			X10C9400125		Repack
585	X10C9400126A	55G			10/22/2013 11:51	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/18/1971	8/25/2011		8/25/2011		- Rpkgd was X10C9400126			X10C9400126		Repack
586	X10C9400129A	55G			10/22/2013 11:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/4/1971	10/9/2012		10/9/2012		- Rpkgd was X10C9400129			X10C9400129		Repack
587	X10C9400129B	55G			10/22/2013 11:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/4/1971	10/9/2012		10/9/2012		- Rpkgd was X10C9400129			X10C9400129		Repack
588	X10C9400129C	55G			10/22/2013 11:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	8/4/1971	10/9/2012		10/9/2012		- Rpkgd was X10C9400129			X10C9400129		Repack
589	X10C9400131A	55G			10/22/2013 11:52	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/1/1972	1/5/2011		1/5/2011		- Rpkgd was X10C9400131			X10C9400131		Repack
590	X10C9400132A	55G			10/22/2013 11:53	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/22/1971	12/7/2011		12/7/2011		- Rpkgd was X10C9400132			X10C9400132		Repack
591	X10C9400134A	55G			10/22/2013 11:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/8/1972	10/2/2012		10/2/2012		- Rpkgd was X10C9400134			X10C9400134		Repack
592	X10C9400147A	55G			10/22/2013 11:54	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/31/1973	4/18/2012		4/18/2012		- Rpkgd was X10C9400147			X10C9400147		Repack
593	X10C9400148A	55G			10/22/2013 11:55	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/7/1973	3/15/2012		3/15/2012		- Rpkgd was X10C9400148			X10C9400148		Repack
594	X10C9400154A	55G			10/22/2013 11:55	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	7/19/1972	4/24/2012		4/24/2012		- Rpkgd was X10C9400154			X10C9400154		Repack
595	X10C9400173A	55G			4/28/2011 6:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Daughter	2/12/1973	1/11/2011		1/11/2011	Potential PCB Item: blower motor	Rpkgd Was X10C9400173			X10C9400173		Daughter
596	X10C9400202A	55G	EMPLACED_CNTR	11/6/2011 13:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/22/1981	2/23/2010		2/23/2010					X10C9400202		Repack
597	X10C9400202B	55G	EMPLACED_CNTR	11/3/2011 23:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	5/22/1981	2/24/2010		2/24/2010					X10C9400202		Repack
598	X10C9400218A	55G			11/1/2013 15:58	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	12/14/1977	2/16/2010		2/16/2010		Rad Dist FP-35			X10C9400218		Repack
599	X10C9400226A	55G			10/22/2013 11:56	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	2/2/1972	4/24/2012		4/24/2012		- Rpkgd was X10C9400226			X10C9400226		Repack
600	X10C9400232A	55G			10/22/2013 11:56	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	4/27/1971	6/21/2011		6/21/2011		- Rpkgd was X10C9400232			X10C9400232		Repack
601	X10C9400243A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	3/31/1978	8/24/2010		8/24/2010					X10C9400243		Repack
602	X10C9400246A	55G			10/22/2013 11:57	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	9/27/1982	3/19/2012		3/19/2012		- Rpkgd was X10C9400246			X10C9400246		Repack
603	X10C9400258A	55G	EMPLACED_CNTR	11/7/2011 19:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/20/1977	12/14/2010		12/14/2010					X10C9400258		Repack
604	X10C9400277	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	11/7/1977										
605	X10C9400283	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	10/18/1982										
606	X10C9400373A	55G	EMPLACED_CNTR	11/30/2011 10:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/11/1992	8/24/2010		8/24/2010					X10C9400373		Repack
607	X10C9400373B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/11/1992	8/24/2010		8/24/2010					X10C9400373		Repack
608	X10C9400399	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	6/10/1995										
609	X10C9602104A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/13/2010		5/13/2010					X10C9602104		Repack
610	X10C9602104B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/13/2010		5/13/2010					X10C9602104		Repack
611	X10C9602104C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/13/2010		5/13/2010					X10C9602104		Repack
612	X10C9602104D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/13/2010		5/13/2010					X10C9602104		Repack
613	X10C9602104E	55G	EMPLACED_CNTR	11/7/2011 19:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/13/2010		5/13/2010					X10C9602104		Repack
614	X10C9602104F	55G	EMPLACED_CNTR	11/6/2011 13:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/13/2010		5/13/2010					X10C9602104		Repack
615	X10C9602104H	55G	EMPLACED_CNTR	11/6/2011 10:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/13/2010		5/13/2010					X10C9602104		Repack
616	X10C9602104K	55G	EMPLACED_CNTR	11/7/2011 19:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/13/2010		5/13/2010					X10C9602104		Repack
617	X10C9602104L	55G	EMPLACED_CNTR	11/7/2011 19:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/13/2010		5/13/2010					X10C9602104		Repack
618	X10C9602104M	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/13/2010		5/13/2010					X10C9602104		Repack
619	X10C9602104O	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/13/2010		5/13/2010					X10C9602104		Repack
620	X10C9602104Q	55G	EMPLACED_CNTR	11/7/2011 19:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/14/2010		5/14/2010					X10C9602104		Repack
621	X10C9602104S	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/14/2010		5/14/2010					X10C9602104		Repack
622	X10C9602104T	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/14/2010		5/14/2010					X10C9602104		Repack
623	X10C9602104U	55G	EMPLACED_CNTR	11/7/2011 19:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/14/2010		5/14/2010					X10C9602104		Repack
624	X10C9602104V	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/14/2010		5/14/2010					X10C9602104		Repack
625	X10C9602104W	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/14/2010		5/14/2010					X10C9602104		Repack
626	X10C9602104X	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/14/2010		5/14/2010					X10C9602104		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
627	X10C9602104Z	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Box Daughter	8/10/1999	5/14/2010		5/14/2010					X10C9602104		Repack
628	X10C9801421A	55G	EMPLACED_CNTR	11/7/2011 19:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	6/16/1997	2/23/2010		2/23/2010					X10C9801421		Repack
629	X10C9902206A	55G	EMPLACED_CNTR	11/3/2011 23:52	4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/11/1990	8/18/2010		8/18/2010					X10C9902206		Repack
630	X10CSATN02824A	55G			10/22/2013 12:01	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/24/1994	10/3/2012		10/3/2012		- Rpkgd was X10CSATN02824			X10CSATN02824		Repack
631	X10CSATN03194A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/27/1993	1/27/2011		1/27/2011					X10CSATN03194		Repack
632	X10CSATN03194B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	10/27/1993	1/27/2011		1/27/2011					X10CSATN03194		Repack
633	X10CSATN03195A	55G			4/28/2011 6:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/25/1994	4/7/2011		4/7/2011		Rpkgd Was X10CSATN03195			X10CSATN03195		Repack
634	X10CSATN03195B	55G			4/28/2011 6:00	mccabed	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	Repack	1/25/1994	4/7/2011		4/7/2011		Rpkgd Was X10CSATN03195			X10CSATN03195		Repack
635	X10CSATN03551	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-ISTP-CH-HET	CCP-AK-ORNL-008	S5400	NA	1/24/1994										
636	NFS0075A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	4/22/2013		4/22/2013	Compacted waste	Rpkgd was NFS0075			NFS0075		R
637	NFS0075B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	4/22/2013		4/22/2013	Compacted waste	Rpkgd was NFS0075			NFS0075		R
638	NFS0075C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	4/22/2013		4/22/2013	Compacted waste	Rpkgd was NFS0075			NFS0075		R
639	NFS0076A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0076			NFS0076		R
640	NFS0076B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0076			NFS0076		R
641	NFS0113	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	8/31/1993		8/31/1993								
642	NFS0114	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	8/31/1993		8/31/1993								
643	NFS0115	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	8/31/1993		8/31/1993								
644	NFS0116	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/20/1994		5/20/1994								
645	NFS0117A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/31/1993	2/24/2010		2/24/2010					NFS0117		Repack
646	NFS0354A	55G	EMPLACED_CNTR	11/2/2011 23:12	10/27/2011 9:30	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	4/5/2011	1/5/1994	4/5/2011		- Rpkgd Was NFS0354			NFS0354		Repack
647	NFS0354B	55G	EMPLACED_CNTR	11/2/2011 23:12	10/27/2011 9:31	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	4/5/2011	1/5/1994	4/5/2011		- Rpkgd Was NFS0354			NFS0354		Repack
648	NFS0354C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	3/31/2011	1/5/1994	3/31/2011		- Rpkgd Was NFS0354			NFS0354		Repack
649	NFS0354D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	3/31/2011	1/5/1994	3/31/2011		- Rpkgd Was NFS0354			NFS0354		Repack
650	NFS0355A	55G			5/17/2011 15:43	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/11/2011		5/11/2011			- Rpkgd was NFS0355			NFS0355		Repack
651	NFS0355B	55G			5/17/2011 15:44	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/11/2011		5/11/2011			- Rpkgd was NFS0355			NFS0355		Repack
652	NFS0355C	55G			5/17/2011 15:44	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/11/2011		5/11/2011			- Rpkgd was NFS0355			NFS0355		Repack
653	NFS0355D	55G			5/17/2011 15:44	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/11/2011		5/11/2011			- Rpkgd was NFS0355			NFS0355		Repack
654	NFS0357A	55G	EMPLACED_CNTR	11/2/2011 23:15	10/27/2011 9:32	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	2/24/2011		2/24/2011		Rpkgd into NFS0357A -NFS0357					
655	NFS0357B	55G	EMPLACED_CNTR	11/2/2011 23:12	10/27/2011 9:33	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	2/24/2011		2/24/2011		Rpkgd into NFS0357B -NFS0357					
656	NFS0357C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	2/23/2011		2/23/2011		Rpkgd into NFS0357C -NFS0357			NFS0357		Daughter
657	NFS0357D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	2/23/2011		2/23/2011		Rpkgd into NFS0357D - NFS0357			NFS0357		Daughter
658	NFS0357E	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	2/23/2011		2/23/2011		Rpkgd into NFS0357E -NFS0357			NFS0357		Daughter
659	NFS0358A	55G	EMPLACED_CNTR	6/16/2011 20:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	9/14/2010		9/14/2010					NFS0358		Repack
660	NFS0358B	55G	EMPLACED_CNTR	6/14/2011 22:22	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	9/14/2010		9/14/2010					NFS0358		Repack
661	NFS0359A	55G	EMPLACED_CNTR	11/2/2011 23:12	10/27/2011 9:34	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	2/16/2011		2/16/2011					NFS0359		Repack
662	NFS0359B	55G	EMPLACED_CNTR	11/2/2011 23:12	10/27/2011 9:35	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	2/16/2011		2/16/2011					NFS0359		Repack
663	NFS0359C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	2/15/2011		2/15/2011					NFS0359		Repack
664	NFS0359D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	2/15/2011		2/15/2011					NFS0359		Repack
665	NFS0361A	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/4/2010		8/4/2010					NFS0361		Repack
666	NFS0361B	55G	EMPLACED_CNTR	6/14/2011 0:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/9/2010		8/9/2010					NFS0361		Repack
667	NFS0361C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/9/2010		8/9/2010					NFS0361		Repack
668	NFS0361D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/9/2010		8/9/2010					NFS0361		Repack
669	NFS0361E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/9/2010		8/9/2010					NFS0361		Repack
670	NFS0368A	55G	EMPLACED_CNTR	6/14/2011 22:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/2/2010		8/2/2010					NFS0368		Repack
671	NFS0368F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/3/2010		8/3/2010					NFS0368		Repack
672	NFS0368H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/2/2010		8/2/2010					NFS0368		Repack
673	NFS0368I	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/3/2010		8/3/2010					NFS0368		Repack
674	NFS0368J	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/3/2010		8/3/2010					NFS0368		Repack
675	NFS0369A	55G	EMPLACED_CNTR	11/2/2011 23:15	10/27/2011 9:36	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	1/25/2011		1/25/2011					NFS0369		Repack
676	NFS0369B	55G	EMPLACED_CNTR	11/2/2011 23:15	10/26/2011 11:30	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	1/25/2011		1/25/2011	Updated closuredate1 and ventdate1 per RKantrowitz 102611.				NFS0369		Repack
677	NFS0369C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	1/21/2011		1/21/2011					NFS0369		Repack
678	NFS0369D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	1/21/2011		1/21/2011					NFS0369		Repack
679	NFS0370A	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	9/8/2010		9/8/2010					NFS0370		Repack
680	NFS0370B	55G	EMPLACED_CNTR	6/15/2011 21:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	9/8/2010		9/8/2010					NFS0370		Repack
681	NFS0370C	55G	EMPLACED_CNTR	6/14/2011 22:22	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	9/8/2010		9/8/2010					NFS0370		Repack
682	NFS0371A	55G	EMPLACED_CNTR	12/7/2011 10:16	10/27/2011 9:39	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	3/1/2011	1/5/1994	3/1/2011		- Rpkgd Was NFS0371			NFS0371		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
683	NFS0371B	55G	EMPLACED_CNTR	11/2/2011 23:15	10/27/2011 9:40	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	3/2/2011	1/5/1994	3/2/2011		Rpkgd into NFS0371A - Rpkgd Was NFS0371			NFS0371		Repack
684	NFS0371C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	3/1/2011	1/5/1994	3/1/2011		Rpkgd into NFS0371A Rpkgd into NFS0371B - Rpkgd Was NFS0371			NFS0371		Repack
685	NFS0371D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	3/1/2011	1/5/1994	3/1/2011		Rpkgd into NFS0371A Rpkgd into NFS0371B Rpkgd into NFS0371C - Rpkgd Was NFS0371			NFS0371		Repack
686	NFS0371E	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	3/1/2011	1/5/1994	3/1/2011		Rpkgd into NFS0371A Rpkgd into NFS0371B Rpkgd into NFS0371C Rpkgd into NFS0371D - Rpkgd Was NFS0371			NFS0371		Repack
687	NFS0371F	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	3/1/2011	1/5/1994	3/1/2011		Rpkgd into NFS0371A Rpkgd into NFS0371B Rpkgd into NFS0371C Rpkgd into NFS0371D Rpkgd into NFS0371E - Rpkgd Was NFS0371			NFS0371		Repack
688	NFS0372A	55G	EMPLACED_CNTR	12/7/2011 10:16	10/27/2011 9:44	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	3/2/2011	12/6/1993	3/2/2011		- Rpkgd Was NFS0372			NFS0372		Repack
689	NFS0372B	55G	EMPLACED_CNTR	11/2/2011 23:15	10/27/2011 9:45	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	3/2/2011	12/6/1993	3/2/2011		Rpkgd into NFS0372A - Rpkgd Was NFS0372			NFS0372		Repack
690	NFS0372C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	3/1/2011	12/6/1993	3/1/2011		Rpkgd into NFS0372A Rpkgd into NFS0372B - Rpkgd Was NFS0372			NFS0372		Repack
691	NFS0372D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	3/1/2011	12/6/1993	3/1/2011		Rpkgd into NFS0372A Rpkgd into NFS0372B Rpkgd into NFS0372C - Rpkgd Was NFS0372			NFS0372		Repack
692	NFS0372E	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	3/1/2011	12/6/1993	3/1/2011		Rpkgd into NFS0372A Rpkgd into NFS0372B Rpkgd into NFS0372C Rpkgd into NFS0372D - Rpkgd Was NFS0372			NFS0372		Repack
693	NFS0373A	55G	EMPLACED_CNTR	11/2/2011 23:15	10/27/2011 9:46	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	4/12/2011	12/6/1993	4/12/2011		Rpkgd Was NFS0373			NFS0373		Repack
694	NFS0373B	55G	EMPLACED_CNTR	11/7/2011 19:36	10/27/2011 9:47	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	4/12/2011	12/6/1993	4/12/2011		Rpkgd Was NFS0373			NFS0373		Repack
695	NFS0373C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	4/11/2011	12/6/1993	4/11/2011		Rpkgd Was NFS0373			NFS0373		Repack
696	NFS0373D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	4/11/2011	12/6/1993	4/11/2011		Rpkgd Was NFS0373			NFS0373		Repack
697	NFS0373E	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	4/11/2011	12/6/1993	4/11/2011		Rpkgd Was NFS0373			NFS0373		Repack
698	NFS0373F	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	4/11/2011	12/6/1993	4/11/2011		Rpkgd Was NFS0373			NFS0373		Repack
699	NFS0374A	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	9/22/2010		9/22/2010					NFS0374		Repack
700	NFS0374B	55G	EMPLACED_CNTR	6/14/2011 22:45	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	9/22/2010		9/22/2010					NFS0374		Repack
701	NFS0374C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	9/23/2010		9/23/2010					NFS0374		Repack
702	NFS0374D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	9/23/2010		9/23/2010					NFS0374		Repack
703	NFS0375A	55G	EMPLACED_CNTR	6/16/2011 20:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	10/19/2010		10/19/2010					NFS0375		Repack
704	NFS0375B	55G	EMPLACED_CNTR	6/16/2011 20:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	10/19/2010		10/19/2010					NFS0375		Repack
705	NFS0376A	55G	EMPLACED_CNTR	11/7/2011 19:36	10/27/2011 9:51	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	4/13/2011	12/6/1993	4/13/2011		Rpkgd Was NFS0376			NFS0376		Repack
706	NFS0376B	55G	EMPLACED_CNTR	11/2/2011 23:12	10/27/2011 9:53	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	4/13/2011	12/6/1993	4/13/2011		Rpkgd Was NFS0376			NFS0376		Repack
707	NFS0376C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	4/12/2011	12/6/1993	4/12/2011		Rpkgd Was NFS0376			NFS0376		Repack
708	NFS0376D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	4/12/2011	12/6/1993	4/12/2011		Rpkgd Was NFS0376			NFS0376		Repack
709	NFS0376E	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	4/12/2011	12/6/1993	4/12/2011		Rpkgd Was NFS0376			NFS0376		Repack
710	NFS0377A	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/6/2011	12/11/1993	4/6/2011		- Rpkgd Was NFS0377			NFS0377		Repack
711	NFS0377B	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/6/2011	12/11/1993	4/6/2011		- Rpkgd Was NFS0377			NFS0377		Repack
712	NFS0377C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/6/2011	12/11/1993	4/6/2011		- Rpkgd Was NFS0377			NFS0377		Repack
713	NFS0377D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/6/2011	12/11/1993	4/6/2011		- Rpkgd Was NFS0377			NFS0377		Repack
714	NFS0377E	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/6/2011	12/11/1993	4/6/2011		- Rpkgd Was NFS0377			NFS0377		Repack
715	NFS0378A	55G	EMPLACED_CNTR	11/2/2011 23:15	10/27/2011 9:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/19/2011		4/19/2011		- Rpkgd was NFS0378			NFS0378		Repack
716	NFS0378B	55G	EMPLACED_CNTR	11/3/2011 23:52	5/3/2011 13:26	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/19/2011		4/19/2011		- Rpkgd was NFS0378			NFS0378		Repack
717	NFS0378C	55G			5/3/2011 13:36	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/10/1994	4/20/2011		4/20/2011		- Rpkgd was NFS0378 and NFS0929B			NFS0378/NFS0929B	NFS0929	Repack
718	NFS0378D	55G			5/3/2011 13:28	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/20/2011		4/20/2011		- Rpkgd was NFS0378			NFS0378		Repack
719	NFS0379A	55G	EMPLACED_CNTR	11/8/2011 23:54	10/27/2011 9:55	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	2/22/2011		2/22/2011		Rpkgd into NFS0379A - NFS0379					
720	NFS0379B	55G	EMPLACED_CNTR	11/6/2011 10:55	10/27/2011 9:56	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	2/22/2011		2/22/2011		Rpkgd into NFS0379B - NFS0379					
721	NFS0379C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	2/17/2011	11/8/1993	2/17/2011		Rpkgd Was NFS0379			NFS0379		Repack
722	NFS0379D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	2/17/2011	11/8/1993	2/17/2011		Rpkgd into NFS0379C - NFS0379			NFS0379		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
723	NFS0379E	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	2/17/2011	11/8/1993	2/17/2011		Rpkgd into NFS0379D - NFS0379			NFS0379		Repack
724	NFS0380A	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	3/2/2011	11/8/1993	3/2/2011		- Rpkgd Was NFS0380			NFS0380		Repack
725	NFS0380B	55G	EMPLACED_CNTR	11/8/2011 23:51	10/27/2011 9:58	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	3/3/2011	11/8/1993	3/3/2011		Rpkgd into NFS0380A - Rpkgd Was NFS0380			NFS0380		Repack
726	NFS0380C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	3/2/2011	11/8/1993	3/2/2011		Rpkgd into NFS0380A Rpkgd into NFS0380b - Rpkgd Was NFS0380			NFS0380		Repack
727	NFS0380D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	3/2/2011	11/8/1993	3/2/2011		Rpkgd into NFS0380A Rpkgd into NFS0380b Rpkgd into NFS0380C - Rpkgd Was NFS0380			NFS0380		Repack
728	NFS0381A	55G	EMPLACED_CNTR	6/16/2011 20:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	7/28/2010		7/28/2010					NFS0381 and NFS0428		Repack
729	NFS0381G	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	7/29/2010		7/29/2010					NFS0381		Repack
730	NFS0382A	55G	EMPLACED_CNTR	11/3/2011 23:52	10/26/2011 11:29	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	12/7/2010		12/7/2010	Updated closuredate1 and ventdate1 per RKantrowitz 102611.				NFS0382		Repack
731	NFS0382B	55G	EMPLACED_CNTR	11/3/2011 23:52	10/27/2011 9:59	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	12/7/2010		12/7/2010					NFS0382		Repack
732	NFS0383A	55G	EMPLACED_CNTR	6/14/2011 22:22	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	12/8/2010		12/8/2010					NFS0383		Repack
733	NFS0383B	55G	EMPLACED_CNTR	6/15/2011 21:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	12/9/2010		12/9/2010					NFS0383		Repack
734	NFS0383C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	12/9/2010		12/9/2010					NFS0383		Repack
735	NFS0383D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	12/10/2010		12/10/2010					NFS0383		Repack
736	NFS0384A	55G			5/10/2011 17:43	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	4/26/2011	11/10/1993	4/26/2011		- Rpkgd was NFS0384			NFS0384		Repack
737	NFS0384B	55G			5/10/2011 17:44	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	4/27/2011	11/10/1993	4/27/2011		- Rpkgd was NFS0384			NFS0384		Repack
738	NFS0384C	55G			5/10/2011 17:45	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	4/27/2011	11/10/1993	4/27/2011		- Rpkgd was NFS0384			NFS0384		Repack
739	NFS0384D	55G			5/10/2011 17:45	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	4/27/2011	11/10/1993	4/27/2011		- Rpkgd was NFS0384			NFS0384		Repack
740	NFS0384E	55G			5/10/2011 17:46	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	4/29/2011	11/10/1993	4/29/2011		- Rpkgd was NFS0384			NFS0384		Repack
741	NFS0384F	55G			5/10/2011 17:46	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	4/29/2011	11/10/1993	4/29/2011		- Rpkgd was NFS0384			NFS0384		Repack
742	NFS0385A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/3/2010		8/3/2010					NFS0385		Repack
743	NFS0385B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/4/2010		8/4/2010					NFS0385		Repack
744	NFS0385C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/4/2010		8/4/2010					NFS0385		Repack
745	NFS0385D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/4/2010		8/4/2010					NFS0385		Repack
746	NFS0385E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/4/2010		8/4/2010					NFS0385		Repack
747	NFS0385F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/4/2010		8/4/2010					NFS0385		Repack
748	NFS0385G	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/4/2010		8/4/2010					NFS0385		Repack
749	NFS0385H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/4/2010		8/4/2010					NFS0385		Repack
750	NFS0386A	55G	EMPLACED_CNTR	6/14/2011 22:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	12/3/2010		12/3/2010					NFS0386		Repack
751	NFS0386B	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	12/3/2010		12/3/2010					NFS0386		Repack
752	NFS0386C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	12/6/2010		12/6/2010					NFS0386		Repack
753	NFS0386D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	12/6/2010		12/6/2010					NFS0386		Repack
754	NFS0386E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	12/6/2010		12/6/2010					NFS0386		Repack
755	NFS0387A	55G	EMPLACED_CNTR	11/8/2011 23:54	10/27/2011 10:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	3/8/2011	10/28/1993	3/8/2011		Rpkgd Was NFS0387			NFS0387		Repack
756	NFS0387B	55G	EMPLACED_CNTR	11/3/2011 23:52	10/27/2011 10:01	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	3/8/2011	10/28/1993	3/8/2011		Rpkgd Was NFS0387			NFS0387		Repack
757	NFS0387C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	3/4/2011	10/28/1993	3/4/2011		Rpkgd Was NFS0387			NFS0387		Repack
758	NFS0387D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	3/4/2011	10/28/1993	3/4/2011		Rpkgd Was NFS0387			NFS0387		Repack
759	NFS0388A	55G	EMPLACED_CNTR	11/7/2011 19:36	10/27/2011 10:02	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/15/2011	10/28/1993	4/15/2011		Rpkgd Was NFS0388			NFS0388		Repack
760	NFS0388B	55G	EMPLACED_CNTR	11/7/2011 19:36	10/27/2011 10:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/15/2011	10/28/1993	4/15/2011		Rpkgd Was NFS0388			NFS0388		Repack
761	NFS0388C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/13/2011	10/28/1993	4/13/2011		Rpkgd Was NFS0388			NFS0388		Repack
762	NFS0388D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/13/2011	10/28/1993	4/13/2011		Rpkgd Was NFS0388			NFS0388		Repack
763	NFS0389A	55G			5/17/2011 15:37	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/10/2011		5/10/2011			- Rpkgd was NFS0389			NFS0389		Repack
764	NFS0389B	55G			5/17/2011 15:39	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/11/2011		5/11/2011			- Rpkgd was NFS0389			NFS0389		Repack
765	NFS0389C	55G			5/17/2011 15:39	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/12/2011		5/12/2011			- Rpkgd was NFS0389			NFS0389		Repack
766	NFS0389D	55G			5/17/2011 15:40	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/12/2011		5/12/2011			- Rpkgd was NFS0389			NFS0389		Repack
767	NFS0389E	55G			5/17/2011 15:40	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/12/2011		5/12/2011			- Rpkgd was NFS0389			NFS0389		Repack
768	NFS0389F	55G			5/17/2011 15:41	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/12/2011		5/12/2011			- Rpkgd was NFS0389			NFS0389		Repack
769	NFS0389G	55G			5/17/2011 15:41	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/12/2011		5/12/2011			- Rpkgd was NFS0389			NFS0389		Repack
770	NFS0390A	55G			5/12/2011 11:30	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/25/2011	10/28/1993	4/25/2011		- Rpkgd was NFS0389			NFS0390		Repack
771	NFS0390B	55G			5/12/2011 11:31	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/26/2011	10/28/1993	4/26/2011		- Rpkgd was NFS0390			NFS0390		Repack
772	NFS0390C	55G			5/12/2011 11:32	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/26/2011	10/28/1993	4/26/2011		- Rpkgd was NFS0390			NFS0390		Repack
773	NFS0390D	55G			5/12/2011 11:32	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/26/2011	10/28/1993	4/26/2011		- Rpkgd was NFS0390			NFS0390		Repack
774	NFS0390E	55G			5/12/2011 11:32	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/26/2011	10/28/1993	4/26/2011		- Rpkgd was NFS0390			NFS0390		Repack
775	NFS0390F	55G			5/12/2011 11:33	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/26/2011	10/28/1993	4/26/2011		- Rpkgd was NFS0390			NFS0390		Repack
776	NFS0391A	55G	EMPLACED_CNTR	6/14/2011 22:22	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	12/6/2010		12/6/2010					NFS0391		Repack
777	NFS0391B	55G	EMPLACED_CNTR	11/2/2011 23:12	10/27/2011 10:04	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	12/9/2010		12/9/2010					NFS0391		Repack
778	NFS0391C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	12/7/2010		12/7/2010					NFS0391		Repack
779	NFS0392A	55G	EMPLACED_CNTR	6/15/2011 19:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	12/1/2010		12/1/2010					NFS0392		Repack
780	NFS0392B	55G	EMPLACED_CNTR	6/14/2011 22:22	5/3/2011 13:33	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	12/1/2010		12/1/2010					NFS0392		Repack

	A	B	D	E	H	J	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
781	NFS0393A	55G	EMPLACED_C NTR	11/6/2011 10:55	10/27/2011 10:05	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/18/2011		4/18/2011					NFS0393		Repack
782	NFS0393B	55G	EMPLACED_C NTR	12/7/2011 10:16	10/27/2011 10:06	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/20/2011		4/20/2011					NFS0393		Repack
783	NFS0393C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/15/2011		4/15/2011					NFS0393		Repack
784	NFS0393D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/28/1993	4/15/2011		4/15/2011					NFS0393		Repack
785	NFS0394A	55G	EMPLACED_C NTR	6/15/2011 19:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/8/2010		9/8/2010					NFS0394		Repack
786	NFS0394B	55G	EMPLACED_C NTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/9/2010		9/9/2010					NFS0394		Repack
787	NFS0394C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/9/2010		9/9/2010					NFS0394		Repack
788	NFS0394D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/9/2010		9/9/2010					NFS0394		Repack
789	NFS0394E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/9/2010		9/9/2010					NFS0394		Repack
790	NFS0394F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/9/2010		9/9/2010					NFS0394		Repack
791	NFS0395A	55G	EMPLACED_C NTR	6/20/2011 19:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/9/2010		9/9/2010					NFS0394		Repack
792	NFS0395B	55G	EMPLACED_C NTR	6/14/2011 21:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/2/2010		9/2/2010					NFS0395 and NFS0416		Repack
793	NFS0395C	55G	EMPLACED_C NTR	6/14/2011 21:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/1/2010		9/1/2010					NFS0395 and NFS0416		Repack
794	NFS0396A	55G	EMPLACED_C NTR	6/14/2011 21:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/2/2010		9/2/2010					NFS0395		Repack
795	NFS0396B	55G	EMPLACED_C NTR	6/20/2011 18:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/30/2010		9/30/2010					NFS0396		Repack
796	NFS0396C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	10/1/2010		10/1/2010					NFS0396		Repack
797	NFS0396D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	10/4/2010		10/4/2010					NFS0396		Repack
798	NFS0396E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	10/4/2010		10/4/2010					NFS0396		Repack
799	NFS0397A	55G	EMPLACED_C NTR	11/6/2011 10:55	10/27/2011 10:08	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/13/2010		9/13/2010					NFS0397		Repack
801	NFS0397E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/15/2010		9/15/2010					NFS0397 and NFS0404		Repack
802	NFS0398A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	9/13/2010		9/13/2010					NFS0397		Repack
803	NFS0398B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	1/24/2011		1/24/2011					NFS0398		Repack
804	NFS0398C	55G	EMPLACED_C NTR	6/20/2011 18:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	1/31/2011		1/31/2011					NFS0398		Repack
805	NFS0398D	55G	EMPLACED_C NTR	6/14/2011 21:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	2/1/2011		2/1/2011					NFS0398		Repack
806	NFS0398E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	2/1/2011		2/1/2011					NFS0398		Repack
807	NFS0398F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	2/1/2011		2/1/2011					NFS0398		Repack
808	NFS0398G	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	2/1/2011		2/1/2011					NFS0398		Repack
809	NFS0398H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	2/1/2011		2/1/2011					NFS0398		Repack
810	NFS0399A	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/4/2011	11/1/1993	3/4/2011		- Rpkgd Was NFS0399			NFS0399		Repack
811	NFS0399B	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/4/2011	11/1/1993	3/4/2011		Rpkgd into NFS0399A - Rpkgd Was NFS0399			NFS0399		Repack
812	NFS0399C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/4/2011	11/1/1993	3/4/2011		Rpkgd into NFS0399A Rpkgd into NFS0399B - Rpkgd Was NFS0399			NFS0399		Repack
813	NFS0399D	55G	EMPLACED_C NTR	11/7/2011 19:36	10/27/2011 10:09	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/8/2011	11/1/1993	3/8/2011		Rpkgd into NFS0399A Rpkgd into NFS0399B Rpkgd into NFS0399C - Rpkgd Was NFS0399			NFS0399		Repack
814	NFS0399E	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/7/2011	11/1/1993	3/7/2011		Rpkgd into NFS0399A Rpkgd into NFS0399B Rpkgd into NFS0399C Rpkgd into NFS0399D - Rpkgd Was NFS0399			NFS0399		Repack
815	NFS0399F	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/7/2011	11/1/1993	3/7/2011		Rpkgd into NFS0399A Rpkgd into NFS0399B Rpkgd into NFS0399C Rpkgd into NFS0399D Rpkgd into NFS0399E - Rpkgd Was NFS0399			NFS0399		Repack
816	NFS0399G	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/7/2011	11/1/1993	3/7/2011		Rpkgd into NFS0399A Rpkgd into NFS0399B Rpkgd into NFS0399C Rpkgd into NFS0399D Rpkgd into NFS0399E Rpkgd into NFS0399F - Rpkgd Was NFS0399			NFS0399		Repack
817	NFS0400A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	8/18/2010		8/18/2010					NFS0400		Repack
818	NFS0400B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	8/18/2010		8/18/2010					NFS0400		Repack
819	NFS0400C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	8/18/2010		8/18/2010					NFS0400		Repack
820	NFS0400D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	8/18/2010		8/18/2010					NFS0400		Repack
821	NFS0400E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	8/18/2010		8/18/2010					NFS0400		Repack
822	NFS0400F	55G	EMPLACED_C NTR	6/14/2011 0:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	8/24/2010		8/24/2010					NFS0400		Repack
823	NFS0400G	55G	EMPLACED_C NTR	6/15/2011 21:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	8/24/2010		8/24/2010					NFS0400		Repack
824	NFS0400H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	8/25/2010		8/25/2010					NFS0400		Repack
825	NFS0400I	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	8/25/2010		8/25/2010					NFS0400		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
826	NFS0400J	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/2010	8/25/2010		8/25/2010					NFS0400		Repack
827	NFS0400K	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/2010	8/25/2010		8/25/2010					NFS0400		Repack
828	NFS0400L	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/2010	8/25/2010		8/25/2010					NFS0400		Repack
829	NFS0400M	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/2010	8/25/2010		8/25/2010					NFS0400		Repack
830	NFS0401A	55G	EMPLACED_CNTR	11/8/2011 23:51	10/27/2011 10:12	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	2/25/2011		2/25/2011		Rpkgd into NFS0401A - NFS0401			NFS0401		Daughter
831	NFS0401B	55G	EMPLACED_CNTR	11/7/2011 19:36	4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	2/25/2011		2/25/2011		Rpkgd into NFS0401B -NFS0401					
832	NFS0401C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	2/25/2011		2/25/2011		Rpkgd into NFS0401C -NFS0401			NFS0401		Daughter
833	NFS0401D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	2/25/2011		2/25/2011		Rpkgd into NFS0401D - NFS0401			NFS0401		Daughter
834	NFS0402A	55G	EMPLACED_CNTR	11/6/2011 13:37	10/27/2011 12:57	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/6/2011	12/11/1993	4/6/2011		- Rpkgd Was NFS0402			NFS0402		Repack
835	NFS0402B	55G	EMPLACED_CNTR	11/6/2011 13:37	10/27/2011 12:58	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/6/2011	12/11/1993	4/6/2011		- Rpkgd Was NFS0402			NFS0402		Repack
836	NFS0402C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/5/2011	12/11/1993	4/5/2011		- Rpkgd Was NFS0402			NFS0402		Repack
837	NFS0402D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/11/1993	4/5/2011	12/11/1993	4/5/2011		- Rpkgd Was NFS0402			NFS0402		Repack
838	NFS0403A	55G	EMPLACED_CNTR	6/14/2011 21:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/11/2010		8/11/2010					NFS0403		Repack
839	NFS0403B	55G	EMPLACED_CNTR	6/14/2011 21:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/11/2010		8/11/2010					NFS0403		Repack
840	NFS0403C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/12/2010		8/12/2010					NFS0403		Repack
841	NFS0403D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/12/2010		8/12/2010					NFS0403		Repack
842	NFS0403E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/12/2010		8/12/2010					NFS0403		Repack
843	NFS0403F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	8/12/2010		8/12/2010					NFS0403		Repack
844	NFS0404A	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	9/15/2010		9/15/2010					NFS0404		Repack
845	NFS0404B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	9/16/2010		9/16/2010					NFS0404		Repack
846	NFS0405A	55G	EMPLACED_CNTR	6/20/2011 18:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	9/21/2010		9/21/2010					NFS0405		Repack
847	NFS0405B	55G	EMPLACED_CNTR	6/20/2011 18:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	9/21/2010		9/21/2010					NFS0405		Repack
848	NFS0405C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/8/1993	9/21/2010		9/21/2010					NFS0405		Repack
849	NFS0405D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/21/2010	9/21/2010		9/21/2010					NFS0405		Repack
850	NFS0406A	55G	EMPLACED_CNTR	6/21/2011 18:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	12/7/2010		12/7/2010					NFS0406		Repack
851	NFS0406B	55G	EMPLACED_CNTR	6/21/2011 18:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	12/7/2010		12/7/2010					NFS0406		Repack
852	NFS0406C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	12/7/2010		12/7/2010					NFS0406		Repack
853	NFS0406D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	12/8/2010		12/8/2010					NFS0406		Repack
854	NFS0407A	55G	EMPLACED_CNTR	6/14/2011 22:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	7/21/2010		7/21/2010					NFS0407 and NFS0831		Repack
855	NFS0407B	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	7/22/2010		7/22/2010					NFS0407		Repack
856	NFS0407D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	7/21/2010		7/21/2010					NFS0407		Repack
857	NFS0407H	55G	EMPLACED_CNTR	6/21/2011 18:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	7/26/2010		7/26/2010					NFS0407		Repack
858	NFS0408A	55G	EMPLACED_CNTR	11/7/2011 19:36	10/27/2011 13:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	12/20/2010		12/20/2010					NFS0408		Repack
859	NFS0408B	55G	EMPLACED_CNTR	11/8/2011 23:51	10/27/2011 13:06	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	12/21/2010		12/21/2010					NFS0408		Repack
860	NFS0408C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	12/15/2010		12/15/2010					NFS0408		Repack
861	NFS0408D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	12/15/2010		12/15/2010					NFS0408		Repack
862	NFS0409A	55G	EMPLACED_CNTR	11/6/2011 13:37	10/27/2011 13:09	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	9/8/2010		9/8/2010					NFS0409		Repack
863	NFS0409B	55G	EMPLACED_CNTR	6/20/2011 19:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	8/31/2010		8/31/2010					NFS0409		Repack
864	NFS0409C	55G	EMPLACED_CNTR	6/14/2011 0:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	8/31/2010		8/31/2010					NFS0409		Repack
865	NFS0409D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	8/31/2010		8/31/2010					NFS0409		Repack
866	NFS0409E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	8/31/2010		8/31/2010					NFS0409		Repack
867	NFS0409F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	8/31/2010		8/31/2010					NFS0409		Repack
868	NFS0410A	55G	EMPLACED_CNTR	11/6/2011 10:55	10/27/2011 13:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/7/2011		2/7/2011					NFS0410		Repack
869	NFS0410B	55G	EMPLACED_CNTR	11/6/2011 13:37	10/27/2011 13:25	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/7/2011		2/7/2011					NFS0410		Repack
870	NFS0410C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/2/2011		2/2/2011					NFS0410		Repack
871	NFS0410D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/2/2011		2/2/2011					NFS0410		Repack
872	NFS0410E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/4/2011		2/4/2011					NFS0410		Repack
873	NFS0410F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/4/2011		2/4/2011					NFS0410		Repack
874	NFS0410G	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/4/2011		2/4/2011					NFS0410		Repack
875	NFS0410H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/4/2011		2/4/2011					NFS0410		Repack
876	NFS0410I	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/4/2011		2/4/2011					NFS0410		Repack
877	NFS0410J	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/4/2011		2/4/2011					NFS0410		Repack
878	NFS0410K	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/4/2011		2/4/2011					NFS0410		Repack
879	NFS0410L	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/4/2011		2/4/2011					NFS0410		Repack
880	NFS0410M	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	2/4/2011		2/4/2011					NFS0410		Repack
881	NFS0411A	55G	EMPLACED_CNTR	6/16/2011 20:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	8/26/2010		8/26/2010					NFS0411		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
882	NFS0411B	55G	EMPLACED_C																		
883	NFS0411C	55G	NTR	6/14/2011 0:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	8/30/2010		8/30/2010					NFS0411		Repack
884	NFS0411D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	8/30/2010		8/30/2010					NFS0411		Repack
885	NFS0411E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	8/30/2010		8/30/2010					NFS0411		Repack
886	NFS0412A	55G	EMPLACED_C NTR	6/15/2011 21:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	8/30/2010		8/30/2010					NFS0411		Repack
887	NFS0412B	55G	EMPLACED_C NTR	6/14/2011 22:22	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	10/25/2010		10/25/2010					NFS0412		Repack
888	NFS0412C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	11/3/2010		11/3/2010					NFS0412		Repack
889	NFS0412D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	11/4/2010		11/4/2010					NFS0412		Repack
890	NFS0412E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	11/4/2010		11/4/2010					NFS0412		Repack
891	NFS0412F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	11/4/2010		11/4/2010					NFS0412		Repack
892	NFS0413A	55G	EMPLACED_C NTR	6/14/2011 21:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	11/4/2010		11/4/2010					NFS0412		Repack
893	NFS0413B	55G	EMPLACED_C NTR	6/14/2011 21:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	9/29/2010		9/29/2010					NFS0413		Repack
894	NFS0413C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	9/29/2010		9/29/2010					NFS0413		Repack
895	NFS0413D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	9/30/2010		9/30/2010					NFS0413		Repack
896	NFS0413E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	9/30/2010		9/30/2010					NFS0413		Repack
897	NFS0414A	55G	EMPLACED_C NTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	9/30/2010		9/30/2010					NFS0413		Repack
898	NFS0414B	55G	EMPLACED_C NTR	6/11/2011 10:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	9/2/2010		9/2/2010					NFS0414		Repack
899	NFS0414C	55G	EMPLACED_C NTR	6/11/2011 10:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	9/3/2010		9/3/2010					NFS0414		Repack
900	NFS0414H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	9/7/2010		9/7/2010					NFS0414		Repack
901	NFS0414I	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	9/7/2010		9/7/2010					NFS0414		Repack
902	NFS0415A	55G	EMPLACED_C NTR	6/15/2011 19:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	9/7/2010		9/7/2010					NFS0414		Repack
903	NFS0415B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	7/8/2010		7/8/2010					NFS0415		Repack
904	NFS0415C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	7/13/2010		7/13/2010					NFS0415		Repack
905	NFS0415D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	7/13/2010		7/13/2010					NFS0415		Repack
906	NFS0415E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	7/13/2010		7/13/2010					NFS0415		Repack
907	NFS0416A	55G	EMPLACED_C NTR	6/11/2011 10:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/29/1994	7/13/2010		7/13/2010					NFS0415		Repack
908	NFS0417A	55G	EMPLACED_C NTR	11/6/2011 13:37	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	8/31/2010		8/31/2010					NFS0416 and NFS0409		Repack
909	NFS0417B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	12/22/2010		12/22/2010					NFS0417		Repack
910	NFS0417C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	12/16/2010		12/16/2010					NFS0417		Repack
911	NFS0417D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	12/17/2010		12/17/2010					NFS0417		Repack
912	NFS0417E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	12/17/2010		12/17/2010					NFS0417		Repack
913	NFS0417F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	12/17/2010		12/17/2010					NFS0417		Repack
914	NFS0417G	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	12/17/2010		12/17/2010					NFS0417		Repack
915	NFS0417H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	12/17/2010		12/17/2010					NFS0417		Repack
916	NFS0417I	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	12/17/2010		12/17/2010					NFS0417		Repack
917	NFS0417J	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	12/17/2010		12/17/2010					NFS0417		Repack
918	NFS0418A	55G	EMPLACED_C NTR	12/7/2011 10:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	12/17/2010		12/17/2010					NFS0417		Repack
919	NFS0418B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/7/2011		2/7/2011					NFS0418		Repack
920	NFS0418C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/8/2011		2/8/2011					NFS0418		Repack
921	NFS0418D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/8/2011		2/8/2011					NFS0418		Repack
922	NFS0418E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/8/2011		2/8/2011					NFS0418		Repack
923	NFS0418F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/8/2011		2/8/2011					NFS0418		Repack
924	NFS0418G	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/8/2011		2/8/2011					NFS0418		Repack
925	NFS0418H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/8/2011		2/8/2011					NFS0418		Repack
926	NFS0418I	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/8/2011		2/8/2011					NFS0418		Repack
927	NFS0419A	55G	EMPLACED_C NTR	11/6/2011 10:55	10/27/2011 13:26	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/8/2011		2/8/2011					NFS0418		Repack
928	NFS0419B	55G	EMPLACED_C NTR	11/6/2011 13:37	4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/8/2011	3/30/1994	3/8/2011		Rpkgd Was NFS0419			NFS0419		Repack
929	NFS0419C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/8/2011	3/30/1994	3/8/2011		Rpkgd Was NFS0419			NFS0419		Repack
930	NFS0419D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/10/2011	3/30/1994	3/10/2011		Rpkgd Was NFS0419			NFS0419		Repack
931	NFS0419E	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/10/2011	3/30/1994	3/10/2011		Rpkgd Was NFS0419			NFS0419		Repack
932	NFS0419F	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/10/2011	3/30/1994	3/10/2011		Rpkgd Was NFS0419			NFS0419		Repack
933	NFS0419G	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/10/2011	3/30/1994	3/10/2011		Rpkgd Was NFS0419			NFS0419		Repack
934	NFS0419H	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/10/2011	3/30/1994	3/10/2011		Rpkgd Was NFS0419			NFS0419		Repack
935	NFS0419I	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/10/2011	3/30/1994	3/10/2011		Rpkgd Was NFS0419			NFS0419		Repack
936	NFS0419J	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/10/2011	3/30/1994	3/10/2011		Rpkgd Was NFS0419			NFS0419		Repack
937	NFS0419K	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/10/2011	3/30/1994	3/10/2011		Rpkgd Was NFS0419			NFS0419		Repack
938	NFS0419L	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/14/2011	3/30/1994	3/14/2011		Rpkgd Was NFS0419			NFS0419		Repack
939	NFS0420A	55G	EMPLACED_C NTR	6/15/2011 21:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	3/14/2011	3/30/1994	3/14/2011		Rpkgd Was NFS0419			NFS0419		Repack
940	NFS0420B	55G	EMPLACED_C NTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	11/23/2010		11/23/2010					NFS0420		Repack
941	NFS0421A	55G	EMPLACED_C NTR	11/8/2011 23:54	10/27/2011 13:27	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	11/29/2010		11/29/2010					NFS0420		Repack
942	NFS0421C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/5/2011	1/8/1994	4/5/2011		Rpkgd Was NFS0421			NFS0421		Repack
943	NFS0421D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/4/2011	1/8/1994	4/4/2011		Rpkgd Was NFS0421			NFS0421		Repack
944	NFS0422A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	9/17/2010		9/17/2010					NFS0422		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
945	NFS0422B	55G	EMPLACED_CNTR	6/15/2011 21:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	9/16/2010		9/16/2010					NFS0422		Repack
946	NFS0422C	55G	EMPLACED_CNTR	11/6/2011 10:55	10/27/2011 13:29	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	9/22/2010		9/22/2010					NFS0422 and NFS0405		Repack
947	NFS0422D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	9/20/2010		9/20/2010					NFS0422		Repack
948	NFS0422E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	9/20/2010		9/20/2010					NFS0422		Repack
949	NFS0422F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/30/1994	9/20/2010		9/20/2010					NFS0422		Repack
950	NFS0423A	55G	EMPLACED_CNTR	6/20/2011 19:13	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/7/2010		7/7/2010					NFS0423		Repack
951	NFS0423B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/9/2010		7/9/2010					NFS0423		Repack
952	NFS0423C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/13/2010		7/13/2010					NFS0423		Repack
953	NFS0423D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/13/2010		7/13/2010					NFS0423		Repack
954	NFS0423E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/13/2010		7/13/2010					NFS0423		Repack
955	NFS0423F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/13/2010		7/13/2010					NFS0423		Repack
956	NFS0423G	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/13/2010		7/13/2010					NFS0423		Repack
957	NFS0423H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/13/2010		7/13/2010					NFS0423		Repack
958	NFS0423I	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/13/2010		7/13/2010					NFS0423		Repack
959	NFS0423J	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/13/2010		7/13/2010					NFS0423		Repack
960	NFS0423K	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/13/2010		7/13/2010					NFS0423		Repack
961	NFS0425A	55G	EMPLACED_CNTR	11/8/2011 23:54	10/27/2011 13:30	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	7/13/2010		7/13/2010					NFS0423		Repack
962	NFS0425B	55G	EMPLACED_CNTR	12/1/2011	10/27/2011 13:31	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	2/14/2011		2/14/2011					NFS0425		Repack
963	NFS0425C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	2/14/2011		2/14/2011							
964	NFS0425D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	2/10/2011		2/10/2011					NFS0425		Repack
965	NFS0426A	55G	EMPLACED_CNTR	12/1/2011	10/27/2011 13:32	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	2/10/2011		2/10/2011					NFS0425		Repack
966	NFS0426B	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	9/29/2010		9/29/2010					NFS0425		Repack
967	NFS0426C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	9/28/2010		9/28/2010					NFS0426		Repack
968	NFS0426D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/31/1994	9/29/2010		9/29/2010					NFS0426		Repack
969	NFS0427A	55G	EMPLACED_CNTR	6/20/2011 19:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/9/2010		8/9/2010					NFS0427		Repack
970	NFS0427B	55G	EMPLACED_CNTR	6/20/2011 19:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/10/2010		8/10/2010					NFS0427		Repack
971	NFS0427C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/10/2010		8/10/2010					NFS0427		Repack
972	NFS0427D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/10/2010		8/10/2010					NFS0427		Repack
973	NFS0427E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/10/2010		8/10/2010					NFS0427		Repack
974	NFS0427F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	8/10/2010		8/10/2010					NFS0427		Repack
975	NFS0428A	55G	EMPLACED_CNTR	6/14/2011 22:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	7/13/2010		7/13/2010					NFS0428 and NFS0423		Repack
976	NFS0428B	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	7/29/2010		7/29/2010					NFS0428 and NFS0423		Repack
977	NFS0428C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	7/21/2010		7/21/2010					NFS0428		Repack
978	NFS0428D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	7/21/2010		7/21/2010					NFS0428		Repack
979	NFS0428F	55G	EMPLACED_CNTR	6/11/2011 10:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	7/21/2010		7/21/2010					NFS0428		Repack
980	NFS0428G	55G	EMPLACED_CNTR	6/19/2011 9:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	7/27/2010		7/27/2010					NFS0428		Repack
981	NFS0429A	55G	EMPLACED_CNTR	6/14/2011 22:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/13/2010		7/13/2010					NFS0429		Repack
982	NFS0429B	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/14/2010		7/14/2010					NFS0429		Repack
983	NFS0429C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/15/2010		7/15/2010					NFS0429		Repack
984	NFS0429D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/15/2010		7/15/2010					NFS0429		Repack
985	NFS0429E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/15/2010		7/15/2010					NFS0429		Repack
986	NFS0429F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/15/2010		7/15/2010					NFS0429		Repack
987	NFS0429G	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/15/2010		7/15/2010					NFS0429		Repack
988	NFS0430A	55G	EMPLACED_CNTR	6/20/2011 19:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/15/2010		7/15/2010					NFS0429		Repack
989	NFS0430B	55G	EMPLACED_CNTR	6/20/2011 19:13	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	11/30/2010		11/30/2010					NFS0430		Repack
990	NFS0430C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	11/30/2010		11/30/2010					NFS0430		Repack
991	NFS0430D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	11/30/2010		11/30/2010					NFS0430		Repack
992	NFS0430E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	11/30/2010		11/30/2010					NFS0430		Repack
993	NFS0430F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	11/30/2010		11/30/2010					NFS0430		Repack
994	NFS0430G	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	11/30/2010		11/30/2010					NFS0430		Repack
995	NFS0430H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	11/30/2010		11/30/2010					NFS0430		Repack
996	NFS0431A	55G			5/3/2011 13:19	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	11/30/2010		11/30/2010					NFS0430		Repack
997	NFS0431B	55G	EMPLACED_CNTR	12/7/2011 10:16	10/27/2011 13:33	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	4/21/2011		4/21/2011		- Rpkgd was NFS0431			NFS0431		Repack
998	NFS0431C	55G			5/3/2011 13:20	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	4/26/2011		4/26/2011							
999	NFS0431D	55G			5/3/2011 13:21	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	4/25/2011		4/25/2011		- Rpkgd was NFS0431			NFS0431		Repack
1000	NFS0432A	55G			4/29/2011 15:18	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	4/25/2011		4/25/2011		- Rpkgd was NFS0431			NFS0431		Repack
1001	NFS0432B	55G			4/29/2011 15:21	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/20/2011	1/8/1994	4/20/2011		- Rpkgd was NFS0431			NFS0431		Repack
1002	NFS0432C	55G			4/29/2011 15:33	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/20/2011	1/8/1994	4/20/2011		- Rpkgd Was NFS0432			NFS0432		Repack
1003	NFS0432D	55G			4/29/2011 15:34	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/20/2011	1/8/1994	4/20/2011		- Rpkgd Was NFS0432			NFS0432		Repack
1004	NFS0432E	55G			4/29/2011 15:35	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/20/2011	1/8/1994	4/20/2011							
1005	NFS0432F	55G			4/29/2011 15:36	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/20/2011	1/8/1994	4/20/2011							
1006	NFS0433A	55G			5/12/2011 20:15	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/20/2011	1/8/1994	4/20/2011							
1007	NFS0433B	55G			5/12/2011 20:15	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/9/2011		5/9/2011			- Rpkgd was NFS0433			NFS0433		Repack
											5/9/2011		5/9/2011			- Rpkgd was NFS0433			NFS0433		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1008	NFS0433C	55G			5/12/2011 20:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/9/2011		5/9/2011			- Rpkgd was NFS0433			NFS0433		Repack
1009	NFS0433D	55G			5/12/2011 20:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/9/2011		5/9/2011			- Rpkgd was NFS0433			NFS0433		Repack
1010	NFS0433E	55G			5/12/2011 20:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/9/2011		5/9/2011			- Rpkgd was NFS0433			NFS0433		Repack
1011	NFS0434A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	12/10/2010		12/10/2010					NFS0434		Repack
1012	NFS0434B	55G	EMPLACED_CNTR	12/1/2011	10/27/2011 13:35	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	12/20/2010		12/20/2010					NFS0434		Repack
1013	NFS0434C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	12/14/2010		12/14/2010					NFS0434		Repack
1014	NFS0434D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	12/14/2010		12/14/2010					NFS0434		Repack
1015	NFS0435A	55G	EMPLACED_CNTR	6/14/2011 21:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	12/2/2010		12/2/2010					NFS0435		Repack
1016	NFS0435B	55G	EMPLACED_CNTR	6/19/2011 9:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	12/2/2010		12/2/2010					NFS0435		Repack
1017	NFS0435C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	12/2/2010		12/2/2010					NFS0435		Repack
1018	NFS0436A	55G	EMPLACED_CNTR	6/14/2011 22:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	9/23/2010		9/23/2010					NFS0436		Repack
1019	NFS0436B	55G	EMPLACED_CNTR	6/19/2011 9:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	9/23/2010		9/23/2010					NFS0436		Repack
1020	NFS0436C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	9/27/2010		9/27/2010					NFS0436		Repack
1021	NFS0436D	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	9/27/2010		9/27/2010					NFS0436		Repack
1022	NFS0436E	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/5/1994	9/28/2010		9/28/2010	Added back per JMiles email 041811				NFS0436		Repack
1023	NFS0437A	55G			5/10/2011 17:38	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/28/2011	1/8/1994	4/28/2011		- Rpkgd was NFS0437			NFS0437		Repack
1024	NFS0437B	55G			5/10/2011 17:39	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/28/2011	1/8/1994	4/28/2011		- Rpkgd was NFS0437			NFS0437		Repack
1025	NFS0437C	55G			5/10/2011 17:39	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	5/2/2011	1/8/1994	5/2/2011		- Rpkgd was NFS0437			NFS0437		Repack
1026	NFS0437D	55G			5/10/2011 17:40	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	5/2/2011	1/8/1994	5/2/2011		- Rpkgd was NFS0437			NFS0437		Repack
1027	NFS0437E	55G			5/10/2011 17:40	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	5/2/2011	1/8/1994	5/2/2011		- Rpkgd was NFS0437			NFS0437		Repack
1028	NFS0437F	55G			5/10/2011 17:41	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	5/2/2011	1/8/1994	5/2/2011		- Rpkgd was NFS0437			NFS0437		Repack
1029	NFS0501	55G	EMPLACED_CNTR	6/19/2011 8:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	8/31/1993		8/31/1993								
1030	NFS0502	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	8/31/1993		8/31/1993								
1031	NFS0503	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/7/1993		9/7/1993								
1032	NFS0504	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/7/1993		9/7/1993								
1033	NFS0505	55G	EMPLACED_CNTR	11/13/2011 13:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/7/1993		9/7/1993								
1034	NFS0509	55G	EMPLACED_CNTR	6/19/2011 8:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/7/1993		9/7/1993								
1035	NFS0510	55G	EMPLACED_CNTR	6/20/2011 18:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	8/22/1993		8/22/1993								
1036	NFS0511	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/7/1993		9/7/1993								
1037	NFS0512	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/7/1993		9/7/1993								
1038	NFS0513	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/7/1993		9/7/1993								
1039	NFS0514A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/21/1994	2/23/2010		2/23/2010					NFS0514		Repack
1040	NFS0515	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	8/22/1993		8/22/1993								
1041	NFS0516	55G	EMPLACED_CNTR	6/19/2011 8:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/21/1994		5/21/1994								
1042	NFS0524	55G	EMPLACED_CNTR	11/8/2011 23:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/21/1994		5/21/1994								
1043	NFS0525	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	8/25/1993		8/25/1993								
1044	NFS0526	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/21/1994		5/21/1994								
1045	NFS0527	55G	EMPLACED_CNTR	6/21/2011 18:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/21/1994		5/21/1994								
1046	NFS0528	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/21/1994		5/21/1994								
1047	NFS0529	55G	EMPLACED_CNTR	11/8/2011 23:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/21/1994		5/21/1994								
1048	NFS0538	55G	EMPLACED_CNTR	6/20/2011 18:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/21/1994		5/21/1994								
1049	NFS0539	55G	EMPLACED_CNTR	6/20/2011 19:13	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/21/1994		5/21/1994								
1050	NFS0540	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/26/1994		5/26/1994								
1051	NFS0541	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	3/25/1994		3/25/1994								
1052	NFS0542	55G	EMPLACED_CNTR	11/13/2011 13:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/21/1994		5/21/1994								
1053	NFS0543	55G	EMPLACED_CNTR	11/8/2011 23:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/18/1994		5/18/1994								
1054	NFS0571	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/18/1994		5/18/1994								
1055	NFS0572	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/30/1993		9/30/1993								
1056	NFS0573	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/18/1994		5/18/1994								
1057	NFS0574	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/18/1994		5/18/1994								
1058	NFS0575	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/30/1993		9/30/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1059	NFS0576	55G	EMPLACED_CNTR	6/16/2011 20:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/30/1993		9/30/1993								
1060	NFS0577	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/18/1994		5/18/1994								
1061	NFS0578	55G	EMPLACED_CNTR	6/19/2011 8:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/30/1993		9/30/1993								
1062	NFS0579	55G	EMPLACED_CNTR	12/7/2011 10:16	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/30/1993		9/30/1993								
1063	NFS0580	55G	EMPLACED_CNTR	11/13/2011 13:39	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/18/1994		5/18/1994								
1064	NFS0581	55G	EMPLACED_CNTR	11/8/2011 23:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/18/1994		5/18/1994								
1065	NFS0582	55G	EMPLACED_CNTR	6/16/2011 20:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	10/7/1993		10/7/1993								
1066	NFS0583	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/14/1993		9/14/1993								
1067	NFS0597A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	3/4/2013		3/4/2013	Compacted waste	Rpkgd was NFS0597					
1068	NFS0597B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	3/4/2013		3/4/2013	Compacted waste	Rpkgd was NFS0597			NFS0597		R
1069	NFS0597C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	3/4/2013		3/4/2013	Compacted waste	Rpkgd was NFS0597			NFS0597		R
1070	NFS0598A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0598			NFS0598		R
1071	NFS0598B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0598			NFS0598		R
1072	NFS0598C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0598			NFS0598		R
1073	NFS0599A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0599			NFS0599		R
1074	NFS0599B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0599			NFS0599		R
1075	NFS0599C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0599			NFS0599		R
1076	NFS0600A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/20/2013		5/20/2013	Compacted waste	Rpkgd was NFS0600			NFS0600		R
1077	NFS0600B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/20/2013		5/20/2013	Compacted waste	Rpkgd was NFS0600			NFS0600		R
1078	NFS0600C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/20/2013		5/20/2013	Compacted waste	Rpkgd was NFS0600			NFS0600		R
1079	NFS0601A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0601			NFS0601		R
1080	NFS0601B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0601			NFS0601		R
1081	NFS0601C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0601			NFS0601		R
1082	NFS0602A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/3/2013		5/3/2013	Compacted waste	Rpkgd was NFS0602			NFS0602		R
1083	NFS0602B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/3/2013		5/3/2013	Compacted waste	Rpkgd was NFS0602			NFS0602		R
1084	NFS0602C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/3/2013		5/3/2013	Compacted waste	Rpkgd was NFS0602			NFS0602		R
1085	NFS0603A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0603			NFS0603		R
1086	NFS0603B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0603			NFS0603		R
1087	NFS0603C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0603			NFS0603		R
1088	NFS0756	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/27/1994		5/27/1994								
1089	NFS0783A	55G			5/10/2011 17:32	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	5/3/2011	1/8/1994	5/3/2011		- Rpkgd was NFS0783			NFS0783		Repack
1090	NFS0783B	55G			5/10/2011 17:32	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	5/3/2011	1/8/1994	5/3/2011		- Rpkgd was NFS0783			NFS0783		Repack
1091	NFS0783C	55G			5/10/2011 17:31	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	5/3/2011	1/8/1994	5/3/2011		- Rpkgd was NFS0783			NFS0783		Repack
1092	NFS0783D	55G			5/10/2011 17:31	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	5/3/2011	1/8/1994	5/3/2011		- Rpkgd was NFS0783			NFS0783		Repack
1093	NFS0784A	55G			5/12/2011 20:17	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/5/2011		5/5/2011			- Rpkgd was NFS0784			NFS0784		Repack
1094	NFS0784B	55G			5/12/2011 20:17	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/5/2011		5/5/2011			- Rpkgd was NFS0784			NFS0784		Repack
1095	NFS0784C1	55G			10/11/2013 15:09	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/5/2011	6/14/2012		6/14/2012		- Rpkgd was NFS0784 - Rpkgd was NFS0784C			NFS0784C	NFS0784	Repack
1096	NFS0784D	55G			5/12/2011 20:18	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/5/2011		5/5/2011			- Rpkgd was NFS0784			NFS0784		Repack
1097	NFS0784E	55G			5/12/2011 20:18	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/5/2011		5/5/2011			- Rpkgd was NFS0784			NFS0784		Repack
1098	NFS0785A	55G	EMPLACED_CNTR	12/1/2011 15:09	10/27/2011 13:36	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/20/2011		4/20/2011							
1099	NFS0785B	55G	EMPLACED_CNTR	11/8/2011 23:51	10/27/2011 13:37	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/20/2011		4/20/2011							
1100	NFS0785C	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/19/2011		4/19/2011							
1101	NFS0785D	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	4/19/2011		4/19/2011							
1102	NFS0821	55G	EMPLACED_CNTR	6/14/2011 22:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/25/1993		9/25/1993								
1103	NFS0831A	55G	EMPLACED_CNTR	6/14/2011 0:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/19/2010		7/19/2010							
1104	NFS0831B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/20/2010		7/20/2010					NFS0831		Repack
1105	NFS0831C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/20/2010		7/20/2010					NFS0831		Repack
1106	NFS0831D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/20/2010		7/20/2010					NFS0831		Repack
1107	NFS0831E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/20/2010		7/20/2010					NFS0831		Repack
1108	NFS0831F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/20/2010		7/20/2010					NFS0831		Repack
1109	NFS0832	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	7/20/2010		7/20/2010					NFS0831		Repack
1110	NFS0833A	55G			10/11/2013 15:12	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	11/10/1993		11/10/1993						NFS0831		Repack
1111	NFS0833B	55G			10/11/2013 15:13	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/10/1993	6/7/2013		6/7/2013		- Rpkgd was NFS0833			NFS0833		Repack
1112	NFS0834	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	11/10/1993	6/7/2013		6/7/2013		- Rpkgd was NFS0833			NFS0833		Repack
1113	NFS0835A	55G	EMPLACED_CNTR	11/13/2011 13:39	10/27/2011 13:38	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/26/1994		5/26/1994								
1114	NFS0835B	55G			5/12/2011 20:20	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/4/2011		5/4/2011								
1115	NFS0853A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/3/2011		5/3/2011			- Rpkgd was NFS0835					
1116	NFS0853B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/20/1994	4/18/2013		4/18/2013	Compacted waste	- Rpkgd was NFS0835			NFS0835		Repack
1117	NFS0853C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/20/1994	4/18/2013		4/18/2013	Compacted waste	Rpkgd was NFS0853			NFS0853		R
1118	NFS0854A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/20/1994	4/18/2013		4/18/2013	Compacted waste	Rpkgd was NFS0853			NFS0853		R
1119	NFS0854B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/5/2013		5/5/2013	Compacted waste	Rpkgd was NFS0854			NFS0854		R
1120	NFS0854C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/5/2013		5/5/2013	Compacted waste	Rpkgd was NFS0854			NFS0854		R
1121	NFS0855A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/5/2013		5/5/2013	Compacted waste	Rpkgd was NFS0854			NFS0854		R
1122	NFS0855B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0855			NFS0855		R
1123	NFS0855C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0855			NFS0855		R
1124	NFS0856A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0855			NFS0855		R
1125	NFS0856B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/20/2013		5/20/2013	Compacted waste	Rpkgd was NFS0856			NFS0856		R
1126	NFS0856C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/20/2013		5/20/2013	Compacted waste	Rpkgd was NFS0856			NFS0856		R

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1127	NFS0857A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0857			NFS0857		R
1128	NFS0857B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0857			NFS0857		R
1129	NFS0857C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0857			NFS0857		R
1130	NFS0858A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/20/2013		5/20/2013	Compacted waste	Rpkgd was NFS0858			NFS0858		R
1131	NFS0858B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/20/2013		5/20/2013	Compacted waste	Rpkgd was NFS0858			NFS0858		R
1132	NFS0920A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/27/1994	10/18/2010		10/18/2010					NFS0858		R
1133	NFS0921	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/27/1994		5/27/1994						NFS0920		Repack
1134	NFS0922A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/6/1993	10/18/2010		10/18/2010							
1135	NFS0927	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	5/17/1994		5/17/1994						NFS0922		Repack
1136	NFS0928A	55G			5/10/2011 17:34	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/21/1994	5/4/2011	5/21/1994	5/4/2011		- Rpkgd was NFS0928					
1137	NFS0928B	55G			5/10/2011 17:35	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/21/1994	5/4/2011	5/21/1994	5/4/2011		- Rpkgd was NFS0928			NFS0928		Repack
1138	NFS0928C	55G			5/10/2011 17:35	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/21/1994	5/4/2011	5/21/1994	5/4/2011		- Rpkgd was NFS0928			NFS0928		Repack
1139	NFS0928D	55G			5/10/2011 17:36	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/21/1994	5/4/2011	5/21/1994	5/4/2011		- Rpkgd was NFS0928			NFS0928		Repack
1140	X10C0501134	55G	EMPLACED_CNTR	4/6/2010 19:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	2/28/2003	1/5/2006	2/28/2003	1/5/2006					X10C0506136		Repack
1141	X10C0501181	55G	EMPLACED_CNTR	3/27/2010 14:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	3/31/2003	1/25/2006	3/31/2003	1/25/2006					X10C0506134		Repack
1142	X10C0501236	55G	EMPLACED_CNTR	3/18/2010 22:07	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	5/21/2003	2/3/2006	5/21/2003	2/3/2006					X10C0506130		Repack
1143	X10C0501244	55G	EMPLACED_CNTR	3/18/2010 22:07	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	3/28/2003	2/6/2006	3/28/2003	2/6/2006					X10C0506135		Repack
1144	X10C0501264	55G	EMPLACED_CNTR	1/26/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/26/2001	2/27/2006	7/26/2001	2/27/2006					X10C0506030		Repack
1145	X10C0501276	55G	EMPLACED_CNTR	3/27/2010 14:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/14/2001	3/1/2006	5/14/2001	3/1/2006					X10C0506036		Repack
1146	X10C0501277	55G	EMPLACED_CNTR	3/20/2010 15:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	6/11/2003	3/1/2006	6/11/2003	3/1/2006					X10C0506015		Repack
1147	X10C0501280	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/3/2001	3/2/2006	10/3/2001	3/2/2006					X10C0505980		Repack
1148	X10C0501287	55G	EMPLACED_CNTR	5/11/2010 22:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/30/2001	3/5/2006	7/30/2001	3/5/2006					X10C0505960		Repack
1149	X10C0501288	55G	EMPLACED_CNTR	4/8/2010 20:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	6/11/2003	3/5/2006	6/11/2003	3/5/2006					X10C0505981		Repack
1150	X10C0501291	55G	EMPLACED_CNTR	3/20/2010 15:01	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/16/2001	3/6/2006	7/16/2001	3/6/2006					X10C0505953		Repack
1151	X10C0501292	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/9/2002	3/6/2006	10/9/2002	3/6/2006					X10C0506125		Repack
1152	X10C0501294	55G	EMPLACED_CNTR	4/12/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/3/2001	3/6/2006	5/3/2001	3/6/2006					X10C0506006		Repack
1153	X10C0501410	55G	EMPLACED_CNTR	1/26/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	6/22/2001	5/1/2006	6/22/2001	5/1/2006					X10C0506076		Repack
1154	X10C0505962	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	10/23/2001		10/23/2001								
1155	X10C0505969	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/17/2001		9/17/2001								
1156	X10C0505970	55G	EMPLACED_CNTR	3/28/2010 10:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	7/26/2001		7/26/2001								
1157	X10C0505973	55G	EMPLACED_CNTR	3/20/2010 15:01	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	12/1/2001		12/1/2001								
1158	X10C0505976	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/17/2001		9/17/2001								
1159	X10C0505989	55G	EMPLACED_CNTR	1/21/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	12/1/2001		12/1/2001								
1160	X10C0505993A	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/30/2001	3/25/2010	7/30/2001	3/25/2010							
1161	X10C0506000A	55G			10/11/2013 15:13	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/9/2001	6/7/2013		6/7/2013		- Rpkgd was X10C0506000			X10C0505993		Repack
1162	X10C0506000B	55G			10/11/2013 15:14	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/9/2001	6/7/2013		6/7/2013		- Rpkgd was X10C0506000			X10C0506000		Repack
1163	X10C0506000C	55G			10/11/2013 15:14	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/9/2001	6/7/2013		6/7/2013		- Rpkgd was X10C0506000			X10C0506000		Repack
1164	X10C0506059A	55G	EMPLACED_CNTR	6/14/2011 22:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/20/2001	1/14/2008		1/14/2008					X10C0506000		Repack
1165	X10C0506069	55G	EMPLACED_CNTR	6/20/2011 19:13	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/23/2005		9/23/2005		Waste stream changed per NCR-ORNL-0509-10				X10C0506059		Repack
1166	X10C0506077B	55G	EMPLACED_CNTR	3/28/2010 10:55	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/30/2001	4/29/2008		4/29/2008							
1167	X10C0506079	55G	EMPLACED_CNTR	3/27/2010 13:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	7/9/2001		7/9/2001						X10C0506077		Repack
1168	X10C0506081	55G	EMPLACED_CNTR	4/6/2010 19:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/6/2001		9/6/2001								
1169	X10C0506082A	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/17/2001	12/29/2009	10/17/2001	12/29/2009							
1170	X10C0506138A	55G	EMPLACED_CNTR	6/11/2011 10:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/14/2010		4/14/2010					X10C0506082		Repack
1171	X10C0506138B	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/14/2010		4/14/2010					X10C0506138		Repack
1172	X10C0506138G	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/19/2010		4/19/2010					X10C0506138		Repack
1173	X10C0506138H	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/19/2010		4/19/2010					X10C0506138		Repack
1174	X10C0506138I	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/19/2010		4/19/2010					X10C0506138		Repack
1175	X10C0506138J	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/19/2010		4/19/2010					X10C0506138		Repack
1176	X10C0506138O	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/20/2010		4/20/2010					X10C0506138		Repack
1177	X10C0506138P	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/20/2010		4/20/2010					X10C0506138		Repack
1178	X10C0506138Q	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/20/2010		4/20/2010					X10C0506138		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1179	X10C0506138R	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/20/2010		4/20/2010					X10C0506138		Repack
1180	X10C0506138S	55G			4/28/2011 6:00	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/20/2010		4/20/2010	Added back per JMiles email 041811				X10C0506138		Repack
1181	X10C0506138T	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/20/2010		4/20/2010					X10C0506138		Repack
1182	X10C0506138U	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/20/2010		4/20/2010					X10C0506138		Repack
1183	X10C0506138V	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/25/2002	4/20/2010		4/20/2010					X10C0506138		Repack
1184	X10C0506140F	55G	EMPLACED_CNTR	6/19/2011 9:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	12/10/2002	4/13/2010		4/13/2010					X10C0506138		Repack
1185	X10C0506140G	55G	EMPLACED_CNTR	6/19/2011 9:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	12/10/2002	4/13/2010		4/13/2010					X10C0506140		Repack
1186	X10C0506140H	55G	EMPLACED_CNTR	6/19/2011 8:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	12/10/2002	4/13/2010		4/13/2010					X10C0506140		Repack
1187	X10C0506140I	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	12/10/2002	4/14/2010		4/14/2010					X10C0506140		Repack
1188	X10C0506140R	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	12/10/2002	4/14/2010		4/14/2010					X10C0506140		Repack
1189	X10C0506140S	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	12/10/2002	4/14/2010		4/14/2010					X10C0506140		Repack
1190	X10C0506140T	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	12/10/2002	4/14/2010		4/14/2010					X10C0506140		Repack
1191	X10C0506141B	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/1/2002	4/21/2010		4/21/2010					X10C0506140		Repack
1192	X10C0506141H	55G	EMPLACED_CNTR	6/20/2011 18:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/1/2002	4/22/2010		4/22/2010					X10C0506141		Repack
1193	X10C0506141P	55G	EMPLACED_CNTR	6/21/2011 18:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	10/1/2002	4/23/2010		4/23/2010					X10C0506141		Repack
1194	X10C0506142C	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/3/2002	4/27/2010		4/27/2010					X10C0506141		Repack
1195	X10C0506142D	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	NA	9/3/2002	4/28/2010		4/28/2010	Added back per JMiles email 011911				X10C0506142		Repack
1196	X10C0506142E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/3/2002	4/28/2010		4/28/2010					X10C0506142		Repack
1197	X10C0506142F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/3/2002	4/28/2010		4/28/2010					X10C0506142		Repack
1198	X10C0506142U	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/3/2002	4/28/2010		4/28/2010					X10C0506142		Repack
1199	X10C0506143B	55G	EMPLACED_CNTR	4/18/2010 13:15	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/4/2007	8/6/2002	12/4/2007					X10C0506143		Repack
1200	X10C0506143C	55G	EMPLACED_CNTR	3/28/2010 10:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/4/2007	8/6/2002	12/4/2007					X10C0506143		Repack
1201	X10C0506143D	55G	EMPLACED_CNTR	3/28/2010 10:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/4/2007	8/6/2002	12/4/2007					X10C0506143		Repack
1202	X10C0506143E	55G	EMPLACED_CNTR	4/19/2010 22:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/4/2007	8/6/2002	12/4/2007					X10C0506143		Repack
1203	X10C0506143F	55G	EMPLACED_CNTR	3/27/2010 13:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/4/2007	8/6/2002	12/4/2007					X10C0506143		Repack
1204	X10C0506143G	55G	EMPLACED_CNTR	4/20/2010 21:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/4/2007	8/6/2002	12/4/2007					X10C0506143		Repack
1205	X10C0506143H	55G	EMPLACED_CNTR	4/19/2010 22:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/4/2007	8/6/2002	12/4/2007					X10C0506143		Repack
1206	X10C0506143I	55G	EMPLACED_CNTR	11/6/2010 14:21	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/4/2007	8/6/2002	12/4/2007					X10C0506143		Repack
1207	X10C0506143J	55G	EMPLACED_CNTR	4/13/2010 22:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/4/2007	8/6/2002	12/4/2007					X10C0506143		Repack
1208	X10C0506143K	55G	EMPLACED_CNTR	4/19/2010 21:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/4/2007	8/6/2002	12/4/2007					X10C0506143		Repack
1209	X10C0506143L	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/4/2007	8/6/2002	12/4/2007					X10C0506143		Repack
1210	X10C0506143M1	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/6/2002	1/27/2009		1/27/2009					X10C0506143		Repack
1211	X10C0506143S	55G	EMPLACED_CNTR	6/2/2010 22:11	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/5/2007	8/6/2002	12/5/2007					X10C0506143M	X10C0506143	Repack
1212	X10C0506143T	55G	EMPLACED_CNTR	3/27/2010 14:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	8/6/2002	12/5/2007	8/6/2002	12/5/2007					X10C0506143		Repack
1213	X10C0506153A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/23/2005	1/29/2008	9/23/2005	1/29/2008					X10C0506143		Repack
1214	X10C0506153B	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/23/2005	1/30/2008	9/23/2005	1/30/2008					X10C0506153		Repack
1215	X10C0506153C	55G	EMPLACED_CNTR	1/21/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/23/2005	1/30/2008	9/23/2005	1/30/2008					X10C0506153		Repack
1216	X10C0506153D	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/23/2005	1/30/2008	9/23/2005	1/30/2008					X10C0506153		Repack
1217	X10C0506153E	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/23/2005	1/30/2008	9/23/2005	1/30/2008					X10C0506153		Repack
1218	X10C0506153F	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/23/2005	1/30/2008	9/23/2005	1/30/2008					X10C0506153		Repack
1219	X10C0506153G	55G	EMPLACED_CNTR	3/20/2010 15:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/23/2005	1/31/2008	9/23/2005	1/31/2008					X10C0506153		Repack
1220	X10C0506153H	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	9/23/2005	1/31/2008	9/23/2005	1/31/2008					X10C0506153		Repack
1221	X10C0506154DD	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	12/12/2001	2/4/2008		2/4/2008					X10C0506153		Repack
1222	X10C0506154E1	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/12/2001	1/27/2009		1/27/2009					X10C0506154		Repack
1223	X10C0506154F1A1	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/12/2001	2/26/2010		2/26/2010					X10C0506154E	X10C0506154	Repack
1224	X10C0506154F1A2	55G	EMPLACED_CNTR	6/11/2011 10:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/12/2001	3/1/2010		3/1/2010					X10C0506154F1A	X10C0506154F1	Repack
1225	X10C0506154K	55G	EMPLACED_CNTR	3/27/2010 13:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	12/12/2001	2/4/2008		2/4/2008					X10C0506154		Repack
1226	X10C0506154S	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Box Daughter	12/12/2001	2/6/2008		2/6/2008					X10C0506154		Repack

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1227	X10C0506154V1	55G	EMPLACED_C																		
1228	NFS0076C	55G	NTR	6/20/2011 18:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/12/2001	10/5/2009		10/5/2009					X10C0506154V	X10C0506154	Repack
1229	NFS0077A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0076			NFS0076		R
1230	NFS0077B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0077			NFS0077		R
1231	NFS0077C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0077			NFS0077		R
1232	NFS0078A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0077			NFS0077		R
1233	NFS0078B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0077			NFS0077		R
1234	NFS0078C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0078			NFS0078		R
1235	NFS0079A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0078			NFS0078		R
1236	NFS0079B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0078			NFS0078		R
1237	NFS0079C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0079			NFS0079		R
1238	NFS0083A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0079			NFS0079		R
1239	NFS0083B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/8/1993	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0079			NFS0079		R
1240	NFS0083C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0083			NFS0083		R
1241	NFS0084A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0083			NFS0083		R
1242	NFS0084B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0083			NFS0083		R
1243	NFS0084C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0084			NFS0084		R
1244	NFS0085A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0084			NFS0084		R
1245	NFS0085B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0084			NFS0084		R
1246	NFS0085C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0085			NFS0085		R
1247	NFS0086A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0085			NFS0085		R
1248	NFS0086B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0085			NFS0085		R
1249	NFS0086C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	3/1/2013		3/1/2013	Compacted waste	Rpkgd was NFS0086			NFS0086		R
1250	NFS0087A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	3/1/2013		3/1/2013	Compacted waste	Rpkgd was NFS0086			NFS0086		R
1251	NFS0087B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	7/13/1993	3/1/2013		3/1/2013	Compacted waste	Rpkgd was NFS0086			NFS0086		R
1252	NFS0087C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0087			NFS0087		R
1253	NFS0088A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0087			NFS0087		R
1254	NFS0088B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0087			NFS0087		R
1255	NFS0088C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0088			NFS0088		R
1256	NFS0089A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0088			NFS0088		R
1257	NFS0089B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0088			NFS0088		R
1258	NFS0089C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0089			NFS0089		R
1259	NFS0090A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0089			NFS0089		R
1260	NFS0090B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0089			NFS0089		R
1261	NFS0090C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0090			NFS0090		R
1262	NFS0091A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0090			NFS0090		R
1263	NFS0091B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/9/1993	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0090			NFS0090		R
1264	NFS0091C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0091			NFS0091		R
1265	NFS0092A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0091			NFS0091		R
1266	NFS0092B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0091			NFS0091		R
1267	NFS0092C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0092			NFS0092		R
1268	NFS0093A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0092			NFS0092		R
1269	NFS0093B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0092			NFS0092		R
1270	NFS0093C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0093			NFS0093		R
1271	NFS0094A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0093			NFS0093		R
1272	NFS0094B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0093			NFS0093		R
1273	NFS0094C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/18/2013		4/18/2013	Compacted waste	Rpkgd was NFS0094			NFS0094		R
1274	NFS0095A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/18/2013		4/18/2013	Compacted waste	Rpkgd was NFS0094			NFS0094		R
1275	NFS0095B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/18/2013		4/18/2013	Compacted waste	Rpkgd was NFS0094			NFS0094		R
1276	NFS0095C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	5/8/2013		5/8/2013	Compacted waste	Rpkgd was NFS0095			NFS0095		R
1277	NFS0096A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	5/8/2013		5/8/2013	Compacted waste	Rpkgd was NFS0095			NFS0095		R
1278	NFS0096B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	5/8/2013		5/8/2013	Compacted waste	Rpkgd was NFS0095			NFS0095		R
1279	NFS0096C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0096			NFS0096		R
1280	NFS0097A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0096			NFS0096		R
1281	NFS0097B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0096			NFS0096		R
1282	NFS0097C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0097			NFS0097		R
1283	NFS0098A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0097			NFS0097		R
1284	NFS0098B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0097			NFS0097		R
1285	NFS0098C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0098			NFS0098		R
1286	NFS0099A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0098			NFS0098		R
1287	NFS0099B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	8/18/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0098			NFS0098		R
1288	NFS0099C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/9/1994	2/27/2013		2/27/2013	Compacted waste	Rpkgd was NFS0099			NFS0099		R
1289	NFS0100A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/9/1994	2/27/2013		2/27/2013	Compacted waste	Rpkgd was NFS0099			NFS0099		R
1290	NFS0100B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/9/1994	2/27/2013		2/27/2013	Compacted waste	Rpkgd was NFS0099			NFS0099		R
1291	NFS0100C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/27/2013		2/27/2013	Compacted waste	Rpkgd was NFS0099			NFS0099		R
1292	NFS0101A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/27/2013		2/27/2013	Compacted waste	Rpkgd was NFS0100			NFS0100		R
1293	NFS0101B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/27/2013		2/27/2013	Compacted waste	Rpkgd was NFS0100			NFS0100		R
1294	NFS0101C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/9/1994	2/27/2013		2/27/2013	Compacted waste	Rpkgd was NFS0100			NFS0100		R
1295	NFS0102A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/9/1994	2/27/2013		2/27/2013	Compacted waste	Rpkgd was NFS0101			NFS0101		R
1296	NFS0102B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/9/1994	2/27/2013		2/27/2013	Compacted waste	Rpkgd was NFS0101			NFS0101		R
1297	NFS0102C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0101			NFS0101		R
1298	NFS0604A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0102			NFS0102		R
1299	NFS0604B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	1/8/1994	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0102			NFS0102		R
1300	NFS0604C	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/1/2013		5/1/2013	Compacted waste	Rpkgd was NFS0604			NFS0604		R
1301	NFS0605A	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/1/2013		5/1/2013	Compacted waste	Rpkgd was NFS0604			NFS0604		R
1302	NFS0605B	55G			1/1/2014 7:54	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	12/2/1993	5/1/2013		5/1/2013	Compacted waste	Rpkgd was NFS0604			NFS0604		R
1303	NFS0605C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	2/27/2012		2/27/2012	Compacted waste	Rpkgd was NFS0605			NFS0605		R
1304	NFS0606A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	2/27/2012		2/27/2012	Compacted waste	Rpkgd was NFS0605			NFS0605		R
1305	NFS0606B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	2/27/2012		2/27/2012	Compacted waste	Rpkgd was NFS0605			NFS0605		R
1306	NFS0606C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	2/29/2012		2/29/2012	Compacted waste	Rpkgd was NFS0606			NFS0606		R
					1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	2/29/2012		2/29/2012	Compacted waste	Rpkgd was NFS0606			NFS0606		R

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1307	NFS0607A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0607			NFS0607		R
1308	NFS0607B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0607			NFS0607		R
1309	NFS0607C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0607			NFS0607		R
1310	NFS0608A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0608			NFS0608		R
1311	NFS0608B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0608			NFS0608		R
1312	NFS0608C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0608			NFS0608		R
1313	NFS0609A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0609			NFS0609		R
1314	NFS0609B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0609			NFS0609		R
1315	NFS0609C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0609			NFS0609		R
1316	NFS0610A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	2/28/2012		2/28/2012	Compacted waste	Rpkgd was NFS0610			NFS0610		R
1317	NFS0610B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	2/28/2012		2/28/2012	Compacted waste	Rpkgd was NFS0610			NFS0610		R
1318	NFS0610C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	2/28/2012		2/28/2012	Compacted waste	Rpkgd was NFS0610			NFS0610		R
1319	NFS0611A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	5/9/2013		5/9/2013	Compacted waste	Rpkgd was NFS0611			NFS0611		R
1320	NFS0611B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	5/9/2013		5/9/2013	Compacted waste	Rpkgd was NFS0611			NFS0611		R
1321	NFS0611C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	5/9/2013		5/9/2013	Compacted waste	Rpkgd was NFS0611			NFS0611		R
1322	NFS0612A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0612			NFS0612		R
1323	NFS0612B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0612			NFS0612		R
1324	NFS0612C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	9/27/1993	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0612			NFS0612		R
1325	NFS0613A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0613			NFS0613		R
1326	NFS0613B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0613			NFS0613		R
1327	NFS0613C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0613			NFS0613		R
1328	NFS0614A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0614			NFS0614		R
1329	NFS0614B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0614			NFS0614		R
1330	NFS0614C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0614			NFS0614		R
1331	NFS0615A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	5/8/2013		5/8/2013	Compacted waste	Rpkgd was NFS0615			NFS0615		R
1332	NFS0615B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	5/8/2013		5/8/2013	Compacted waste	Rpkgd was NFS0615			NFS0615		R
1333	NFS0615C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	5/8/2013		5/8/2013	Compacted waste	Rpkgd was NFS0615			NFS0615		R
1334	NFS0616A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0616			NFS0616		R
1335	NFS0616B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0616			NFS0616		R
1336	NFS0616C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0616			NFS0616		R
1337	NFS0617A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0617			NFS0617		R
1338	NFS0617B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0617			NFS0617		R
1339	NFS0617C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0617			NFS0617		R
1340	NFS0618A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/30/2013		4/30/2013	Compacted waste	Rpkgd was NFS0618			NFS0618		R
1341	NFS0618B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/30/2013		4/30/2013	Compacted waste	Rpkgd was NFS0618			NFS0618		R
1342	NFS0618C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/30/2013		4/30/2013	Compacted waste	Rpkgd was NFS0618			NFS0618		R
1343	NFS0619A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0619			NFS0619		R
1344	NFS0619B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0619			NFS0619		R
1345	NFS0619C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0619			NFS0619		R
1346	NFS0620A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/15/2013		4/15/2013	Compacted waste	Rpkgd was NFS0620			NFS0620		R
1347	NFS0620B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/15/2013		4/15/2013	Compacted waste	Rpkgd was NFS0620			NFS0620		R
1348	NFS0620C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	4/15/2013		4/15/2013	Compacted waste	Rpkgd was NFS0620			NFS0620		R
1349	NFS0621A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0621			NFS0621		R
1350	NFS0621B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0621			NFS0621		R
1351	NFS0621C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0621			NFS0621		R
1352	NFS0622A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	3/7/2013		3/7/2013	Compacted waste	Rpkgd was NFS0622			NFS0622		R
1353	NFS0622B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	3/7/2013		3/7/2013	Compacted waste	Rpkgd was NFS0622			NFS0622		R
1354	NFS0622C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	3/7/2013		3/7/2013	Compacted waste	Rpkgd was NFS0622			NFS0622		R
1355	NFS0623A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0623			NFS0623		R
1356	NFS0623B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0623			NFS0623		R
1357	NFS0623C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0623			NFS0623		R
1358	NFS0624A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0624			NFS0624		R
1359	NFS0624B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0624			NFS0624		R
1360	NFS0624C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0624			NFS0624		R
1361	NFS0625A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0625			NFS0625		R
1362	NFS0625B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0625			NFS0625		R
1363	NFS0625C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/13/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0625			NFS0625		R
1364	NFS0626A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	3/6/2013		3/6/2013	Compacted waste	Rpkgd was NFS0626			NFS0626		R
1365	NFS0626B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	3/6/2013		3/6/2013	Compacted waste	Rpkgd was NFS0626			NFS0626		R
1366	NFS0626C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	3/6/2013		3/6/2013	Compacted waste	Rpkgd was NFS0626			NFS0626		R
1367	NFS0627A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0627			NFS0627		R
1368	NFS0627B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0627			NFS0627		R
1369	NFS0627C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0627			NFS0627		R
1370	NFS0628A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0628			NFS0628		R
1371	NFS0628B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0628			NFS0628		R
1372	NFS0628C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0628			NFS0628		R
1373	NFS0629A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0629			NFS0629		R
1374	NFS0629B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0629			NFS0629		R
1375	NFS0629C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0629			NFS0629		R
1376	NFS0630A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0630			NFS0630		R
1377	NFS0630B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0630			NFS0630		R
1378	NFS0630C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0630			NFS0630		R
1379	NFS0631A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/20/2013		5/20/2013	Compacted waste	Rpkgd was NFS0631			NFS0631		R
1380	NFS0631B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/20/2013		5/20/2013	Compacted waste	Rpkgd was NFS0631			NFS0631		R
1381	NFS0631C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/20/2013		5/20/2013	Compacted waste	Rpkgd was NFS0631			NFS0631		R
1382	NFS0632A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	3/6/2013		3/6/2013	Compacted waste	Rpkgd was NFS0632			NFS0632		R
1383	NFS0632B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	3/6/2013		3/6/2013	Compacted waste	Rpkgd was NFS0632			NFS0632		R
1384	NFS0632C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	3/6/2013		3/6/2013	Compacted waste	Rpkgd was NFS0632			NFS0632		R
1385	NFS0633A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0633			NFS0633		R
1386	NFS0633B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0633			NFS0633		R
1387	NFS0633C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0633			NFS0633		R

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1388	NFS0634A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0634			NFS0634		R
1389	NFS0634B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0634			NFS0634		R
1390	NFS0634C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0634			NFS0634		R
1391	NFS0635A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0635			NFS0635		R
1392	NFS0635B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0635			NFS0635		R
1393	NFS0635C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	10/22/1993	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0635			NFS0635		R
1394	NFS0636A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0636			NFS0636		R
1395	NFS0636B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0636			NFS0636		R
1396	NFS0636C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0636			NFS0636		R
1397	NFS0637A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0637			NFS0637		R
1398	NFS0637B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0637			NFS0637		R
1399	NFS0637C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0637			NFS0637		R
1400	NFS0638A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0638			NFS0638		R
1401	NFS0638B	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0638			NFS0638		R
1402	NFS0638C	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0638			NFS0638		R
1403	NFS0639A	55G			1/1/2014 8:03	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0639			NFS0639		R
1404	NFS0639B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0639			NFS0639		R
1405	NFS0639C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0639			NFS0639		R
1406	NFS0640A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0640			NFS0640		R
1407	NFS0640B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0640			NFS0640		R
1408	NFS0640C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	2/26/2013		2/26/2013	Compacted waste	Rpkgd was NFS0640			NFS0640		R
1409	NFS0641A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0641			NFS0641		R
1410	NFS0641B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0641			NFS0641		R
1411	NFS0641C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/1/1993	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0641			NFS0641		R
1412	NFS0643A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/15/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0643			NFS0643		R
1413	NFS0643B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/15/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0643			NFS0643		R
1414	NFS0643C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/15/1993	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0643			NFS0643		R
1415	NFS0644A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/1/2013		5/1/2013	Compacted waste	Rpkgd was NFS0644			NFS0644		R
1416	NFS0644B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/1/2013		5/1/2013	Compacted waste	Rpkgd was NFS0644			NFS0644		R
1417	NFS0644C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/1/2013		5/1/2013	Compacted waste	Rpkgd was NFS0644			NFS0644		R
1418	NFS0645A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0645			NFS0645		R
1419	NFS0645B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0645			NFS0645		R
1420	NFS0645C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0645			NFS0645		R
1421	NFS0646A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0646			NFS0646		R
1422	NFS0646B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0646			NFS0646		R
1423	NFS0646C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0646			NFS0646		R
1424	NFS0647A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0647			NFS0647		R
1425	NFS0647B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0647			NFS0647		R
1426	NFS0647C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/6/2013		5/6/2013	Compacted waste	Rpkgd was NFS0647			NFS0647		R
1427	NFS0648A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0648			NFS0648		R
1428	NFS0648B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0648			NFS0648		R
1429	NFS0648C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0648			NFS0648		R
1430	NFS0649A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0649			NFS0649		R
1431	NFS0649B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0649			NFS0649		R
1432	NFS0649C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/16/1993	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0649			NFS0649		R
1433	NFS0650A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	3/4/2013		3/4/2013	Compacted waste	Rpkgd was NFS0650			NFS0650		R
1434	NFS0650B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	3/4/2013		3/4/2013	Compacted waste	Rpkgd was NFS0650			NFS0650		R
1435	NFS0650C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	3/4/2013		3/4/2013	Compacted waste	Rpkgd was NFS0650			NFS0650		R
1436	NFS0651A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0651			NFS0651		R
1437	NFS0651B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0651			NFS0651		R
1438	NFS0651C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0651			NFS0651		R
1439	NFS0652A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0651			NFS0651		R
1440	NFS0652B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	5/5/2013		5/5/2013	Compacted waste	Rpkgd was NFS0652			NFS0652		R
1441	NFS0652C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	5/5/2013		5/5/2013	Compacted waste	Rpkgd was NFS0652			NFS0652		R
1442	NFS0653A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	5/5/2013		5/5/2013	Compacted waste	Rpkgd was NFS0652			NFS0652		R
1443	NFS0653B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	4/18/2013		4/18/2013	Compacted waste	Rpkgd was NFS0653			NFS0653		R
1444	NFS0653C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	4/18/2013		4/18/2013	Compacted waste	Rpkgd was NFS0653			NFS0653		R
1445	NFS0863A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	11/22/1993	4/18/2013		4/18/2013	Compacted waste	Rpkgd was NFS0653			NFS0653		R
1446	NFS0863B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/8/2013		5/8/2013	Compacted waste	Rpkgd was NFS0863			NFS0863		R
1447	NFS0863C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/8/2013		5/8/2013	Compacted waste	Rpkgd was NFS0863			NFS0863		R
1448	NFS0864A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/8/2013		5/8/2013	Compacted waste	Rpkgd was NFS0863			NFS0863		R
1449	NFS0864B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	2/25/2013		2/25/2013	Compacted waste	Rpkgd was NFS0864			NFS0864		R
1450	NFS0864C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	2/25/2013		2/25/2013	Compacted waste	Rpkgd was NFS0864			NFS0864		R
1451	NFS0881A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	2/25/2013		2/25/2013	Compacted waste	Rpkgd was NFS0864			NFS0864		R
1452	NFS0881B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	12/5/2011		12/5/2011	Compacted waste	Rpkgd was NFS0881			NFS0881		R
1453	NFS0881C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	12/5/2011		12/5/2011	Compacted waste	Rpkgd was NFS0881			NFS0881		R
1454	NFS0882A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	12/5/2011		12/5/2011	Compacted waste	Rpkgd was NFS0881			NFS0881		R
1455	NFS0882B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/30/2013		4/30/2013	Compacted waste	Rpkgd was NFS0882			NFS0882		R
1456	NFS0858C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/30/2013		4/30/2013	Compacted waste	Rpkgd was NFS0882			NFS0882		R
1457	NFS0859A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/20/2013		5/20/2013	Compacted waste	Rpkgd was NFS0858			NFS0858		R
1458	NFS0859B1	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	4/19/2013		4/19/2013	Compacted waste	Rpkgd was NFS0859			NFS0859		R
1459	NFS0859C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	5/21/2013		5/21/2013	Compacted waste	Rpkgd was NFS0859B			NFS0859B	NFS0859	R
1460	NFS0860A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/9/1994	4/19/2013		4/19/2013	Compacted waste	Rpkgd was NFS0859			NFS0859		R
1461	NFS0860B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0860			NFS0860		R
1462	NFS0860C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0860			NFS0860		R
1463	NFS0861A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0860			NFS0860		R
1464	NFS0861B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/11/1994	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0861			NFS0861		R
1465	NFS0861C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/11/1994	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0861			NFS0861		R
1466	NFS0882C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	3/11/1994	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0861			NFS0861		R
1467	NFS0883A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/30/2013		4/30/2013	Compacted waste	Rpkgd was NFS0882			NFS0882		R
1468	NFS0883B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/30/2013		4/30/2013	Compacted waste	Rpkgd was NFS0883			NFS0883		R

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1469	NFS0883C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/30/2013		4/30/2013	Compacted waste	Rpkgd was NFS0883			NFS0883		R
1470	NFS0884A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0884			NFS0884		R
1471	NFS0884B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0884			NFS0884		R
1472	NFS0884C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/24/2013		4/24/2013	Compacted waste	Rpkgd was NFS0884			NFS0884		R
1473	NFS0885A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0885			NFS0885		R
1474	NFS0885B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0885			NFS0885		R
1475	NFS0885C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0885			NFS0885		R
1476	NFS0886A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0885			NFS0885		R
1477	NFS0886B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0886			NFS0886		R
1478	NFS0886C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0886			NFS0886		R
1479	NFS0887A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0886			NFS0886		R
1480	NFS0887B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/30/2013		4/30/2013	Compacted waste	Rpkgd was NFS0887			NFS0887		R
1481	NFS0887C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/30/2013		4/30/2013	Compacted waste	Rpkgd was NFS0887			NFS0887		R
1482	NFS0888A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/14/1994	4/30/2013		4/30/2013	Compacted waste	Rpkgd was NFS0887			NFS0887		R
1483	NFS0888B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	4/15/2013		4/15/2013	Compacted waste	Rpkgd was NFS0888			NFS0888		R
1484	NFS0888C	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	4/15/2013		4/15/2013	Compacted waste	Rpkgd was NFS0888			NFS0888		R
1485	NFS0889A	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	4/15/2013		4/15/2013	Compacted waste	Rpkgd was NFS0888			NFS0888		R
1486	NFS0889B	55G			1/1/2014 8:16	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0889			NFS0889		R
1487	NFS0889C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0889			NFS0889		R
1488	NFS0890A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0889			NFS0889		R
1489	NFS0890B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0890			NFS0890		R
1490	NFS0890C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0890			NFS0890		R
1491	NFS0891A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0890			NFS0890		R
1492	NFS0891B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0891			NFS0891		R
1493	NFS0891C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0891			NFS0891		R
1494	NFS0892A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0892			NFS0892		R
1495	NFS0892B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	4/12/2013		4/12/2013	Compacted waste	Rpkgd was NFS0892			NFS0892		R
1496	NFS0892C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	4/12/2013		4/12/2013	Compacted waste	Rpkgd was NFS0892			NFS0892		R
1497	NFS0893A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/18/1994	4/12/2013		4/12/2013	Compacted waste	Rpkgd was NFS0892			NFS0892		R
1498	NFS0893B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0893			NFS0893		R
1499	NFS0893C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0893			NFS0893		R
1500	NFS0894A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	4/25/2013		4/25/2013	Compacted waste	Rpkgd was NFS0893			NFS0893		R
1501	NFS0894B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0894			NFS0894		R
1502	NFS0894C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0894			NFS0894		R
1503	NFS0895A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0894			NFS0894		R
1504	NFS0895B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	4/12/2013		4/12/2013	Compacted waste	Rpkgd was NFS0895			NFS0895		R
1505	NFS0895C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	4/12/2013		4/12/2013	Compacted waste	Rpkgd was NFS0895			NFS0895		R
1506	NFS0896A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	4/12/2013		4/12/2013	Compacted waste	Rpkgd was NFS0895			NFS0895		R
1507	NFS0896B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/10/2013		5/10/2013	Compacted waste	Rpkgd was NFS0896			NFS0896		R
1508	NFS0896C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/10/2013		5/10/2013	Compacted waste	Rpkgd was NFS0896			NFS0896		R
1509	NFS0897A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/10/2013		5/10/2013	Compacted waste	Rpkgd was NFS0896			NFS0896		R
1510	NFS0897B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0897			NFS0897		R
1511	NFS0897C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0897			NFS0897		R
1512	NFS0898A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0897			NFS0897		R
1513	NFS0898B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0898			NFS0898		R
1514	NFS0898C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0898			NFS0898		R
1515	NFS0899A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	2/28/2013		2/28/2013	Compacted waste	Rpkgd was NFS0898			NFS0898		R
1516	NFS0899B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	3/7/2013		3/7/2013	Compacted waste	Rpkgd was NFS0899			NFS0899		R
1517	NFS0899C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	3/7/2013		3/7/2013	Compacted waste	Rpkgd was NFS0899			NFS0899		R
1518	NFS0900A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	3/7/2013		3/7/2013	Compacted waste	Rpkgd was NFS0899			NFS0899		R
1519	NFS0900B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0900			NFS0900		R
1520	NFS0900C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0900			NFS0900		R
1521	NFS0901A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/22/1994	5/7/2013		5/7/2013	Compacted waste	Rpkgd was NFS0900			NFS0900		R
1522	NFS0901B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0901			NFS0901		R
1523	NFS0901C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0901			NFS0901		R
1524	NFS0902A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	5/13/2013		5/13/2013	Compacted waste	Rpkgd was NFS0901			NFS0901		R
1525	NFS0902B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	5/10/2013		5/10/2013	Compacted waste	Rpkgd was NFS0902			NFS0902		R
1526	NFS0902C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	5/10/2013		5/10/2013	Compacted waste	Rpkgd was NFS0902			NFS0902		R
1527	NFS0903A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	5/10/2013		5/10/2013	Compacted waste	Rpkgd was NFS0902			NFS0902		R
1528	NFS0903B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	4/28/2013		4/28/2013	Compacted waste	Rpkgd was NFS0903			NFS0903		R
1529	NFS0903C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	4/28/2013		4/28/2013	Compacted waste	Rpkgd was NFS0903			NFS0903		R
1530	NFS0904A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	4/28/2013		4/28/2013	Compacted waste	Rpkgd was NFS0903			NFS0903		R
1531	NFS0904B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	4/26/2013		4/26/2013	Compacted waste	Rpkgd was NFS0904			NFS0904		R
1532	NFS0904C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	4/26/2013		4/26/2013	Compacted waste	Rpkgd was NFS0904			NFS0904		R
1533	NFS0905A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/25/1994	4/26/2013		4/26/2013	Compacted waste	Rpkgd was NFS0904			NFS0904		R
1534	NFS0905B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0905			NFS0905		R
1535	NFS0905C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0905			NFS0905		R
1536	NFS0906A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0905			NFS0905		R
1537	NFS0906B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0906			NFS0906		R
1538	NFS0906C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0906			NFS0906		R
1539	NFS0907A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/16/2013		4/16/2013	Compacted waste	Rpkgd was NFS0906			NFS0906		R
1540	NFS0907B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0907			NFS0907		R
1541	NFS0907C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0907			NFS0907		R
1542	NFS0908A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	5/15/2013		5/15/2013	Compacted waste	Rpkgd was NFS0907			NFS0907		R
1543	NFS0908B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0908			NFS0908		R
1544	NFS0908C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0908			NFS0908		R
1545	NFS0909A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0908			NFS0908		R
1546	NFS0909B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0909			NFS0909		R
1547	NFS0909C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0909			NFS0909		R
1548	NFS0910A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/23/2013		4/23/2013	Compacted waste	Rpkgd was NFS0909			NFS0909		R
1549	NFS0910B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	5/1/2013		5/1/2013	Compacted waste	Rpkgd was NFS0910			NFS0910		R

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1550	NFS0910C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	5/1/2013		5/1/2013	Compacted waste	Rpkgd was NFS0910			NFS0910		R
1551	NFS0911A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0911			NFS0911		R
1552	NFS0911B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0911			NFS0911		R
1553	NFS0911C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/17/2013		4/17/2013	Compacted waste	Rpkgd was NFS0911			NFS0911		R
1554	NFS0912A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0912			NFS0912		R
1555	NFS0912B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0912			NFS0912		R
1556	NFS0912C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0912			NFS0912		R
1557	NFS0913A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	4/28/1994	4/29/2013		4/29/2013	Compacted waste	Rpkgd was NFS0912			NFS0912		R
1558	NFS0913B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0913			NFS0913		R
1559	NFS0914A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	5/14/2013		5/14/2013	Compacted waste	Rpkgd was NFS0913			NFS0913		R
1560	NFS0914B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	3/1/2013		3/1/2013	Compacted waste	Rpkgd was NFS0914			NFS0914		R
1561	NFS0915A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	3/1/2013		3/1/2013	Compacted waste	Rpkgd was NFS0914			NFS0914		R
1562	NFS0915B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0915			NFS0915		R
1563	NFS0915C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0915			NFS0915		R
1564	NFS0916A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	3/5/2013		3/5/2013	Compacted waste	Rpkgd was NFS0915			NFS0915		R
1565	NFS0916B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	4/10/2013		4/10/2013	Compacted waste	Rpkgd was NFS0916			NFS0916		R
1566	NFS0916C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	4/10/2013		4/10/2013	Compacted waste	Rpkgd was NFS0916			NFS0916		R
1567	NFS0917A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	4/10/2013		4/10/2013	Compacted waste	Rpkgd was NFS0916			NFS0916		R
1568	NFS0917B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0917			NFS0917		R
1569	NFS0917C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0917			NFS0917		R
1570	NFS0918A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	5/2/2013		5/2/2013	Compacted waste	Rpkgd was NFS0917			NFS0917		R
1571	NFS0918B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	3/7/2013		3/7/2013	Compacted waste	Rpkgd was NFS0918			NFS0918		R
1572	NFS0918C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	3/7/2013		3/7/2013	Compacted waste	Rpkgd was NFS0918			NFS0918		R
1573	NFS0919A	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	3/7/2013		3/7/2013	Compacted waste	Rpkgd was NFS0918			NFS0918		R
1574	NFS0919B	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0919			NFS0919		R
1575	NFS0919C	55G			1/1/2014 8:24	mccabed	OR-NFS-CH-HET-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0919			NFS0919		R
1576	NFS0107A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S5400	Repack	5/2/1994	5/16/2013		5/16/2013	Compacted waste	Rpkgd was NFS0919			NFS0919		R
1577	NFS0148A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/21/1993	11/23/2010		11/23/2010	Contains 3 bottles				NFS0107		Repack
1578	NFS0149A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/13/1993	1/4/2011		1/4/2011	Contains 3 bottles				NFS0148		Repack
1579	NFS0150A1	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/13/1993	12/20/2010		12/20/2010	Contains 3 bottles				NFS0149		Repack
1580	NFS0151A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/13/1993	1/7/2011		1/7/2011					NFS0150A	NFS0150	Repack
1581	NFS0478A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/13/1993	12/23/2010		12/23/2010	Contains 3 bottles				NFS0151		Repack
1582	NFS0479A1	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	7/9/1993	11/29/2010		11/29/2010	Contains 2 bottles				NFS0478		Repack
1583	NFS0481	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	7/9/1993	1/7/2011		1/7/2011	Contains 2 bottles				NFS0479A	NFS0479	Repack
1584	NFS0506A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	NA	7/9/1993										
1585	NFS0506B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/15/1993	11/19/2010		11/19/2010	Contains 14 bottles				NFS0506		Repack
1586	NFS0507A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/15/1993	11/19/2010		11/19/2010	Contains 14 bottles				NFS0506		Repack
1587	NFS0507B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/15/1993	11/18/2010		11/18/2010	Contains 14 bottles				NFS0507		Repack
1588	NFS0508A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/15/1993	11/18/2010		11/18/2010	Contains 14 bottles				NFS0507		Repack
1589	NFS0591A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/15/1993	11/19/2010		11/19/2010	Contains 14 bottles (1 is empty)				NFS0508		Repack
1590	NFS0591B	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/31/1993	11/18/2010		11/18/2010	Contains 14 bottles				NFS0591		Repack
1591	NFS0592A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/31/1993	11/18/2010		11/18/2010	Contains 14 bottles				NFS0591		Repack
1592	NFS0593A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/31/1993	11/18/2010		11/18/2010	Contains 14 bottles				NFS0592		Repack
1593	NFS0594A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/31/1993	1/4/2011		1/4/2011	Contains 2 bottles				NFS0593		Repack
1594	NFS0673A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	8/31/1993	12/23/2010		12/23/2010	Contains 2 bottles				NFS0594		Repack
1595	NFS0674A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/3/1993	1/4/2011		1/4/2011	Contains 2 bottles				NFS0673		Repack
1596	NFS0753A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/3/1993	1/6/2011		1/6/2011	Contains 2 bottles				NFS0674		Repack
1597	NFS0754A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/17/1993	1/4/2011		1/4/2011	Contains 3 bottles				NFS0753		Repack
1598	NFS0755A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/17/1993	1/4/2011		1/4/2011	Contains 3 bottles				NFS0754		Repack
1599	NFS0758A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/17/1993	1/3/2011		1/3/2011	Contains 3 bottles				NFS0755		Repack
1600	NFS0759A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/17/1993	1/5/2011		1/5/2011	Contains 3 bottles				NFS0758		Repack
1601	NFS0759B1	55G			10/11/2013 15:20	mccabed	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/17/1993	1/3/2011		1/3/2011	Contains 2 bottles				NFS0759		Repack
1602	NFS0776A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/17/1993	8/24/2011		8/24/2011	This waste is packaged in a POC	- Rpkgd was NFS0759 - Rpkgd was NFS0759B			NFS0759B	NFS0759	Repack
1603	NFS0777A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/18/1993	12/22/2010		12/22/2010	Contains 3 bottles				NFS0776		Repack
1604	NFS0786A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/18/1993	12/21/2010		12/21/2010	Contains 3 bottles				NFS0777		Repack
1605	NFS0787A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/19/1993	12/21/2010		12/21/2010	Contains 3 bottles				NFS0786		Repack
1606	NFS0788A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/19/1993	1/4/2011		1/4/2011	Contains 3 bottles				NFS0787		Repack
1607	NFS0789A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/30/1993	11/19/2010		11/19/2010	Contains 14 bottles				NFS0788		Repack
1608	NFS0804A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/20/1993	11/18/2010		11/18/2010	Contains 14 bottles				NFS0789		Repack
1609	NFS0805A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/18/1993	1/4/2011		1/4/2011	Contains 3 bottles				NFS0804		Repack
1610	NFS0806A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/18/1993	1/3/2011		1/3/2011	Contains 3 bottles				NFS0805		Repack
1611	NFS0808A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/18/1993	1/6/2011		1/6/2011	Contains 3 bottles				NFS0806		Repack
1612	NFS0926A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/24/1993	11/29/2010		11/29/2010	Contains 3 bottles				NFS0808		Repack
1613	NFS0929A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	9/24/1993	11/19/2010		11/19/2010	Contains 14 bottles (4 are empty)				NFS0926		Repack
1614	NFS0865A	55G			10/21/2013 9:31	mccabed	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	3/10/1994	11/23/2010		11/23/2010	Contains 10 bottles (2 are empty)				NFS0929		Repack
1615	NFS0865B1	55G			10/21/2013 9:41	mccabed	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	7/9/1993	11/22/2010		11/22/2010	Contains 2 bottles.	- Rpkgd was NFS0865	NA		NFS0865		Repack
1616	NFS0879A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	7/9/1993	8/24/2011		8/24/2011	This waste is packaged in a POC.	- Rpkgd was NFS0865 - Rpkgd was NFS0865B	NA		NFS0865B	NFS0865	Repack
1617	NFS0880A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	3/10/1994	11/19/2010		11/19/2010	Contains 3 bottles				NFS0879		Repack
1618	NFS0105	55G	EMPLACED_CNTR	1/26/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-HOM-A	CCP-AK-ORNL-001	S3900	Repack	3/21/1994	11/18/2010		11/18/2010	Contains 14 bottles				NFS0880		Repack
1619	NFS0106	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/21/1993		9/21/1993								
1620	NFS0108	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/21/1993		9/21/1993								
1621	NFS0109	55G	EMPLACED_CNTR	1/26/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/22/1993		9/22/1993								
											9/22/1993		9/22/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1622	NFS0110	55G	EMPLACED_CNTR	3/18/2010 22:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/22/1993		9/22/1993								
1623	NFS0111	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/22/1993		9/22/1993								
1624	NFS0112	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/22/1993		9/22/1993								
1625	NFS0118	55G	EMPLACED_CNTR	7/29/2010 19:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/18/1993		8/18/1993								
1626	NFS0119	55G	EMPLACED_CNTR	1/21/2010 22:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/18/1993		8/18/1993								
1627	NFS0120	55G	EMPLACED_CNTR	1/21/2010 22:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/18/1993		8/18/1993								
1628	NFS0121	55G	EMPLACED_CNTR	1/21/2010 22:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/18/1993		8/18/1993								
1629	NFS0122	55G	EMPLACED_CNTR	1/21/2010 23:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/17/1993		8/17/1993								
1630	NFS0123	55G	EMPLACED_CNTR	1/26/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/17/1993		8/17/1993								
1631	NFS0124	55G	EMPLACED_CNTR	1/21/2010 23:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/17/1993		8/17/1993								
1632	NFS0125	55G	EMPLACED_CNTR	1/21/2010 23:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/17/1993		8/17/1993								
1633	NFS0126	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/17/1993		8/17/1993								
1634	NFS0127	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/17/1993		8/17/1993								
1635	NFS0128	55G	EMPLACED_CNTR	4/22/2010 19:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/17/1993		8/17/1993								
1636	NFS0129	55G	EMPLACED_CNTR	3/31/2010 19:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/15/1993		8/15/1993								
1637	NFS0130	55G	EMPLACED_CNTR	4/22/2010 19:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/15/1993		8/15/1993								
1638	NFS0131	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/15/1993		8/15/1993								
1639	NFS0132	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/15/1993		8/15/1993								
1640	NFS0133	55G	EMPLACED_CNTR	3/31/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/15/1993		8/15/1993								
1641	NFS0134	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/15/1993		8/15/1993								
1642	NFS0135	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1643	NFS0136	55G	EMPLACED_CNTR	3/18/2010 22:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1644	NFS0137	55G	EMPLACED_CNTR	3/18/2010 22:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1645	NFS0138	55G	EMPLACED_CNTR	3/18/2010 22:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1646	NFS0139	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1647	NFS0140	55G	EMPLACED_CNTR	1/21/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1648	NFS0141	55G	EMPLACED_CNTR	3/31/2010 19:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1649	NFS0142	55G	EMPLACED_CNTR	3/18/2010 22:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1650	NFS0143	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1651	NFS0144	55G	EMPLACED_CNTR	3/18/2010 22:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1652	NFS0145	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1653	NFS0146	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1654	NFS0147	55G	EMPLACED_CNTR	3/18/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1655	NFS0152	55G	EMPLACED_CNTR	3/20/2010 14:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/14/1993		8/14/1993								
1656	NFS0153	55G	EMPLACED_CNTR	3/20/2010 14:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/13/1993		8/13/1993								
1657	NFS0154	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/13/1993		8/13/1993								
1658	NFS0155	55G	EMPLACED_CNTR	3/20/2010 14:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/13/1993		8/13/1993								
1659	NFS0156	55G	EMPLACED_CNTR	3/20/2010 14:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/13/1993		8/13/1993								
1660	NFS0157	55G	EMPLACED_CNTR	1/21/2010 23:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/13/1993		8/13/1993								
1661	NFS0158	55G	EMPLACED_CNTR	3/31/2010 19:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/13/1993		8/13/1993								
1662	NFS0159	55G	EMPLACED_CNTR	1/21/2010 22:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/13/1993		8/13/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1663	NFS0160	55G	EMPLACED_CNTR	3/20/2010 15:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/11/1993		8/11/1993								
1664	NFS0161	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/11/1993		8/11/1993								
1665	NFS0162	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/11/1993		8/11/1993								
1666	NFS0163	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/11/1993		8/11/1993								
1667	NFS0164	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/11/1993		8/11/1993								
1668	NFS0165	55G	EMPLACED_CNTR	3/28/2010 10:55	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/11/1993		8/11/1993								
1669	NFS0166	55G	EMPLACED_CNTR	3/31/2010 19:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/11/1993		8/11/1993								
1670	NFS0167	55G	EMPLACED_CNTR	1/21/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/11/1993		8/11/1993								
1671	NFS0168	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/11/1993		8/11/1993								
1672	NFS0169	55G	EMPLACED_CNTR	3/27/2010 14:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/11/1993		8/11/1993								
1673	NFS0170	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/11/1993		8/11/1993								
1674	NFS0171	55G	EMPLACED_CNTR	1/21/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1675	NFS0172	55G	EMPLACED_CNTR	3/28/2010 10:55	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1676	NFS0173	55G	EMPLACED_CNTR	3/31/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1677	NFS0174	55G	EMPLACED_CNTR	3/28/2010 10:55	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1678	NFS0175	55G	EMPLACED_CNTR	3/27/2010 14:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1679	NFS0176	55G	EMPLACED_CNTR	4/22/2010 19:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1680	NFS0177	55G	EMPLACED_CNTR	3/28/2010 10:55	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1681	NFS0178	55G	EMPLACED_CNTR	3/27/2010 14:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1682	NFS0179	55G	EMPLACED_CNTR	1/21/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1683	NFS0180	55G	EMPLACED_CNTR	4/22/2010 19:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1684	NFS0181	55G	EMPLACED_CNTR	3/31/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1685	NFS0183	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1686	NFS0184	55G	EMPLACED_CNTR	4/27/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1687	NFS0185	55G	EMPLACED_CNTR	4/28/2010 22:52	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
1688	NFS0186	55G	EMPLACED_CNTR	3/18/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/6/1993		8/6/1993								
1689	NFS0187	55G	EMPLACED_CNTR	4/22/2010 19:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1690	NFS0188	55G	EMPLACED_CNTR	3/31/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1691	NFS0189	55G	EMPLACED_CNTR	4/22/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1692	NFS0190	55G	EMPLACED_CNTR	4/28/2010 22:52	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1693	NFS0191	55G	EMPLACED_CNTR	3/27/2010 14:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1694	NFS0192	55G	EMPLACED_CNTR	3/18/2010 22:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1695	NFS0193	55G	EMPLACED_CNTR	3/31/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1696	NFS0194	55G	EMPLACED_CNTR	3/28/2010 10:55	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1697	NFS0195	55G	EMPLACED_CNTR	3/18/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1698	NFS0196	55G	EMPLACED_CNTR	3/31/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1699	NFS0197	55G	EMPLACED_CNTR	4/22/2010 19:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1700	NFS0198	55G	EMPLACED_CNTR	3/27/2010 14:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1701	NFS0199	55G	EMPLACED_CNTR	4/13/2010 22:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1702	NFS0200	55G	EMPLACED_CNTR	4/13/2010 22:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1703	NFS0201	55G	EMPLACED_CNTR	3/28/2010 10:55	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993	4/15/2009							

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1704	NFS0202	55G	EMPLACED_CNTR	3/20/2010 14:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/5/1993		8/5/1993								
1705	NFS0203	55G	EMPLACED_CNTR	3/31/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/3/1993		8/3/1993								
1706	NFS0204	55G	EMPLACED_CNTR	4/22/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/3/1993		8/3/1993								
1707	NFS0205	55G	EMPLACED_CNTR	4/28/2010 22:52	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/3/1993		8/3/1993								
1708	NFS0206	55G	EMPLACED_CNTR	3/27/2010 14:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/3/1993		8/3/1993								
1709	NFS0207	55G	EMPLACED_CNTR	3/20/2010 14:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/3/1993		8/3/1993								
1710	NFS0208	55G	EMPLACED_CNTR	4/28/2010 22:52	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/3/1993		8/3/1993								
1711	NFS0209	55G	EMPLACED_CNTR	3/27/2010 14:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/3/1993		8/3/1993								
1712	NFS0210	55G	EMPLACED_CNTR	4/6/2010 19:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/3/1993		8/3/1993								
1713	NFS0211	55G	EMPLACED_CNTR	3/31/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/3/1993		8/3/1993								
1714	NFS0212	55G	EMPLACED_CNTR	3/18/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/3/1993		8/3/1993								
1715	NFS0213	55G	EMPLACED_CNTR	3/31/2010 18:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/30/1993		7/30/1993								
1716	NFS0214	55G	EMPLACED_CNTR	3/18/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/30/1993		7/30/1993								
1717	NFS0215	55G	EMPLACED_CNTR	3/27/2010 14:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/30/1993		7/30/1993								
1718	NFS0216	55G	EMPLACED_CNTR	4/6/2010 19:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/30/1993		7/30/1993								
1719	NFS0217	55G	EMPLACED_CNTR	4/6/2010 19:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/30/1993		7/30/1993								
1720	NFS0218	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/30/1993		7/30/1993								
1721	NFS0219	55G	EMPLACED_CNTR	3/27/2010 13:57	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/30/1993		7/30/1993								
1722	NFS0220	55G	EMPLACED_CNTR	4/6/2010 19:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/30/1993		7/30/1993								
1723	NFS0221	55G	EMPLACED_CNTR	3/28/2010 10:55	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/30/1993		7/30/1993								
1724	NFS0222	55G	EMPLACED_CNTR	3/27/2010 13:57	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/30/1993		7/30/1993								
1725	NFS0223	55G	EMPLACED_CNTR	3/27/2010 14:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/29/1993		7/29/1993								
1726	NFS0224	55G	EMPLACED_CNTR	4/27/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/29/1993		7/29/1993								
1727	NFS0225	55G	EMPLACED_CNTR	3/20/2010 14:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/29/1993		7/29/1993								
1728	NFS0226	55G	EMPLACED_CNTR	3/27/2010 13:57	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/29/1993		7/29/1993								
1729	NFS0227	55G	EMPLACED_CNTR	4/6/2010 19:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/29/1993		7/29/1993								
1730	NFS0228	55G	EMPLACED_CNTR	3/27/2010 13:57	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/29/1993		7/29/1993								
1731	NFS0231	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/28/1993		7/28/1993								
1732	NFS0232	55G	EMPLACED_CNTR	3/18/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/28/1993		7/28/1993								
1733	NFS0233	55G	EMPLACED_CNTR	3/31/2010 18:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/28/1993		7/28/1993								
1734	NFS0234	55G	EMPLACED_CNTR	3/27/2010 13:57	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/28/1993		7/28/1993								
1735	NFS0235	55G	EMPLACED_CNTR	3/27/2010 13:57	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/27/1993		7/27/1993								
1736	NFS0236	55G	EMPLACED_CNTR	3/20/2010 15:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/27/1993		7/27/1993								
1737	NFS0237	55G	EMPLACED_CNTR	3/27/2010 13:57	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/27/1993		7/27/1993								
1738	NFS0238	55G	EMPLACED_CNTR	4/6/2010 19:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/27/1993		7/27/1993								
1739	NFS0239	55G	EMPLACED_CNTR	3/20/2010 15:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/27/1993		7/27/1993								
1740	NFS0240	55G	EMPLACED_CNTR	3/20/2010 15:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/27/1993		7/27/1993								
1741	NFS0241	55G	EMPLACED_CNTR	4/6/2010 19:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/27/1993		7/27/1993								
1742	NFS0242	55G	EMPLACED_CNTR	3/31/2010 19:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1743	NFS0243	55G	EMPLACED_CNTR	4/6/2010 19:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1744	NFS0244	55G	EMPLACED_CNTR	3/31/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1745	NFS0245	55G	EMPLACED_CNTR	3/31/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1746	NFS0246	55G	EMPLACED_CNTR	3/31/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1747	NFS0247	55G	EMPLACED_CNTR	3/27/2010 14:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1748	NFS0248	55G	EMPLACED_CNTR	3/31/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1749	NFS0249	55G	EMPLACED_CNTR	4/6/2010 19:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1750	NFS0250	55G	EMPLACED_CNTR	3/31/2010 18:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1751	NFS0251	55G	EMPLACED_CNTR	4/6/2010 19:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1752	NFS0252	55G	EMPLACED_CNTR	3/27/2010 14:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1753	NFS0253	55G	EMPLACED_CNTR	3/28/2010 10:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1754	NFS0254	55G	EMPLACED_CNTR	4/6/2010 19:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1755	NFS0255	55G	EMPLACED_CNTR	3/27/2010 14:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1756	NFS0256	55G	EMPLACED_CNTR	3/31/2010 18:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/26/1993		7/26/1993								
1757	NFS0257	55G	EMPLACED_CNTR	4/6/2010 19:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/23/1993		7/23/1993								
1758	NFS0258	55G	EMPLACED_CNTR	3/31/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/23/1993		7/23/1993								
1759	NFS0260	55G	EMPLACED_CNTR	3/27/2010 14:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1760	NFS0262	55G	EMPLACED_CNTR	4/6/2010 19:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1761	NFS0263	55G	EMPLACED_CNTR	3/20/2010 15:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1762	NFS0264	55G	EMPLACED_CNTR	4/6/2010 19:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/23/1993		7/23/1993								
1763	NFS0265	55G	EMPLACED_CNTR	4/6/2010 19:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1764	NFS0266	55G	EMPLACED_CNTR	3/31/2010 19:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1765	NFS0267	55G	EMPLACED_CNTR	4/8/2010 20:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1766	NFS0268	55G	EMPLACED_CNTR	3/27/2010 14:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1767	NFS0269	55G	EMPLACED_CNTR	4/8/2010 20:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1768	NFS0270	55G	EMPLACED_CNTR	4/27/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1769	NFS0271	55G	EMPLACED_CNTR	3/27/2010 14:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1770	NFS0272	55G	EMPLACED_CNTR	3/28/2010 10:55	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1771	NFS0273	55G	EMPLACED_CNTR	4/22/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1772	NFS0274	55G	EMPLACED_CNTR	4/8/2010 20:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1773	NFS0275	55G	EMPLACED_CNTR	4/8/2010 20:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1774	NFS0276	55G	EMPLACED_CNTR	3/27/2010 14:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1775	NFS0277	55G	EMPLACED_CNTR	3/28/2010 10:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/22/1993		7/22/1993								
1776	NFS0278	55G	EMPLACED_CNTR	4/8/2010 20:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1777	NFS0279	55G	EMPLACED_CNTR	4/8/2010 20:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1778	NFS0280	55G	EMPLACED_CNTR	3/28/2010 10:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1779	NFS0281	55G	EMPLACED_CNTR	3/20/2010 15:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1780	NFS0282	55G	EMPLACED_CNTR	4/8/2010 20:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1781	NFS0283	55G	EMPLACED_CNTR	3/20/2010 15:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1782	NFS0284	55G	EMPLACED_CNTR	3/20/2010 15:02	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1783	NFS0285	55G	EMPLACED_CNTR	4/8/2010 20:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1784	NFS0286	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1785	NFS0287	55G	EMPLACED_CNTR	4/8/2010 20:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1786	NFS0288	55G	EMPLACED_CNTR	4/8/2010 20:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1787	NFS0289	55G	EMPLACED_CNTR	4/8/2010 20:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1788	NFS0290	55G	EMPLACED_CNTR	4/8/2010 20:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1789	NFS0291	55G	EMPLACED_CNTR	4/8/2010 20:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1790	NFS0292	55G	EMPLACED_CNTR	4/8/2010 20:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1791	NFS0293	55G	EMPLACED_CNTR	4/8/2010 20:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1792	NFS0294	55G	EMPLACED_CNTR	4/8/2010 19:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1793	NFS0295	55G	EMPLACED_CNTR	4/8/2010 19:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1794	NFS0296	55G	EMPLACED_CNTR	4/8/2010 19:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1795	NFS0297	55G	EMPLACED_CNTR	3/28/2010 10:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1796	NFS0298	55G	EMPLACED_CNTR	4/27/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1797	NFS0299	55G	EMPLACED_CNTR	4/8/2010 19:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1798	NFS0301	55G	EMPLACED_CNTR	4/8/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1799	NFS0302	55G	EMPLACED_CNTR	4/8/2010 19:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/21/1993		7/21/1993								
1800	NFS0303	55G	EMPLACED_CNTR	4/8/2010 19:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/20/1993		7/20/1993								
1801	NFS0304	55G	EMPLACED_CNTR	4/8/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/20/1993		7/20/1993								
1802	NFS0305	55G	EMPLACED_CNTR	4/8/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/20/1993		7/20/1993								
1803	NFS0306	55G	EMPLACED_CNTR	3/20/2010 15:01	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/20/1993		7/20/1993								
1804	NFS0307	55G	EMPLACED_CNTR	4/22/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/20/1993		7/20/1993								
1805	NFS0308	55G	EMPLACED_CNTR	4/12/2010 22:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/19/1993		7/19/1993								
1806	NFS0309	55G	EMPLACED_CNTR	4/8/2010 19:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/19/1993		7/19/1993								
1807	NFS0310	55G	EMPLACED_CNTR	4/13/2010 22:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/19/1993		7/19/1993								
1808	NFS0311	55G	EMPLACED_CNTR	4/22/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/17/1993		7/17/1993								
1809	NFS0312	55G	EMPLACED_CNTR	4/8/2010 19:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/17/1993		7/17/1993								
1810	NFS0313	55G	EMPLACED_CNTR	4/12/2010 22:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/17/1993		7/17/1993								
1811	NFS0314	55G	EMPLACED_CNTR	3/28/2010 10:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/17/1993		7/17/1993								
1812	NFS0315	55G	EMPLACED_CNTR	4/27/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/17/1993		7/17/1993								
1813	NFS0316	55G	EMPLACED_CNTR	3/28/2010 10:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/17/1993		7/17/1993								
1814	NFS0317	55G	EMPLACED_CNTR	5/2/2010 8:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/16/1993		7/16/1993								
1815	NFS0319	55G	EMPLACED_CNTR	3/28/2010 10:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/16/1993		7/16/1993								
1816	NFS0320	55G	EMPLACED_CNTR	4/8/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/16/1993		7/16/1993								
1817	NFS0321	55G	EMPLACED_CNTR	4/28/2010 22:52	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/16/1993		7/16/1993								
1818	NFS0322	55G	EMPLACED_CNTR	4/12/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1819	NFS0323	55G	EMPLACED_CNTR	4/27/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1820	NFS0324	55G	EMPLACED_CNTR	4/13/2010 22:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1821	NFS0325	55G	EMPLACED_CNTR	5/2/2010 8:37	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1822	NFS0326	55G	EMPLACED_CNTR	4/12/2010 22:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1823	NFS0327	55G	EMPLACED_CNTR	4/12/2010 22:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1824	NFS0329	55G	EMPLACED_CNTR	3/27/2010 14:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1825	NFS0330	55G	EMPLACED_CNTR	4/8/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1826	NFS0331	55G	EMPLACED_CNTR	4/8/2010 19:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1827	NFS0332	55G	EMPLACED_CNTR	5/2/2010 8:37	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1828	NFS0333	55G	EMPLACED_CNTR	4/27/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1829	NFS0334	55G	EMPLACED_CNTR	4/12/2010 22:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1830	NFS0335	55G	APPROVED_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1831	NFS0336	55G	EMPLACED_CNTR	4/12/2010 22:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1832	NFS0337	55G	EMPLACED_CNTR	4/12/2010 22:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1833	NFS0338	55G	EMPLACED_CNTR	4/8/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1834	NFS0339	55G	EMPLACED_CNTR	4/12/2010 22:03	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1835	NFS0340	55G	EMPLACED_CNTR	5/2/2010 8:37	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1836	NFS0341	55G	EMPLACED_CNTR	4/12/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1837	NFS0342	55G	EMPLACED_CNTR	4/12/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1838	NFS0343	55G	EMPLACED_CNTR	4/13/2010 22:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/15/1993		7/15/1993								
1839	NFS0344	55G	EMPLACED_CNTR	5/2/2010 8:37	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1840	NFS0345	55G	EMPLACED_CNTR	5/2/2010 10:25	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1841	NFS0346	55G	EMPLACED_CNTR	4/13/2010 22:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1842	NFS0347	55G	EMPLACED_CNTR	7/29/2010 19:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1843	NFS0348	55G	EMPLACED_CNTR	5/2/2010 10:25	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1844	NFS0349	55G	EMPLACED_CNTR	4/12/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1845	NFS0350	55G	EMPLACED_CNTR	4/12/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1846	NFS0438	55G	EMPLACED_CNTR	4/13/2010 22:29	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1847	NFS0439	55G	EMPLACED_CNTR	4/13/2010 22:29	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	2/27/1993		2/27/1993								
1848	NFS0440	55G	EMPLACED_CNTR	5/26/2010 18:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	2/27/1993		2/27/1993								
1849	NFS0441	55G	EMPLACED_CNTR	5/2/2010 10:25	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	2/27/1993		2/27/1993								
1850	NFS0442	55G	EMPLACED_CNTR	4/13/2010 22:29	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	2/27/1993		2/27/1993								
1851	NFS0443	55G	EMPLACED_CNTR	4/12/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	2/27/1993		2/27/1993								
1852	NFS0444	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	2/27/1993		2/27/1993								
1853	NFS0445	55G	EMPLACED_CNTR	5/2/2010 8:37	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	2/27/1993		2/27/1993								
1854	NFS0446	55G	EMPLACED_CNTR	4/13/2010 22:29	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	2/27/1993		2/27/1993								
1855	NFS0447	55G	EMPLACED_CNTR	4/13/2010 22:29	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	3/8/1993		3/8/1993								
1856	NFS0449	55G	EMPLACED_CNTR	5/2/2010 10:25	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	3/8/1993		3/8/1993								
1857	NFS0451	55G	EMPLACED_CNTR	5/2/2010 10:25	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	3/8/1993		3/8/1993								
1858	NFS0452	55G	EMPLACED_CNTR	7/29/2010 19:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	3/8/1993		3/8/1993								
1859	NFS0453	55G	EMPLACED_CNTR	5/6/2010 18:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	3/8/1993		3/8/1993								
1860	NFS0454	55G	EMPLACED_CNTR	5/2/2010 8:37	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	3/8/1993		3/8/1993								
1861	NFS0455	55G	EMPLACED_CNTR	5/19/2010 19:41	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/7/1993		7/7/1993								
1862	NFS0456	55G	EMPLACED_CNTR	5/23/2010 9:49	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/7/1993		7/7/1993								
1863	NFS0457	55G	EMPLACED_CNTR	4/13/2010 22:29	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/7/1993		7/7/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1864	NFS0458	55G	EMPLACED_CNTR	4/13/2010 22:29	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/7/1993		7/7/1993								
1865	NFS0459	55G	EMPLACED_CNTR	4/19/2010 21:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/7/1993		7/7/1993								
1866	NFS0460	55G	EMPLACED_CNTR	5/23/2010 13:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/7/1993		7/7/1993								
1867	NFS0461	55G	EMPLACED_CNTR	4/12/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/7/1993		7/7/1993								
1868	NFS0463	55G	EMPLACED_CNTR	4/17/2010 13:01	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/7/1993		7/7/1993								
1869	NFS0464	55G	EMPLACED_CNTR	4/17/2010 13:01	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/7/1993		7/7/1993								
1870	NFS0465	55G	EMPLACED_CNTR	5/2/2010 10:25	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/8/1993		7/8/1993								
1871	NFS0466	55G	EMPLACED_CNTR	4/17/2010 13:01	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/8/1993		7/8/1993								
1872	NFS0467	55G	EMPLACED_CNTR	5/6/2010 18:29	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/8/1993		7/8/1993								
1873	NFS0468	55G	EMPLACED_CNTR	4/17/2010 13:01	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/8/1993		7/8/1993								
1874	NFS0469	55G	EMPLACED_CNTR	4/17/2010 13:01	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/8/1993		7/8/1993								
1875	NFS0471	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/8/1993		7/8/1993								
1876	NFS0472	55G	EMPLACED_CNTR	5/23/2010 13:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/8/1993		7/8/1993								
1877	NFS0473	55G	EMPLACED_CNTR	4/17/2010 13:01	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/9/1993		7/9/1993								
1878	NFS0474	55G	EMPLACED_CNTR	5/2/2010 10:25	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/9/1993		7/9/1993								
1879	NFS0475	55G	EMPLACED_CNTR	4/17/2010 13:01	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/9/1993		7/9/1993								
1880	NFS0476	55G	EMPLACED_CNTR	7/29/2010 19:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/9/1993		7/9/1993								
1881	NFS0477	55G	EMPLACED_CNTR	5/23/2010 9:49	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/9/1993		7/9/1993								
1882	NFS0483	55G	EMPLACED_CNTR	4/13/2010 22:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/9/1993		7/9/1993								
1883	NFS0484	55G	EMPLACED_CNTR	3/18/2010 22:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/13/1993		7/13/1993								
1884	NFS0485	55G	EMPLACED_CNTR	4/6/2010 19:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/13/1993		7/13/1993								
1885	NFS0486	55G	EMPLACED_CNTR	7/29/2010 19:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/13/1993		7/13/1993								
1886	NFS0487A	55G			10/11/2013 15:36	mccabed	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Repack	7/13/1993	8/30/2011		8/30/2011		- Rpkgd was NFS0487			NFS0487		Repack
1887	NFS0488	55G	EMPLACED_CNTR	4/19/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/13/1993		7/13/1993								
1888	NFS0489A	55G			10/11/2013 15:36	mccabed	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Repack	7/13/1993	8/31/2011		8/31/2011		- Rpkgd was NFS0489			NFS0489		Repack
1889	NFS0490	55G	EMPLACED_CNTR	5/11/2010 22:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/13/1993		7/13/1993								
1890	NFS0491	55G	EMPLACED_CNTR	4/19/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/13/1993		7/13/1993								
1891	NFS0492	55G	EMPLACED_CNTR	4/19/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/13/1993		7/13/1993								
1892	NFS0493	55G	EMPLACED_CNTR	5/26/2010 18:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/13/1993		7/13/1993								
1893	NFS0494	55G	EMPLACED_CNTR	4/19/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/13/1993		7/13/1993								
1894	NFS0495	55G	EMPLACED_CNTR	5/6/2010 18:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/13/1993		7/13/1993								
1895	NFS0496	55G	EMPLACED_CNTR	4/19/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/13/1993		7/13/1993								
1896	NFS0497	55G	EMPLACED_CNTR	4/19/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1897	NFS0498	55G	EMPLACED_CNTR	4/18/2010 9:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1898	NFS0499	55G	EMPLACED_CNTR	4/18/2010 9:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1899	NFS0500	55G	EMPLACED_CNTR	4/18/2010 13:14	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	7/14/1993		7/14/1993								
1900	NFS0517	55G	EMPLACED_CNTR	5/2/2010 10:25	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/24/1993		8/24/1993								
1901	NFS0518	55G	EMPLACED_CNTR	4/22/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/25/1993		8/25/1993								
1902	NFS0519	55G	EMPLACED_CNTR	4/19/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/25/1993		8/25/1993								
1903	NFS0520	55G	EMPLACED_CNTR	4/18/2010 9:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/25/1993		8/25/1993								
1904	NFS0521	55G	EMPLACED_CNTR	5/6/2010 18:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/25/1993		8/25/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1905	NFS0522	55G	EMPLACED_CNTR	4/22/2010 19:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/25/1993		8/25/1993								
1906	NFS0523	55G	EMPLACED_CNTR	4/18/2010 9:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/25/1993		8/25/1993								
1907	NFS0530	55G	EMPLACED_CNTR	4/17/2010 13:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/25/1993		8/25/1993								
1908	NFS0531	55G	EMPLACED_CNTR	4/18/2010 9:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1909	NFS0532	55G	EMPLACED_CNTR	5/23/2010 13:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1910	NFS0533	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1911	NFS0534	55G	EMPLACED_CNTR	3/18/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1912	NFS0535	55G	EMPLACED_CNTR	4/18/2010 13:14	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1913	NFS0536	55G	EMPLACED_CNTR	5/6/2010 18:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1914	NFS0537	55G	EMPLACED_CNTR	4/18/2010 13:14	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1915	NFS0544	55G	EMPLACED_CNTR	6/11/2011 10:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1916	NFS0545	55G	EMPLACED_CNTR	5/15/2010 11:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1917	NFS0546	55G	EMPLACED_CNTR	4/28/2010 22:52	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1918	NFS0547	55G	EMPLACED_CNTR	4/8/2010 20:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1919	NFS0548	55G	EMPLACED_CNTR	5/6/2010 18:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1920	NFS0549	55G	EMPLACED_CNTR	5/11/2010 22:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/26/1993		8/26/1993								
1921	NFS0550	55G	EMPLACED_CNTR	5/2/2010 8:37	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1922	NFS0551	55G	EMPLACED_CNTR	4/18/2010 13:14	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1923	NFS0552	55G	EMPLACED_CNTR	4/22/2010 19:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1924	NFS0553	55G	EMPLACED_CNTR	4/8/2010 20:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1925	NFS0554	55G	EMPLACED_CNTR	5/11/2010 22:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1926	NFS0555	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1927	NFS0556	55G	EMPLACED_CNTR	4/28/2010 22:52	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1928	NFS0557	55G	EMPLACED_CNTR	4/17/2010 13:01	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1929	NFS0558	55G	EMPLACED_CNTR	4/18/2010 13:14	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1930	NFS0559	55G	EMPLACED_CNTR	4/18/2010 13:14	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1931	NFS0560	55G	EMPLACED_CNTR	4/17/2010 13:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1932	NFS0561	55G	EMPLACED_CNTR	5/11/2010 22:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1933	NFS0562	55G	EMPLACED_CNTR	5/26/2010 18:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/27/1993		8/27/1993								
1934	NFS0563	55G	EMPLACED_CNTR	4/22/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/28/1993		8/28/1993								
1935	NFS0564	55G	EMPLACED_CNTR	4/18/2010 10:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/28/1993		8/28/1993								
1936	NFS0565	55G	EMPLACED_CNTR	5/6/2010 18:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/28/1993		8/28/1993								
1937	NFS0566	55G	EMPLACED_CNTR	4/17/2010 13:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/28/1993		8/28/1993								
1938	NFS0567	55G	EMPLACED_CNTR	4/17/2010 13:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/28/1993		8/28/1993								
1939	NFS0568	55G	EMPLACED_CNTR	4/17/2010 13:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/28/1993		8/28/1993								
1940	NFS0569	55G	EMPLACED_CNTR	3/31/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/28/1993		8/28/1993								
1941	NFS0570	55G	EMPLACED_CNTR	5/26/2010 18:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/28/1993		8/28/1993								
1942	NFS0584	55G	EMPLACED_CNTR	5/19/2010 19:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/31/1993		8/31/1993								
1943	NFS0585	55G	EMPLACED_CNTR	5/26/2010 18:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/31/1993		8/31/1993								
1944	NFS0586	55G	EMPLACED_CNTR	4/17/2010 13:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/31/1993		8/31/1993								
1945	NFS0587	55G	EMPLACED_CNTR	7/29/2010 19:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/31/1993		8/31/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1946	NFS0588	55G	EMPLACED_CNTR	3/18/2010 22:07	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/31/1993		8/31/1993								
1947	NFS0589	55G	EMPLACED_CNTR	5/26/2010 18:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/31/1993		8/31/1993								
1948	NFS0590	55G	EMPLACED_CNTR	5/11/2010 22:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/31/1993		8/31/1993								
1949	NFS0595	55G	EMPLACED_CNTR	4/17/2010 13:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/31/1993		8/31/1993								
1950	NFS0596	55G	EMPLACED_CNTR	5/26/2010 18:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/31/1993		8/31/1993								
1951	NFS0669	55G	EMPLACED_CNTR	5/19/2010 19:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
1952	NFS0670	55G	EMPLACED_CNTR	5/18/2010 21:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
1953	NFS0671	55G	EMPLACED_CNTR	4/18/2010 10:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
1954	NFS0672	55G	EMPLACED_CNTR	5/19/2010 19:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
1955	NFS0675	55G	EMPLACED_CNTR	5/26/2010 18:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/4/1993		9/4/1993								
1956	NFS0676	55G	EMPLACED_CNTR	4/18/2010 10:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/4/1993		9/4/1993								
1957	NFS0677	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/5/1993		9/5/1993								
1958	NFS0678	55G	EMPLACED_CNTR	5/23/2010 9:49	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/5/1993		9/5/1993								
1959	NFS0679	55G	EMPLACED_CNTR	5/26/2010 18:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/5/1993		9/5/1993								
1960	NFS0680	55G	EMPLACED_CNTR	5/19/2010 19:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/5/1993		9/5/1993								
1961	NFS0681	55G	EMPLACED_CNTR	4/19/2010 22:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/5/1993		9/5/1993								
1962	NFS0682	55G	EMPLACED_CNTR	4/18/2010 9:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/5/1993		9/5/1993								
1963	NFS0683	55G	EMPLACED_CNTR	5/6/2010 18:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/5/1993		9/5/1993								
1964	NFS0684	55G	EMPLACED_CNTR	4/18/2010 13:14	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/6/1993		9/6/1993								
1965	NFS0685	55G	EMPLACED_CNTR	5/11/2010 22:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1966	NFS0686	55G	EMPLACED_CNTR	4/22/2010 19:40	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1967	NFS0687	55G	EMPLACED_CNTR	5/19/2010 19:41	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1968	NFS0688	55G	EMPLACED_CNTR	5/11/2010 22:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1969	NFS0689A	55G			10/11/2013 15:40	mccabed	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Repack	9/7/1993	9/15/2011		9/15/2011		- Rpkgd was NFS0689			NFS0689		Repack
1970	NFS0690	55G	EMPLACED_CNTR	5/18/2010 21:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1971	NFS0691	55G	EMPLACED_CNTR	6/11/2011 10:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1972	NFS0692	55G	EMPLACED_CNTR	4/19/2010 22:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1973	NFS0693	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1974	NFS0694	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1975	NFS0695	55G	EMPLACED_CNTR	5/18/2010 21:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1976	NFS0696	55G	EMPLACED_CNTR	4/18/2010 9:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1977	NFS0697	55G	EMPLACED_CNTR	5/26/2010 18:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1978	NFS0698	55G	EMPLACED_CNTR	4/19/2010 22:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/7/1993		9/7/1993								
1979	NFS0699	55G	EMPLACED_CNTR	5/23/2010 13:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/8/1993		9/8/1993								
1980	NFS0700	55G	EMPLACED_CNTR	6/2/2010 19:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/8/1993		9/8/1993								
1981	NFS0701	55G	EMPLACED_CNTR	4/19/2010 22:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/8/1993		9/8/1993								
1982	NFS0702	55G	EMPLACED_CNTR	4/19/2010 22:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/10/1993		9/10/1993								
1983	NFS0703	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/10/1993		9/10/1993								
1984	NFS0704	55G	EMPLACED_CNTR	4/19/2010 22:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/10/1993		9/10/1993								
1985	NFS0705	55G	EMPLACED_CNTR	4/19/2010 22:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/10/1993		9/10/1993								
1986	NFS0706	55G	EMPLACED_CNTR	4/19/2010 22:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/10/1993		9/10/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1987	NFS0707	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/10/1993		9/10/1993								
1988	NFS0708	55G	EMPLACED_CNTR	5/23/2010 9:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/10/1993		9/10/1993								
1989	NFS0709	55G	EMPLACED_CNTR	4/19/2010 22:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/10/1993		9/10/1993								
1990	NFS0710	55G	EMPLACED_CNTR	5/11/2010 22:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
1991	NFS0711	55G	EMPLACED_CNTR	4/19/2010 22:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
1992	NFS0712	55G	EMPLACED_CNTR	5/26/2010 18:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
1993	NFS0713	55G	EMPLACED_CNTR	5/6/2010 18:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
1994	NFS0714	55G	EMPLACED_CNTR	5/18/2010 21:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
1995	NFS0715	55G	EMPLACED_CNTR	6/2/2010 19:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
1996	NFS0716	55G	EMPLACED_CNTR	4/19/2010 22:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
1997	NFS0717	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
1998	NFS0718	55G	EMPLACED_CNTR	5/11/2010 22:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
1999	NFS0719	55G	EMPLACED_CNTR	5/6/2010 18:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2000	NFS0720	55G	EMPLACED_CNTR	5/6/2010 18:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2001	NFS0721	55G	EMPLACED_CNTR	5/6/2010 18:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2002	NFS0722	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2003	NFS0723	55G	EMPLACED_CNTR	6/2/2010 19:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2004	NFS0724	55G	EMPLACED_CNTR	4/19/2010 22:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2005	NFS0725	55G	EMPLACED_CNTR	4/20/2010 21:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2006	NFS0726	55G	EMPLACED_CNTR	3/31/2010 18:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2007	NFS0727	55G	EMPLACED_CNTR	3/31/2010 18:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2008	NFS0728	55G	EMPLACED_CNTR	4/20/2010 21:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2009	NFS0729	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2010	NFS0730	55G	EMPLACED_CNTR	4/20/2010 21:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/12/1993		9/12/1993								
2011	NFS0731	55G	EMPLACED_CNTR	4/20/2010 21:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2012	NFS0732	55G	EMPLACED_CNTR	4/18/2010 10:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/12/1993		9/12/1993								
2013	NFS0733	55G	EMPLACED_CNTR	4/20/2010 21:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/12/1993		9/12/1993								
2014	NFS0734	55G	EMPLACED_CNTR	4/18/2010 13:15	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/12/1993		9/12/1993								
2015	NFS0735	55G	EMPLACED_CNTR	4/20/2010 21:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/12/1993		9/12/1993								
2016	NFS0736	55G	EMPLACED_CNTR	4/20/2010 21:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/11/1993		9/11/1993								
2017	NFS0737	55G	EMPLACED_CNTR	4/20/2010 21:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/13/1993		9/13/1993								
2018	NFS0738	55G	EMPLACED_CNTR	4/20/2010 21:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/13/1993		9/13/1993								
2019	NFS0739	55G	EMPLACED_CNTR	4/20/2010 21:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/13/1993		9/13/1993								
2020	NFS0741	55G	EMPLACED_CNTR	4/20/2010 21:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/13/1993		9/13/1993								
2021	NFS0742	55G	EMPLACED_CNTR	4/20/2010 21:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/13/1993		9/13/1993								
2022	NFS0743	55G	EMPLACED_CNTR	4/20/2010 21:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/14/1993		9/14/1993								
2023	NFS0744	55G	EMPLACED_CNTR	5/23/2010 13:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/14/1993		9/14/1993								
2024	NFS0745	55G	EMPLACED_CNTR	3/28/2010 10:55	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/14/1993		9/14/1993								
2025	NFS0746	55G	EMPLACED_CNTR	5/15/2010 11:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/14/1993		9/14/1993								
2026	NFS0747	55G	EMPLACED_CNTR	5/19/2010 19:48	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/14/1993		9/14/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
2027	NFS0748	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/14/1993		9/14/1993								
2028	NFS0749	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/14/1993		9/14/1993								
2029	NFS0750	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/14/1993		9/14/1993								
2030	NFS0751	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/14/1993		9/14/1993								
2031	NFS0760	55G	EMPLACED_CNTR	4/8/2010 19:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/17/1993		9/17/1993								
2032	NFS0761	55G	EMPLACED_CNTR	4/20/2010 21:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/17/1993		9/17/1993								
2033	NFS0762	55G	EMPLACED_CNTR	4/28/2010 22:52	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/17/1993		9/17/1993								
2034	NFS0763	55G	EMPLACED_CNTR	5/18/2010 21:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/17/1993		9/17/1993								
2035	NFS0764	55G	EMPLACED_CNTR	5/11/2010 22:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2036	NFS0765	55G	EMPLACED_CNTR	5/18/2010 21:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2037	NFS0767	55G	EMPLACED_CNTR	5/23/2010 13:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2038	NFS0768	55G	EMPLACED_CNTR	5/11/2010 22:20	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/17/1993		9/17/1993								
2039	NFS0769	55G	EMPLACED_CNTR	5/11/2010 22:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2040	NFS0770	55G	EMPLACED_CNTR	5/23/2010 9:49	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2041	NFS0771	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2042	NFS0772	55G	EMPLACED_CNTR	5/19/2010 19:48	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2043	NFS0773	55G	EMPLACED_CNTR	5/15/2010 11:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2044	NFS0774	55G	EMPLACED_CNTR	4/19/2010 22:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2045	NFS0775	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2046	NFS0778	55G	EMPLACED_CNTR	5/11/2010 22:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2047	NFS0779	55G	EMPLACED_CNTR	5/19/2010 19:48	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2048	NFS0780	55G	EMPLACED_CNTR	5/23/2010 13:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2049	NFS0781	55G	EMPLACED_CNTR	5/23/2010 9:49	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2050	NFS0782	55G	EMPLACED_CNTR	5/19/2010 19:48	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/18/1993		9/18/1993								
2051	NFS0790	55G	EMPLACED_CNTR	4/19/2010 22:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/20/1993		9/20/1993								
2052	NFS0791	55G	EMPLACED_CNTR	5/15/2010 11:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/20/1993		9/20/1993								
2053	NFS0792	55G	EMPLACED_CNTR	5/26/2010 18:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/21/1993		9/21/1993								
2054	NFS0794A	55G			10/11/2013 15:41	mccabed	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Repack	9/21/1993	9/15/2011		9/15/2011		- Rpkgd was NFS0794			NFS0794		Repack
2055	NFS0794B	55G			10/11/2013 15:42	mccabed	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Repack	9/21/1993	9/15/2011		9/15/2011		- Rpkgd was NFS0794			NFS0794		Repack
2056	NFS0795	55G	EMPLACED_CNTR	5/11/2010 22:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/20/1993		9/20/1993								
2057	NFS0796	55G	EMPLACED_CNTR	5/19/2010 19:48	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/20/1993		9/20/1993								
2058	NFS0797	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/21/1993		9/21/1993								
2059	NFS0798	55G	EMPLACED_CNTR	5/18/2010 21:37	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/20/1993		9/20/1993								
2060	NFS0799	55G	EMPLACED_CNTR	5/18/2010 21:37	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/21/1993		9/21/1993								
2061	NFS0800	55G	EMPLACED_CNTR	3/31/2010 18:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/21/1993		9/21/1993								
2062	NFS0801	55G	EMPLACED_CNTR	5/15/2010 11:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/22/1993		9/22/1993								
2063	NFS0802	55G	EMPLACED_CNTR	4/19/2010 22:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/22/1993		9/22/1993								
2064	NFS0803	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/22/1993		9/22/1993								
2065	NFS0810	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/25/1993		9/25/1993								
2066	NFS0812	55G	EMPLACED_CNTR	5/6/2010 18:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/25/1993		9/25/1993								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
2067	NFS0815	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/25/1993		9/25/1993		Waste stream changed per NCR-ORNL-0509-10; waste stream changed back per NCR-ORNL-0119-10 and DR026						
2068	NFS0818	55G	EMPLACED_CNTR	3/31/2010 18:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/25/1993		9/25/1993								
2069	NFS0819	55G	EMPLACED_CNTR	5/19/2010 19:48	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/25/1993		9/25/1993								
2070	NFS0820	55G	EMPLACED_CNTR	3/31/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/25/1993		9/25/1993								
2071	NFS0822	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/25/1993		9/25/1993								
2072	NFS0823	55G	EMPLACED_CNTR	3/31/2010 18:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/25/1993		9/25/1993								
2073	NFS0824	55G	EMPLACED_CNTR	6/15/2011 19:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/26/1993		9/26/1993								
2074	NFS0825	55G	EMPLACED_CNTR	5/23/2010 9:49	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/26/1993		9/26/1993								
2075	NFS0826	55G	EMPLACED_CNTR	5/19/2010 19:48	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/26/1993		9/26/1993								
2076	NFS0827	55G	EMPLACED_CNTR	4/13/2010 22:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/26/1993		9/26/1993								
2077	NFS0828	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/26/1993		9/26/1993								
2078	NFS0829	55G	EMPLACED_CNTR	5/15/2010 11:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/26/1993		9/26/1993								
2079	NFS0830	55G	EMPLACED_CNTR	3/31/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/26/1993		9/26/1993								
2080	NFS0836	55G	EMPLACED_CNTR	5/15/2010 11:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/28/1993		9/28/1993								
2081	NFS0837	55G	EMPLACED_CNTR	4/27/2010 22:04	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/28/1993		9/28/1993								
2082	NFS0838	55G	EMPLACED_CNTR	5/6/2010 18:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/28/1993		9/28/1993								
2083	NFS0841	55G	EMPLACED_CNTR	5/23/2010 9:49	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/28/1993		9/28/1993								
2084	NFS0842	55G	EMPLACED_CNTR	5/23/2010 13:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/28/1993		9/28/1993								
2085	NFS0844	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/29/1993		9/29/1993								
2086	NFS0845	55G	EMPLACED_CNTR	5/23/2010 9:50	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/29/1993		9/29/1993								
2087	NFS0846	55G	EMPLACED_CNTR	4/20/2010 21:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	10/3/1993		10/3/1993								
2088	NFS0847	55G	EMPLACED_CNTR	6/15/2011 19:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	10/4/1993		10/4/1993								
2089	NFS0848	55G	EMPLACED_CNTR	5/15/2010 11:06	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	10/4/1993		10/4/1993								
2090	NFS0849	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	10/4/1993		10/4/1993								
2091	NFS0850	55G	EMPLACED_CNTR	4/19/2010 22:35	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	10/4/1993		10/4/1993								
2092	NFS0851	55G	EMPLACED_CNTR	4/13/2010 22:29	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	10/4/1993		10/4/1993								
2093	NFS0852	55G	EMPLACED_CNTR	5/11/2010 22:19	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	10/7/1993		10/7/1993								
2094	NFS0923	55G	EMPLACED_CNTR	4/20/2010 21:56	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	5/17/1994		5/17/1994								
2095	NFS0924	55G	EMPLACED_CNTR	4/17/2010 13:28	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	5/17/1994		5/17/1994								
2096	NFS0925	55G	EMPLACED_CNTR	5/26/2010 18:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	5/17/1994		5/17/1994								
2097	NFS0930	55G	EMPLACED_CNTR	5/11/2010 9:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/21/1994		9/21/1994								
2098	NFS0931	55G	EMPLACED_CNTR	5/26/2010 18:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/21/1994		9/21/1994								
2099	X10C0506042	55G	EMPLACED_CNTR	4/12/2010 21:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2100	X10C0506043	55G	EMPLACED_CNTR	5/26/2010 18:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2101	X10C0506044	55G	EMPLACED_CNTR	3/14/2010 15:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2102	X10C0506045	55G	EMPLACED_CNTR	5/23/2010 13:17	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2103	X10C0506047	55G	EMPLACED_CNTR	12/1/2011 15:09	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/2001		9/3/2001								
2104	X10C0506054	55G	EMPLACED_CNTR	3/27/2010 13:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2105	X10C0506055	55G	EMPLACED_CNTR	7/29/2010 19:05	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								

	A	B	D	E	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
2106	X10C0506057	55G	EMPLACED_CNTR	4/20/2010 21:53	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2107	X10C0506062	55G	EMPLACED_CNTR	5/6/2010 18:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2108	X10C0506063	55G	EMPLACED_CNTR	5/19/2010 19:47	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2109	X10C0506064	55G	EMPLACED_CNTR	6/2/2010 19:44	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2110	X10C0506065	55G	EMPLACED_CNTR	3/31/2010 18:31	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2111	X10C0506066	55G	EMPLACED_CNTR	3/31/2010 18:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2112	X10C0506070	55G	EMPLACED_CNTR	5/26/2010 18:33	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2113	X10C0506071	55G	EMPLACED_CNTR	3/31/2010 19:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/23/2005		9/23/2005								
2114	X10C0506148A	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	7/17/2008		7/17/2008					X10C0506148		Repack
2115	X10C0506148C	55G	PRESUB_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	7/17/2008		7/17/2008					X10C0506148		Repack
2116	X10C0506149B	55G	PRESUB_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	7/17/2008		7/17/2008					X10C0506149		Repack
2117	X10C0506149D	55G	EMPLACED_CNTR	6/16/2011 19:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	7/28/2008		7/28/2008					X10C0506149		Repack
2118	X10C0506149E	55G	PRESUB_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	7/28/2008		7/28/2008					X10C0506149		Repack
2119	X10C0506150A	55G	EMPLACED_CNTR	6/16/2011 19:24	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	7/30/2008		7/30/2008					X10C0506150		Repack
2120	X10C0506150B	55G	APPROVED_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	7/30/2008		7/30/2008					X10C0506150		Repack
2121	X10C0506150C	55G	APPROVED_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	7/30/2008		7/30/2008					X10C0506150		Repack
2122	X10C0506151B	55G	APPROVED_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	8/4/2008		8/4/2008					X10C0506151		Repack
2123	X10C0506151C	55G	APPROVED_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	8/5/2008		8/5/2008					X10C0506151		Repack
2124	X10C0506151E	55G	APPROVED_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	8/4/2008		8/4/2008					X10C0506151		Repack
2125	X10C0506152A	55G	EMPLACED_CNTR	6/16/2011 19:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	8/7/2008		8/7/2008					X10C0506152		Repack
2126	X10C0506152B	55G	APPROVED_CERT		4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	9/27/2005	8/7/2008		8/7/2008					X10C0506152		Repack
2127	X10C0506154A	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	12/12/2001	2/4/2008		2/4/2008					X10C0506154		Repack
2128	X10C0506154G	55G			4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Box Daughter	12/12/2001	2/4/2008		2/4/2008					X10C0506154		Repack
2129	NFS0103	55G	EMPLACED_CNTR	1/26/2010 21:51	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/21/1993		9/21/1993								
2130	NFS0104	55G	EMPLACED_CNTR	1/19/2010 12:46	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/20/1993		9/20/1993								
2131	NFS0655	55G	EMPLACED_CNTR	4/18/2010 10:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/2/1993		9/2/1993								
2132	NFS0656	55G	EMPLACED_CNTR	5/11/2010 22:23	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/2/1993		9/2/1993								
2133	NFS0657	55G	EMPLACED_CNTR	4/18/2010 10:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
2134	NFS0658	55G	EMPLACED_CNTR	4/18/2010 10:59	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
2135	NFS0659	55G	EMPLACED_CNTR	5/26/2010 18:54	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
2136	NFS0660	55G	EMPLACED_CNTR	5/15/2010 11:08	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
2137	NFS0661	55G	EMPLACED_CNTR	4/18/2010 10:58	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
2138	NFS0662	55G	EMPLACED_CNTR	4/8/2010 19:38	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
2139	NFS0663A	55G			10/11/2013 15:37	mccabed	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Repack	9/3/1993	8/31/2011		8/31/2011		- Rpkgd was NFS0663			NFS0663		Repack
2140	NFS0664	55G	EMPLACED_CNTR	5/19/2010 19:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
2141	NFS0665	55G	EMPLACED_CNTR	5/19/2010 19:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
2142	NFS0666	55G	EMPLACED_CNTR	5/19/2010 19:43	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
2143	NFS0667A	55G			10/11/2013 15:38	mccabed	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	Repack	9/3/1993	8/29/2011		8/29/2011		- Rpkgd was NFS0667			NFS0667		Repack
2144	NFS0668	55G	EMPLACED_CNTR	6/15/2011 19:42	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/3/1993		9/3/1993								
2145	NFS0862	55G	EMPLACED_CNTR	5/18/2010 21:36	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	8/10/1993		8/10/1993								
2146	NFS0866	55G	EMPLACED_CNTR	5/19/2010 19:47	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/13/1993		9/13/1993								
2147	NFS0867	55G	EMPLACED_CNTR	3/31/2010 19:32	4/28/2011 6:00	WIPPNET\SQLMaster	OR-NFS-CH-SOIL	CCP-AK-ORNL-001	S4100	NA	9/14/1993		9/14/1993								

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1	CONTAINERID	WASTESTREAM	AK_REPORT	WASTE_MATRIX_CODE	VENTDATE	CLOSUREDATE	WDS_ STATUS	DISPOSAL_DATE	COMMENT
2	X10C9600188	OR-REDC-RH-HET	CCP-AK-ORNL-500			2/26/1996			Cask Evaluated 12/17/2013, Rad Dist. Mark-42 (HFIR/HFIR)
3	ORRH00678	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400 > 50% Heterogeneous debris	12/10/2013	12/10/2013			Parent X10C9600188 (100%)
4	ORRH00679	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400 > 50% Heterogeneous debris	12/11/2013	12/11/2013			Parent X10C9600188 (100%)
5	ORRH00680	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400 > 50% Heterogeneous debris	12/12/2013	12/12/2013			Parent X10C9600188 (100%)
6	ORRH00681	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400 > 50% Heterogeneous debris	12/13/2013	12/13/2013			Parent X10C9600188 (100%)
7	ORRH00682	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400 > 50% Heterogeneous debris	12/13/2013	12/13/2013			Parent X10C9600188 (100%)
8	ORRH00683	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400 > 50% Heterogeneous debris	12/16/2013	12/16/2013			Parent X10C9600188 (100%)
9	ORRH00684	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	12/19/2013	12/19/2013			Parent X10C9600188 (100%)
10	ORRH00683	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	12/16/2013	12/16/2013			Parent X10C9600188 (100%)
11	ORRH00682	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	12/13/2013	12/13/2013			Parent X10C9600188 (100%)
12	ORRH00681	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	12/13/2013	12/13/2013			Parent X10C9600188 (100%)
13	ORRH00680	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	12/12/2013	12/12/2013			Parent X10C9600188 (100%)
14	ORRH00679	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	12/11/2013	12/11/2013			Parent X10C9600188 (100%)
15	ORRH00678	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	12/10/2013	12/10/2013			Parent X10C9600188 (100%)
16	ORRH00650	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/17/2011	5/17/2011	EMPLACED_ CNTR	12/1/2011 12:26	Parent X10CSATN02665 (90%); X10CSATN01878 (ORRH00351) (10%)
17	ORRH00649	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/17/2011	5/17/2011	EMPLACED_ CNTR	12/1/2011 12:26	Parent X10CSATN02665 (80%); X10CSATN01878 (ORRH00351) (20%)
18	ORRH00648	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/17/2011	5/17/2011	EMPLACED_ CNTR	11/29/2011 13:03	Parent X10CSATN02665 (80%); X10CSATN01878 (ORRH00351) (20%)
19	ORRH00647	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/17/2011	5/17/2011	EMPLACED_ CNTR	11/29/2011 13:03	Parent X10CSATN02665 (80%); X10CSATN01878 (ORRH00351) (20%)
20	ORRH00646	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/17/2011	5/17/2011	EMPLACED_ CNTR	11/29/2011 13:03	Parent X10CSATN02665 (70%); X10CSATN01878 (ORRH00351) (30%)
21	ORRH00629	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	12/23/2010	12/23/2010	EMPLACED_ CNTR	6/12/2011 10:42	Parent X10CSATN02071 (100%)
22	ORRH00577	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	12/2/2010	12/2/2010	EMPLACED_ CNTR	11/22/2011 13:37	Parent X10CSATN02682 (100%)
23	ORRH00563	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/20/2010	11/20/2010	EMPLACED_ CNTR	11/22/2011 13:37	Parent X10CSATN02241 (100%)
24	ORRH00536	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/5/2010	11/5/2010	EMPLACED_ CNTR	11/16/2011 12:31	Parent X10CSATN02461 (100%)
25	ORRH00533	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/4/2010	11/4/2010	EMPLACED_ CNTR	11/16/2011 12:31	Parent X10CSATN02461 (100%)
26	ORRH00531	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/30/2010	9/30/2010	EMPLACED_ CNTR	11/22/2011 13:37	Parent X10CSATN02461 (100%)
27	ORRH00530	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/28/2010	9/28/2010	EMPLACED_ CNTR	3/12/2011 11:26	Parent X10CSATN02461 (100%)
28	ORRH00521	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/28/2010	9/28/2010	EMPLACED_ CNTR	3/12/2011 11:26	Parent X10CSATN02461 (100%)

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29	ORRH00529	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/27/2010	9/27/2010	EMPLACED_CNTR	3/12/2011 11:26	Parent X10CSATN02461 (100%)
30	ORRH00528	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/24/2010	9/24/2010			Parent X10CSATN02461 (100%)
31	ORRH00527	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/24/2010	9/24/2010			Parent X10CSATN02461 (100%)
32	ORRH00526	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/24/2010	9/24/2010			Parent X10CSATN02461 (100%)
33	ORRH00525	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/24/2010	9/24/2010			Parent X10CSATN02461 (100%)
34	ORRH00507	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/23/2010	9/23/2010	EMPLACED_CNTR	3/8/2011 12:30	Parent X10CSATN02461 (100%)
35	ORRH00506	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/23/2010	9/23/2010			Parent X10CSATN02461 (100%)
36	ORRH00505	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/23/2010	9/23/2010			Parent X10CSATN02461 (100%)
37	ORRH00524	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/22/2010	9/22/2010			Parent X10CSATN02461 (100%)
38	ORRH00523	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/22/2010	9/22/2010			Parent X10CSATN02461 (100%)
39	ORRH00522	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/22/2010	9/22/2010			Parent X10CSATN02461 (100%)
40	ORRH00520	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/21/2010	9/21/2010			Parent X10CSATN02461 (100%)
41	ORRH00483	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/8/2010	9/8/2010	EMPLACED_CNTR	3/8/2011 12:30	Parent X10CSATN02698 (100%)
42	ORRH00458	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/27/2010	8/27/2010	EMPLACED_CNTR	2/22/2011 14:17	Parent X10CSATN02664 (100%)
43	ORRH00456	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/27/2010	8/27/2010	EMPLACED_CNTR	11/30/2010 11:50	Parent X10CSATN02664 (100%)
44	ORRH00454	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/26/2010	8/26/2010	EMPLACED_CNTR	2/22/2011 14:17	Parent X10CSATN02664 (100%)
45	ORRH00435	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/26/2010	8/26/2010	EMPLACED_CNTR	3/8/2011 12:30	Parent X10CSATN02664 (100%)
46	ORRH00440	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/21/2010	8/21/2010	EMPLACED_CNTR	11/27/2010 12:17	Parent X10CSATN02612 (100%)
47	ORRH00439	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/21/2010	8/21/2010	EMPLACED_CNTR	11/27/2010 12:17	Parent X10CSATN02612 (100%)
48	ORRH00438	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/20/2010	8/20/2010	EMPLACED_CNTR	11/30/2010 11:50	Parent X10CSATN02612 (100%)
49	ORRH00437	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/20/2010	8/20/2010	EMPLACED_CNTR	11/27/2010 12:17	Parent X10CSATN02612 (100%)
50	ORRH00432	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/20/2010	8/20/2010	EMPLACED_CNTR	11/16/2011 12:31	Parent X10CSATN02612 (100%); Drummed into X10CSATN02612B, but after dose survey found to be 200mrem/hr.
51	ORRH00431	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/20/2010	8/20/2010	EMPLACED_CNTR	11/23/2010 11:53	Parent X10CSATN02614 (20%), X10CSATN02612 (80%)
52	ORRH00430	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/20/2010	8/20/2010	EMPLACED_CNTR	11/23/2010 11:53	Parent X10CSATN02612 (100%)
53	ORRH00428	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/20/2010	8/20/2010	EMPLACED_CNTR	2/22/2011 14:17	Parent X10CSATN02612 (100%)
54	ORRH00427	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/18/2010	8/18/2010	EMPLACED_CNTR	11/17/2010 15:06	Parent X10CSATN02614 (100%)
55	ORRH00426	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/17/2010	8/17/2010	EMPLACED_CNTR	11/17/2010 15:06	Parent X10CSATN02614 (100%)

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56	ORRH00425	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/17/2010	8/17/2010	EMPLACED_CNTR	9/30/2010 10:56	Parent X10CSATN02614 (100%)
57	ORRH00418	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/16/2010	8/16/2010	EMPLACED_CNTR	11/30/2010 11:50	Parent X10CSATN02634 (70%), X10CSATN02614 (30%)
58	ORRH00417	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/16/2010	8/16/2010	EMPLACED_CNTR	11/23/2010 11:53	Parent X10CSATN02634 (100%)
59	ORRH00424	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/12/2010	8/12/2010	EMPLACED_CNTR	11/17/2010 15:06	Parent X10CSATN02634 (100%)
60	ORRH00415	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/11/2010	8/11/2010	EMPLACED_CNTR	9/30/2010 10:56	Parent X10CSATN02634 (100%)
61	ORRH00414	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/11/2010	8/11/2010	EMPLACED_CNTR	9/30/2010 10:56	Parent X10CSATN02634 (100%)
62	ORRH00409	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/11/2010	8/11/2010	EMPLACED_CNTR	9/28/2010 13:29	Parent X10CSATN02634 (100%)
63	ORRH00408	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/10/2010	8/10/2010	EMPLACED_CNTR	9/28/2010 13:29	Parent X10CSATN02634 (100%)
64	ORRH00387	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/6/2010	8/6/2010	EMPLACED_CNTR	9/14/2010 13:20	Parent X10CSATN02645 (100%)
65	ORRH00399	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/5/2010	8/5/2010	EMPLACED_CNTR	9/28/2010 13:29	Parent X10CSATN02645 (100%)
66	ORRH00395	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/4/2010	8/4/2010	EMPLACED_CNTR	9/21/2010 16:17	Parent X10CSATN02645 (100%)
67	ORRH00393	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/4/2010	8/4/2010	EMPLACED_CNTR	9/21/2010 16:17	Parent X10CSATN02645 (100%)
68	ORRH00389	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/3/2010	8/3/2010	EMPLACED_CNTR	9/21/2010 16:17	Parent X10CSATN02645 (100%)
69	ORRH00379	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/30/2010	7/30/2010	EMPLACED_CNTR	9/14/2010 13:20	Parent X10CSATN02640 (100%)
70	ORRH00377	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/30/2010	7/30/2010	EMPLACED_CNTR	9/5/2010 12:47	Parent X10CSATN02640 (100%)
71	ORRH00367	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/28/2010	7/28/2010	EMPLACED_CNTR	9/5/2010 12:47	Parent X10CSATN02640 (100%)
72	ORRH00346	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/27/2010	7/27/2010	EMPLACED_CNTR	9/5/2010 12:47	Parent X10CSATN02284 (100%)
73	ORRH00370	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/19/2010	7/19/2010	EMPLACED_CNTR	9/12/2010 11:33	Parent X10CSATN02284 (100%)
74	ORRH00369	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/19/2010	7/19/2010	EMPLACED_CNTR	9/12/2010 11:33	Parent X10CSATN02284 (100%)
75	ORRH00363	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/16/2010	7/16/2010	EMPLACED_CNTR	9/14/2010 13:20	Parent X10CSATN02284 (100%)
76	ORRH00356	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/7/2010	7/7/2010	EMPLACED_CNTR	8/24/2010 12:37	Parent X10CSATN02277 (100%)
77	ORRH00355	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/6/2010	7/6/2010	EMPLACED_CNTR	8/24/2010 12:37	Parent X10CSATN02277 (100%)

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78	ORRH00353	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/2/2010	7/2/2010	EMPLACED_CNTR	8/24/2010 12:37	Parent X10CSATN02277 (100%)
79	ORRH00352	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/28/2010	6/28/2010	EMPLACED_CNTR	6/12/2011 10:42	Parent X10CSATN01878 (100%)
80	ORRH00350	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/25/2010	6/25/2010	EMPLACED_CNTR	6/12/2011 10:42	Parent X10CSATN01878 (100%)
81	ORRH00345	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/24/2010	6/24/2010	EMPLACED_CNTR	8/29/2010 13:11	Parent X10CSATN01878 (100%)
82	ORRH00344	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/24/2010	6/24/2010	EMPLACED_CNTR	8/29/2010 13:11	Parent X10CSATN02078 (90%) and X10CSATN01878 (10%)
83	ORRH00343	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/24/2010	6/24/2010	EMPLACED_CNTR	8/29/2010 13:11	Parent X10CSATN02078 (100%)
84	ORRH00342	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/17/2010	6/17/2010	EMPLACED_CNTR	8/20/2010 15:11	Parent X10CSATN02078 (100%)
85	ORRH00341	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/16/2010	6/16/2010	EMPLACED_CNTR	8/20/2010 15:11	Parent X10CSATN02078 (100%)
86	ORRH00340	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/16/2010	6/16/2010	EMPLACED_CNTR	8/20/2010 15:11	Parent X10CSATN02078 (100%)
87	ORRH00339	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/16/2010	6/16/2010	EMPLACED_CNTR	8/18/2010 12:50	Parent X10CSATN02438 (10%), X10CSATN02078 (90%)
88	ORRH00338	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/10/2010	6/10/2010	EMPLACED_CNTR	8/18/2010 12:50	Parent X10CSATN02438 (100%)
89	ORRH00337	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/9/2010	6/9/2010	EMPLACED_CNTR	8/18/2010 12:50	Parent X10CSATN02438 (100%)
90	ORRH00335	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/3/2010	6/3/2010	EMPLACED_CNTR	8/12/2010 12:08	Parent X10CSATN02457 (100%)
91	ORRH00334	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/3/2010	6/3/2010	EMPLACED_CNTR	8/12/2010 12:08	Parent X10CSATN02457 (100%)
92	ORRH00332	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/3/2010	6/3/2010	EMPLACED_CNTR	8/12/2010 12:08	Parent X10CSATN02457 (100%)
93	ORRH00331	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/2/2010	6/2/2010	EMPLACED_CNTR	8/10/2010 12:08	Parent X10CSATN02012 (90%), X10CSATN02457 (10%)
94	ORRH00330	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/2/2010	6/2/2010	EMPLACED_CNTR	8/10/2010 12:08	Parent X10CSATN02012 (100%)
95	ORRH00329	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/2/2010	6/2/2010	EMPLACED_CNTR	8/10/2010 12:08	Parent X10CSATN02012 (100%)
96	ORRH00324	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/29/2010	5/29/2010	EMPLACED_CNTR	8/7/2010 13:34	Parent X10CSATN02012 (100%)
97	ORRH00328	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/28/2010	5/28/2010	EMPLACED_CNTR	8/6/2010 11:08	Parent X10CSATN02012 (100%)
98	ORRH00323	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/27/2010	5/27/2010	EMPLACED_CNTR	9/12/2010 11:33	Parent X10CSATN02012 (100%)
99	ORRH00322	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/27/2010	5/27/2010	EMPLACED_CNTR	8/7/2010 13:34	Parent X10CSATN02012 (100%)

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100	ORRH00319	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/27/2010	5/27/2010	EMPLACED_CNTR	8/7/2010 13:34	Parent X10CSATN02012 (100%)
101	ORRH00315	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/26/2010	5/26/2010	EMPLACED_CNTR	8/6/2010 11:08	Parent X10CSATN02012 (100%)
102	ORRH00314	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/26/2010	5/26/2010	EMPLACED_CNTR	8/6/2010 11:08	Parent X10CSATN02012 (100%)
103	ORRH00313	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/26/2010	5/26/2010	EMPLACED_CNTR	7/29/2010 12:20	Parent X10CSATN02012 (100%)
104	ORRH00311	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/26/2010	5/26/2010	EMPLACED_CNTR	7/29/2010 12:20	Parent X10CSATN02012 (100%)
105	ORRH00309	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/24/2010	5/24/2010	EMPLACED_CNTR	7/29/2010 12:20	Parent X10CSATN02062 (100%)
106	ORRH00308	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/22/2010	5/22/2010	EMPLACED_CNTR	8/4/2010 13:08	Parent X10CSATN02062 (100%)
107	ORRH00297	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/20/2010	5/20/2010	EMPLACED_CNTR	8/4/2010 13:08	Parent X10CSATN02062 (100%)
108	ORRH00291	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/18/2010	5/18/2010	EMPLACED_CNTR	8/4/2010 13:08	Parent X10CSATN02434 (100%)
109	ORRH00285	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/14/2010	5/14/2010	EMPLACED_CNTR	8/1/2010 12:22	Parent X10CSATN02434 (100%)
110	ORRH00278	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/13/2010	5/13/2010	EMPLACED_CNTR	8/1/2010 12:22	Parent X10CSATN02434 (100%)
111	ORRH00277	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/13/2010	5/13/2010	EMPLACED_CNTR	8/1/2010 12:22	Parent X10CSATN02434 (100%)
112	ORRH00273	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/13/2010	5/13/2010	EMPLACED_CNTR	7/24/2010 14:11	Parent X10CSATN02434 (100%)
113	ORRH00271	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/13/2010	5/13/2010	EMPLACED_CNTR	7/24/2010 14:11	Parent X10CSATN02244 (80%), X10CSATN02434 (20%)
114	ORRH00269	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/7/2010	5/7/2010	EMPLACED_CNTR	7/24/2010 14:11	Parent X10CSATN02244 (100%)
115	ORRH00267	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/6/2010	5/6/2010	EMPLACED_CNTR	7/20/2010 11:09	Parent X10CSATN02244 (100%)
116	ORRH00258	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/4/2010	5/4/2010	EMPLACED_CNTR	7/20/2010 11:09	Parent X10CSATN02244 (100%)
117	ORRH00257	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/4/2010	5/4/2010	EMPLACED_CNTR	6/15/2010 14:36	Parent X10CSATN02450 (100%)
118	ORRH00256	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/4/2010	5/4/2010	EMPLACED_CNTR	6/15/2010 14:36	Parent X10CSATN02450 (100%)
119	ORRH00255	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/4/2010	5/4/2010	EMPLACED_CNTR	6/15/2010 14:36	Parent X10CSATN02450 (100%)
120	ORRH00254	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/4/2010	5/4/2010	EMPLACED_CNTR	7/20/2010 11:09	Parent X10CSATN02450 (100%)
121	ORRH00252	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/30/2010	4/30/2010	EMPLACED_CNTR	6/13/2010 12:11	Parent X10CSATN02450 (100%)

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122	ORRH00250	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/30/2010	4/30/2010	EMPLACED_CNTR	6/13/2010 12:11	Parent X10CSATN02450 (100%)
123	ORRH00248	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/30/2010	4/30/2010	EMPLACED_CNTR	6/13/2010 12:11	Parent X10CSATN02450 (100%)
124	ORRH00242	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/29/2010	4/29/2010	EMPLACED_CNTR	6/8/2010 13:05	Parent X10CSATN02450 (100%)
125	ORRH00236	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/28/2010	4/28/2010	EMPLACED_CNTR	6/8/2010 13:05	Parent X10CSATN02455 (100%)
126	ORRH00226	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/23/2010	4/23/2010	EMPLACED_CNTR	6/4/2010 11:34	Parent X10CSATN02455 (100%)
127	ORRH00220	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/22/2010	4/22/2010	EMPLACED_CNTR	6/4/2010 11:34	Parent X10CSATN02455 (100%)
128	ORRH00216	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/16/2010	4/16/2010	EMPLACED_CNTR	6/4/2010 11:34	Parent X10CSATN02689 (100%)
129	ORRH00215	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/16/2010	4/16/2010	EMPLACED_CNTR	6/8/2010 13:05	Parent X10CSATN02689 (100%)
130	ORRH00188	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/7/2010	4/7/2010	EMPLACED_CNTR	5/21/2010 15:21	Parent X10CSATN02474 (100%)
131	ORRH00183	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/6/2010	4/6/2010	EMPLACED_CNTR	5/28/2010 14:32	Parent X10CSANT02493 (100%)
132	ORRH00182	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/5/2010	4/5/2010	EMPLACED_CNTR	5/21/2010 15:21	Parent X10CSATN02493 (100%)
133	ORRH00180	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/5/2010	4/5/2010	EMPLACED_CNTR	5/21/2010 15:21	Parent X10CSATN02493 (100%)
134	ORRH00178	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/2/2010	4/2/2010	EMPLACED_CNTR	5/18/2010 11:14	Parent X10CSATN02493 (100%)
135	ORRH00177	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/1/2010	4/1/2010	EMPLACED_CNTR	5/28/2010 14:32	Parent X10CSATN02493 (100%)
136	ORRH00175	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/1/2010	4/1/2010	EMPLACED_CNTR	5/18/2010 11:14	Parent X10CSATN02493 (100%)
137	ORRH00173	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/31/2010	3/31/2010	EMPLACED_CNTR	5/18/2010 11:14	Parent X10CSATN02699 (100%)
138	ORRH00171	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/31/2010	3/31/2010	EMPLACED_CNTR	5/11/2010 11:54	Parent X10CSATN02699 (100%)
139	ORRH00129	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/29/2010	3/29/2010	EMPLACED_CNTR	5/11/2010 11:54	Parent X10CSATN02694 (100%)
140	ORRH00149	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/23/2010	3/23/2010	EMPLACED_CNTR	5/11/2010 11:54	Parent X10CSATN02866 (100%)
141	ORRH00142	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/17/2010	3/17/2010	EMPLACED_CNTR	4/27/2010 12:39	Parent X10CSATN02869 (100%, Repack of drum ORRH00132)
142	ORRH00125	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/17/2010	3/17/2010	EMPLACED_CNTR	4/27/2010 12:39	Parent X10CSATN02866 (100%)
143	ORRH00123	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/16/2010	3/16/2010	EMPLACED_CNTR	5/6/2010 12:26	Parent X10CSATN02866 (100%)

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144	ORRH00121	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/15/2010	3/15/2010	EMPLACED_CNTR	5/6/2010 12:26	Parent X10CSATN02869 (10%); X10CSATN02866 (90%)
145	ORRH00139	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/11/2010	3/11/2010	EMPLACED_CNTR	4/27/2010 12:39	Parent X10CSATN02869 (100%)
146	ORRH00135	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/8/2010	3/8/2010	EMPLACED_CNTR	5/6/2010 12:26	Parent X10CSATN02869 (100%)
147	ORRH00120	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/3/2010	3/3/2010	EMPLACED_CNTR	5/4/2010 14:52	Parent X10CSATN02869 (100%)
148	ORRH00119	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/3/2010	3/3/2010	EMPLACED_CNTR	5/4/2010 14:52	Parent X10CSATN02869 (100%)
149	ORRH00131	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/2/2010	3/2/2010	EMPLACED_CNTR	4/17/2010 12:09	Parent X10CSATN02874 (50%), X10CSATN02869 (50%)
150	ORRH00118	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	3/2/2010	3/2/2010	EMPLACED_CNTR	5/4/2010 14:52	Parent X10CSATN02869 (100%)
151	ORRH00130	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/15/2010	2/15/2010	EMPLACED_CNTR	4/15/2010 12:49	Parent X10C9402642 and Cell Decon Waste (100%)
152	ORRH00105	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/10/2010	2/10/2010	EMPLACED_CNTR	4/17/2010 12:09	Parent X10C9402642 (100%)
153	ORRH00104	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/10/2010	2/10/2010	EMPLACED_CNTR	4/10/2010 11:11	Parent X10C9402642 (100%)
154	ORRH00103	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/9/2010	2/9/2010	EMPLACED_CNTR	4/10/2010 11:11	Parent X10C9402642 (100%)
155	ORRH00102	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/9/2010	2/9/2010	EMPLACED_CNTR	4/10/2010 11:11	Parent X10C9402642 (100%)
156	ORRH00101	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/8/2010	2/8/2010	EMPLACED_CNTR	4/9/2010 10:59	Parent X10C9402642 (100%)
157	ORRH00100	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/8/2010	2/8/2010	EMPLACED_CNTR	4/9/2010 10:59	Parent X10C9402642 (100%)
158	ORRH00099	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/8/2010	2/8/2010	EMPLACED_CNTR	4/9/2010 10:59	Parent X10C9402642 (100%); Per Operational Logbook only (RH-ORNL-VE-003) new closure date - 2/17/2010
159	ORRH00097	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/3/2010	2/3/2010	EMPLACED_CNTR	3/26/2010 14:04	Parent X10C9402642 (100%)
160	ORRH00096	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/3/2010	2/3/2010	EMPLACED_CNTR	4/15/2010 12:49	Parent X10C9402642 (100%); Per Operational Logbook only (RH-ORNL-VE-003) new closure date - 2/11/2010
161	ORRH00095	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/3/2010	2/3/2010	EMPLACED_CNTR	3/26/2010 14:04	Parent X10C9402642 (100%)
162	ORRH00094	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/2/2010	2/2/2010	EMPLACED_CNTR	5/28/2010 14:32	Parent X10C9402633 (20%), X10C9402642 (80%)
163	ORRH00092	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	2/1/2010	2/1/2010	EMPLACED_CNTR	3/26/2010 14:04	Parent X10C9402633 (100%)
164	ORRH00091	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	1/28/2010	1/28/2010	EMPLACED_CNTR	4/15/2010 12:49	Parent X10C9402633 (100%)

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165	ORRH00090	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	1/28/2010	1/28/2010	EMPLACED_CNTR	4/17/2010 12:09	Parent X10C9402633 (100%)
166	ORRH00089	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	1/27/2010	1/27/2010	EMPLACED_CNTR	4/7/2010 11:00	Parent X10C9402633 (100%)
167	ORRH00085	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	1/27/2010	1/27/2010	EMPLACED_CNTR	4/7/2010 11:00	Parent X10C9402633 (100%)
168	ORRH00083	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	1/26/2010	1/26/2010	EMPLACED_CNTR	3/17/2010 14:20	Parent X10C9402633 (100%)
169	ORRH00082	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	1/25/2010	1/25/2010	EMPLACED_CNTR	3/17/2010 14:20	Parent X10C9402633 (100%)
170	ORRH00080	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/23/2009	11/23/2009	EMPLACED_CNTR	3/17/2010 14:20	Parent X10C9310003 (100%)
171	ORRH00079	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/16/2009	11/16/2009	EMPLACED_CNTR	4/7/2010 11:00	Parent X10C9310003 (100%)
172	ORRH00078	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/11/2009	11/11/2009	EMPLACED_CNTR	3/9/2010 15:58	Parent X10C9310003 (100%)
173	ORRH00077	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/11/2009	11/11/2009	EMPLACED_CNTR	3/9/2010 15:58	Parent X10C9310003 (100%)
174	ORRH00076	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/11/2009	11/11/2009	EMPLACED_CNTR	3/9/2010 15:58	Parent X10C9310003 (100%)
175	ORRH00075	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/11/2009	11/11/2009	EMPLACED_CNTR	2/23/2010 18:29	Parent X10C9310003 (100%)
176	ORRH00074	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/10/2009	11/10/2009	EMPLACED_CNTR	2/23/2010 18:29	Parent X10C9310003 (100%)
177	ORRH00073	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/10/2009	11/10/2009	EMPLACED_CNTR	2/17/2010 18:31	Parent X10C9310003 (100%)
178	ORRH00072	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/10/2009	11/10/2009	EMPLACED_CNTR	2/23/2010 18:29	Parent X10C9310003 (100%)
179	ORRH00071	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/9/2009	11/9/2009	EMPLACED_CNTR	2/17/2010 18:31	Parent X10C9310003 (100%)
180	ORRH00070	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/9/2009	11/9/2009	EMPLACED_CNTR	2/17/2010 18:31	Parent X10CSATN03043 (50%); X10C9310003 (50%)
181	ORRH00069	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/9/2009	11/9/2009	EMPLACED_CNTR	2/25/2010 15:22	Parent X10CSATN03043 (100%)
182	ORRH00068	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/5/2009	11/5/2009	EMPLACED_CNTR	2/25/2010 15:22	Parent X10CSATN03043 (90%); X10C9310003 (10%)
183	ORRH00067	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/4/2009	11/4/2009	EMPLACED_CNTR	2/25/2010 15:22	Parent X10CSATN03043 (99%); X10C0601862 (1%) from repack of ORRH00010
184	ORRH00066	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	10/29/2009	10/29/2009	EMPLACED_CNTR	2/16/2010 12:59	Parent X10CSATN03043 (100%)
185	ORRH00065	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	10/20/2009	10/20/2009	EMPLACED_CNTR	2/16/2010 12:59	Parent X10CSATN03043 (99%); X10C9304039 (1%)
186	ORRH00064	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	10/19/2009	10/19/2009	EMPLACED_CNTR	2/16/2010 12:59	Parent X10CSATN03043 (99%); X10C9304039 (1%)

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187	ORRH00063	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	10/8/2009	10/8/2009	EMPLACED_CNTR	2/3/2010 19:43	Parent X10CSATN03210 (99%); X10C0601826 (1%)
188	ORRH00062	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	10/8/2009	10/8/2009	EMPLACED_CNTR	2/3/2010 19:43	Parent X10CSATN03210 (100%)
189	ORRH00061	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	10/7/2009	10/7/2009	EMPLACED_CNTR	2/3/2010 19:43	Parent X10CSATN03210 (100%)
190	ORRH00060	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	10/7/2009	10/7/2009	EMPLACED_CNTR	2/2/2010 19:38	Parent X10C9304039 (100%)
191	ORRH00059	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	10/6/2009	10/6/2009	EMPLACED_CNTR	2/11/2010 15:29	Parent X10C9304039 (80%); X10CSATN03210 (20%)
192	ORRH00058	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/29/2009	9/29/2009	EMPLACED_CNTR	2/2/2010 19:38	Parent X10C9304039 (99%); X10C0601826 (1%)
193	ORRH00057	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/28/2009	9/28/2009	EMPLACED_CNTR	2/11/2010 15:29	Parent X10C9304039
194	ORRH00056	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/28/2009	9/28/2009	EMPLACED_CNTR	2/4/2010 20:51	Parent X10C9304039
195	ORRH00055	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/25/2009	9/25/2009	EMPLACED_CNTR	2/2/2010 19:38	Parent X10C9304039
196	ORRH00054	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/24/2009	9/24/2009	EMPLACED_CNTR	1/30/2010 11:10	Parent X10C9304039
197	ORRH00053	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/24/2009	9/24/2009	EMPLACED_CNTR	1/30/2010 11:10	Parent X10C9304039
198	ORRH00052	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/23/2009	9/23/2009	EMPLACED_CNTR	2/11/2010 15:29	Parent X10C9304039 (60%); X10C9310023 (40%)
199	ORRH00051	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/23/2009	9/23/2009	EMPLACED_CNTR	1/30/2010 11:10	Parent X10C9310023; X10C9304039
200	ORRH00050	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/22/2009	9/22/2009	EMPLACED_CNTR	2/4/2010 20:51	Parent X10C9310023 (100%)
201	ORRH00049	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/15/2009	9/15/2009	EMPLACED_CNTR	2/4/2010 20:51	Parent X10C9310023 (100%)
202	ORRH00048	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/4/2009	9/4/2009	EMPLACED_CNTR	11/13/2009	Parent X10C9310023 (100%)
203	ORRH00042	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/3/2009	9/3/2009	EMPLACED_CNTR	11/13/2009	Parent X10C9310023 (100%)
204	ORRH00047	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	9/1/2009	9/1/2009	EMPLACED_CNTR	11/13/2009	Parent X10C9310023 (80%); X10C0011102 (20%)
205	ORRH00046	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/31/2009	8/31/2009	EMPLACED_CNTR	11/7/2009	Parent X10C9310023 (60%); X10C0011102 (40%)
206	ORRH00045	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/27/2009	8/27/2009	EMPLACED_CNTR	10/30/2009	Parent X10C9310023 (70%); X10C0011102 (30%)
207	ORRH00044	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/27/2009	8/27/2009	EMPLACED_CNTR	11/7/2009	Parent X10C9310023 (80%); X10C0011102 (20%)
208	ORRH00043	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/26/2009	8/26/2009	EMPLACED_CNTR	11/7/2009	Parent X10C9310023 (70%); X10C0011102 (30%)

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209	ORRH00041	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	8/26/2009	8/26/2009	EMPLACED_CNTR	10/30/2009	Parent X10C0201072 (10%); X10C9310023 (90%)
210	ORRH00040	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/16/2009	7/16/2009	EMPLACED_CNTR	10/30/2009	Parent X10C0201072; ORRH00007
211	ORRH00036	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/6/2009	7/6/2009	EMPLACED_CNTR	9/24/2009	Parent X10C0011088, ORRH00007
212	ORRH00035	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/6/2009	7/6/2009	EMPLACED_CNTR	9/24/2009	Parent X10C0011088, ORRH00007
213	ORRH00033	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/24/2009	6/24/2009	EMPLACED_CNTR	9/30/2009	Parent X10C0011088
214	ORRH00039	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/4/2009	6/4/2009	EMPLACED_CNTR	9/22/2009	Parent X10C0011088 (99%); ORRH00007 (1%)
215	ORRH00037	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/4/2009	6/4/2009	EMPLACED_CNTR	9/22/2009	Parent X10C0011088 (99%); ORRH00007 (1%)
216	ORRH00038	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/3/2009	6/3/2009	EMPLACED_CNTR	9/22/2009	Parent X10C0011088 (99%); ORRH00007 (1%)
217	ORRH00034	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/7/2009	5/7/2009	EMPLACED_CNTR	9/24/2009	Parent X10C9402650 (75%), X10C0011088 (23%), ORRH00007 (2%)
218	ORRH00030	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/21/2009	4/21/2009	EMPLACED_CNTR	9/30/2009	Parent X10C9402650 (95%), ORRH00007 (5%)
219	ORRH00028	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/20/2009	4/20/2009	EMPLACED_CNTR	9/17/2009	Parent X10C9402650 (80%), ORRH00007 (20%)
220	ORRH00027	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/14/2009	4/14/2009	EMPLACED_CNTR	9/30/2009	Parent X10C9402650 (30%), ORRH00007 (70%)
221	ORRH00024	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/13/2009	4/13/2009	EMPLACED_CNTR	9/17/2009	Parent X10C9402650 (40%), ORRH00007 (60%)
222	ORRH00020	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/9/2009	4/9/2009	EMPLACED_CNTR	9/17/2009	Parent X10C9402650 (70%), ORRH00010 (30%)
223	ORRH00019	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	4/9/2009	4/9/2009	EMPLACED_CNTR	12/1/2011 12:26	Parent X10C9402650 (60%) ORRH00010 (40%)
224	ORRH00023	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	1/22/2009	1/22/2009	EMPLACED_CNTR	5/25/2010 11:44	Parent cask X10C0402970
225	ORRH00022	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	1/21/2009	1/21/2009	EMPLACED_CNTR	5/25/2010 11:44	Parent cask X10C0402970
226	ORRH00021	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	1/15/2009	1/15/2009	EMPLACED_CNTR	5/25/2010 11:44	Parent cask X10C0402945
227	ORRH00025	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	12/30/2008	12/30/2008	EMPLACED_CNTR	6/6/2010 10:42	Parent X10C0402925
228	ORRH00018	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	12/30/2008	12/30/2008	EMPLACED_CNTR	6/6/2010 10:42	Parent cask X10C0402945
229	ORRH00026	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	11/6/2008	11/6/2008	EMPLACED_CNTR	6/6/2010 10:42	Parent X10C0402925
230	ORRH00016	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/18/2008	7/18/2008	EMPLACED_CNTR	4/1/2009	Parent cask X10C0011108 and X10C0601826

	A	B	C	D	E	F	I	J	K
231	ORRH00017	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/17/2008	7/17/2008	EMPLACED_CNTR	4/1/2009	Parent cask X10C0011108 and X10C0601826
232	ORRH00014	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/17/2008	7/17/2008	EMPLACED_CNTR	4/1/2009	Parent cask X10C0011108 and X10C0601826
233	ORRH00015	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	7/2/2008	7/2/2008	EMPLACED_CNTR	3/20/2009	Parent cask X10C0601826
234	ORRH00013	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/12/2008	6/12/2008	EMPLACED_CNTR	3/25/2009	Parent cask X10C0011108 and X10C0601826
235	ORRH00012	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/11/2008	6/11/2008	EMPLACED_CNTR	3/25/2009	Parent cask X10C0011108 and X10C0601826
236	ORRH00011	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/11/2008	6/11/2008	EMPLACED_CNTR	3/25/2009	Parent cask X10C0601826
237	ORRH00009	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/5/2008	6/5/2008	EMPLACED_CNTR	11/10/2011 12:24	Parent cask X10C0601826
238	ORRH00008	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/4/2008	6/4/2008	EMPLACED_CNTR	11/10/2011 12:24	Parent cask X10C0601826
239	ORRH00006	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/3/2008	6/3/2008	EMPLACED_CNTR	3/20/2009	Parent cask X10C0011108
240	ORRH00005	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/2/2008	6/2/2008	EMPLACED_CNTR	11/10/2011 12:24	Parent cask X10C0011108
241	ORRH00004	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	6/2/2008	6/2/2008	EMPLACED_CNTR	3/20/2009	Parent cask X10C0011108
242	ORRH00003	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/30/2008	5/30/2008	EMPLACED_CNTR	3/17/2009	Parent cask X10C0011108
243	ORRH00002	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/29/2008	5/29/2008	EMPLACED_CNTR	3/17/2009	Parent cask X10C0011108
244	ORRH00001	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400	5/28/2008	5/28/2008	EMPLACED_CNTR	3/17/2009	Parent cask X10C0011108
245	X10CSATN03211	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		6/10/1993			Cask Evaluated 6/26/09, Rad Dist. Mark-42/HFIR
246	X10CSATN03210	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		10/4/1993			Cask Evaluated 6/26/09, Rad Dist. Mark-42/HFIR
247	X10CSATN03208	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		9/4/1992			Cask Evaluated 6/26/09, Rad Dist. Mark-42/HFIR
248	X10CSATN03043	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		4/6/1992			Cask Evaluated 6/26/09, Rad Dist. Mark-42/HFIR
249	X10CSATN03042	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		10/28/1991			Cask Evaluated 9/2/09, Rad Dist SETF
250	X10CSATN02874	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		2/9/1989			Cask Evaluated 9/8/09, Rad Dist. SETF
251	X10CSATN02870	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		11/6/1987			Cask Evaluated 9/8/09, Rad Dist. SETF
252	X10CSATN02869	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		11/6/1987			Cask Evaluated 9/8/09, Rad Dist. SETF
253	X10CSATN02866	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		6/4/1987			Cask Evaluated 9/8/09, Rad Dist. SETF
254	X10CSATN02699	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		6/20/1986			Cask Evaluated 9/8/09, Rad Dist. SETF
255	X10CSATN02698	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		8/6/1986			Cask Evaluated 8/4/10, Rad Dist. SETF
256	X10CSATN02697	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		12/11/1986			Cask Evaluated 9/8/09, Rad Dist. SETF

	A	B	C	D	E	F	I	J	K
257	X10CSATN02694	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		1/15/1987			Cask Evaluated 9/8/09, Rad Dist. SETF
258	X10CSATN02689	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		11/20/1986			Cask Evaluated 9/8/09, Rad Dist. SETF
259	X10CSATN02682	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		6/10/1986			Cask Evaluated 9/27/10, Rad Dist. SETF
260	X10CSATN02665	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		4/8/1986			Cask Evaluated 5/16/2011, Rad Dist. SETF
261	X10CSATN02664	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		4/8/1986			Cask Evaluated 8/4/10, Rad Dist. SETF
262	X10CSATN02645	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		1/24/1986			Cask Evaluated 7/15/10, Rad Dist. SETF
263	X10CSATN02640	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		11/4/1985			Cask Evaluated 7/15/10, Rad Dist. SETF
264	X10CSATN02634	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		9/17/1985			Cask Evaluated 8/4/10, Rad Dist. SETF
265	X10CSATN02626	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		6/27/1985			Cask Evaluated 1/26/2011, Rad Dist. SETF
266	X10CSATN02614	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		3/15/1985			Cask Evaluated 8/17/10, Rad Dist. SETF
267	X10CSATN02612	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		3/5/1985			Cask Evaluated 8/17/10, Rad Dist. SETF
268	X10CSATN02607	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		1/10/1985			Cask Evaluated 1/26/2011, Rad Dist. SETF
269	X10CSATN02600	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		10/31/1984			Cask Evaluated 1/26/2011, Rad Dist. SETF
270	X10CSATN02493	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		8/17/1984			Cask Evaluated 3/31/10, Rad Dist. SETF
271	X10CSATN02474	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		7/3/1984			Cask Evaluated 3/31/10, Rad Dist. SETF
272	X10CSATN02461	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		2/7/1984			Cask Evaluated 9/21/10, Rad Dist. SETF
273	X10CSATN02457	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		1/6/1984			Cask Evaluated 5/20/10, Rad Dist. SETF
274	X10CSATN02455	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		12/15/1983			Cask Evaluated 3/31/10, Rad Dist. SETF
275	X10CSATN02450	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		11/15/1983			Cask Evaluated 3/31/10, Rad Dist. SETF
276	X10CSATN02446	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		10/17/1983			Cask Evaluated 11/10/2010, Rad Dist. SETF
277	X10CSATN02438	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		10/17/1983			Cask Evaluated 5/20/10, Rad Dist. SETF
278	X10CSATN02434	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		8/4/1983			Cask Evaluated 3/31/10, Rad Dist. SETF
279	X10CSATN02406	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		2/25/1983			Cask Evaluated 8/4/10, Rad Dist. SETF
280	X10CSATN02296	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		5/24/1983			Cask Evaluated 1/4/2011, Rad Dist. SETF
281	X10CSATN02284	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		9/29/1982			Cask Evaluated 7/15/10, Rad Dist. SETF
282	X10CSATN02277	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		8/19/1982			Cask Evaluated 7/7/10, Rad Dist. SETF
283	X10CSATN02260	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		7/1/1982			Cask Evaluated 1/26/2011, Rad Dist. SETF
284	X10CSATN02244	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		12/4/1981			Cask Evaluated 3/31/10, Rad Dist. SETF
285	X10CSATN02241	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		10/15/1981			Cask Evaluated 9/27/10, Rad Dist. SETF
286	X10CSATN02240	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		9/11/1981			Cask Evaluated 1/4/2011, Rad Dist. SETF
287	X10CSATN02223	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		9/11/1981			Cask Evaluated 1/26/2011, Rad Dist SETF
288	X10CSATN02205	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		6/9/1981			Cask Evaluted 9/27/10, Rad Dist. SETF
289	X10CSATN02200	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		4/30/1981			Cask Evaluated 12/21/10, Rad Dist. SETF
290	X10CSATN02093	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		3/23/1981			Cask Evaluated 9/27/10, Rad Dist SETF
291	X10CSATN02078	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		4/30/1981			Cask Evaluated 5/27/10, Rad Dist. SETF
292	X10CSATN02071	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		12/4/1980			Cask Evaluated 11/10/2010, Rad Dist. SETF
293	X10CSATN02070	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		12/4/1980			Cask Evaluated 1/4/2011, Rad Dist. SETF
294	X10CSATN02062	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		10/9/1980			Cask Evaluated 5/20/10, Rad Dist. SETF
295	X10CSATN02023	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		5/22/1980			Cask Evaluated 1/4/2011, Rad Dist. SETF
296	X10CSATN02022	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		8/1/1980			Cask Evaluated 9/27/10, Rad Dist. SETF
297	X10CSATN02012	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		3/28/1980			Cask Evaluated 5/20/10, Rad Dist. SETF
298	X10CSATN01878	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		10/5/1979			Cask Evaluated 5/27/10, Rad Dist. SETF
299	X10C9802684	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		9/1/1999			Cask Evaluated 6/5/08, Rad Dist. Mark-42/HFIR

	A	B	C	D	E	F	I	J	K
300	X10C9802663	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		10/2/1998			Cask; HOLD Rad Dist. Nonconforming Package Dates
301	X10C9600188	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		2/26/1996			Cask Evaluated 12/17/2013, Rad Dist Mark-42 (HFIR/HFIR)
302	X10C9402660	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		8/26/1998			Cask Evaluated 6/6/08, Rad Dist. Mark-42/HFIR
303	X10C9402652	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		11/4/1998			Cask Evaluated 6/6/08, Rad Dist. Mark-42/HFIR
304	X10C9402650	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		12/30/1997			Cask Evaluated 5/28/08, Rad Dist. Mark-42/HFIR
305	X10C9402644	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		9/5/1997			Cask Evaluated 6/6/08, Rad Dist. Mark-42/HFIR
306	X10C9402642	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		6/26/1997			Cask Evaluated 6/6/08, Rad Dist. Mark-42/HFIR
307	X10C9402633	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		1/3/1997			Cask Evaluated 6/26/09, Rad Dist. Mark-42/HFIR
308	X10C9310023	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		9/9/1994			Cask Evaluated 6/25/09, Rad Dist. Mark-42/HFIR
309	X10C9310003	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		5/2/1994			Cask Evaluated 6/25/09, Rad Dist. Mark-42/HFIR
310	X10C9304039	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		11/8/1993			Cask Evaluated 6/25/09, Rad Dist. Mark-42/HFIR
311	X10C9304038	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		9/2/1993			Cask Evaluated 6/25/09, Rad Dist. Mark-42/HFIR
312	X10C0601826	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		2/6/2007			Cask Evaluated 6/2/2008; Rad Dist. Mark-42/HFIR
313	X10C0403030	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		10/2/1973			Cask Evaluated 8/21/08, Rad Dist. Pre-SETF
314	X10C0402971	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		4/24/1978			B-88 BOX; HOLD Rad Dist. Not Evaluated
315	X10C0402970	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		3/23/1978			Cask evaluated 8/22/2008; Rad Dist Pre-SETF
316	X10C0402945	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		3/10/1977			Cask evaluated 8/22/2008; Rad Dist. Pre-SETF
317	X10C0402925	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		8/6/1976			Cask Evaluated 8/22/08; Rad Dist. Pre-SETF
318	X10C0402897	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		12/18/1975			Cask Evaluated 8/22/08, Rad Dist. Pre-SETF
319	X10C0402859	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		4/9/1974			Cask Evaluated 8/12/08, Rad Dist. Pre-SETF
320	X10C0402815	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		5/19/1972			Cask Evaluated 3/30/09; Rad Dist. Pre-SETF
321	X10C0300529	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		4/5/2004			Cask Evaluated 6/11/08, Rad Dist. Mark 42/HFIR
322	X10C0201072	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		1/15/2003			Cask Evaluated 6/2/2008; Rad Dist. Mark-42/HFIR
323	X10C0201071	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		10/17/2002			Cask Evaluated 6/2/2008; Rad Dist. Mark-42/HFIR
324	X10C0011108	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		8/12/2002			Cask Evaluated 5/29/2008; Rad Dist. Mark-42/HFIR
325	X10C0011102	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		4/26/2001			Cask Evaluated 3/27/09, Rad Dist. Mark-42/HFIR

	A	B	C	D	E	F	I	J	K
326	X10C0011088	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		9/19/2000			Cask Evaluated 6/2/08, Rad Dist. Mark-42/HFIR
327	X10C0011087	OR-REDC-RH-HET	CCP-AK-ORNL-500	S5400		11/28/2000			Cask Evaluated 6/12/08, Rad Dist. Mark-42/HFIR

Attachment F: Visual Examination Technique Data Form

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Section 1: General Information AD 10/17/06 Note 2	
Examination Start Date: 10-17-06	AD 10/17/06 #2
Container Number: X10C0501534	Batch Number: VET-061013-092
Container Type: 55 GAL Drum	Thickness of Bag Liner: 6 mil
Bag Liner Description: ☒ Non-Rigid ☒ Filtered Vent ☒ Poly ☐ Rigid ☐ Non-vented ☐ Other:	
Waste Stream Identification #: ORFWEN-0078	Waste Matrix Code: S5490
Summary Category Group: S-5000 AD 10-17-06 Note 1	TRUCON Code: OR125E
Physical waste form matches the assigned Waste Stream Description, Waste Matrix Code, and RCRA characterization? ☐ NO ☒ YES	
Are sharp or heavy objects are blocked, braced, or packaged to provide puncture protection for the waste container? ☐ NO ☒ YES	
Volume Utilization Percentage: 100 %	
Number of Container Liners used: 1	
Closure Method for Container Liner: Twist N- Tape	
Number of Inner Bags: 2	
Verified no inner packages are heat sealed? ☐ NO ☒ YES	
Layers of Confinement: Number of Layers: 3	
Container Filter and Lid Ring Bolt Torque Data: Filter Torque Wrench: Serial/ID No. 405041749 Calibration Due Date 5-16-07 Filter: Model No. N14CFL-0A2S Serial No. LF-18 Torque Value 10 ft/lbs Lid Ring Bolt Torque Wrench: Serial/ID No. 405041749 Calibration Due Date 5-16-07 Lid Ring Bolt Torque Value 25 ft/lbs	

Source Container Numbers:	
X10C9311139	

Attachment F: Visual Examination Technique Data Form

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Section 2: Waste Package Data — 17 MA 10/17/06 (#2) — Data Page 1 of 1

Container Number: X10C050/1534 — **Batch Number:** VET-06102-092 — **Examination Date:** 10-5-06 MA 10/17/06 (#2)

Waste Scale Serial/ID Number: (SW600/R900) — **Calibration Due Date:** 10-5-07 — **Daily Calibration Check performed?** ☒ YES

Item #	Waste Item Description	Waste Material Parameter Estimated Weight Percentile / Calculated Weights (Kg)																		Total Item Weight Percent (%)	Total Item Weight (Kg)
		Iron-Based Alloy (%)	(Kg)	Aluminum Based Alloy (%)	(Kg)	Other Metals (%)	(Kg)	Other Inorganic Materials (%)	(Kg)	Cellulosics (%)	(Kg)	Rubber (%)	(Kg)	Plastics (%)	(Kg)	Organic Matrix (%)	(Kg)	Inorganic Matrix (%)	(Kg)	Soils/Gravel (%)	(Kg)		
1.	Hand Tools, Elec. Tape S/S Rods	90	2070			2	.46					8	1.84									100	2300
	Rubber Gloves Paper Towels, Elec. Motor														Note 1								
2.	Paper, Plastic, Smears, Wipe									90	3.06			3	127			2	107			140	340
	TYvec, Alk. Cuttings														10/17/06 (#2)								
3.	Plastic Bag Flourescent Light Bulb													1	.102			99	1.98			100	2.100 .202
4	TYvek, Rubber Booties/Gloves									90	3.78	9	.38	1	.104							100	4.20
	Paper Smears Dry Wipes																						
	Total – This Page		2070				.46				6.84		2.22		1.33				2.05			Total Weight 32.60	
	VE Operator 1:	Nick Dunaway Print Name		Nick Dunaway Signature		10/17/06				**VE Operator 2:**		Anthony Presley Print Name				Signature							

10-5-06 17 (#2) MA 10/17/06

Note 1: MA 10/17/06 (#2) 10/17/06

Attachment F: Visual Examination Technique Data Form

Page 3 of 4

Section 3: Waste Package Summary Data

17 nd 10/17/06 (#2)

17 nd 10/17/06 (#3)

Container Number: X10C0501534 **Batch Number:** VET: 061013-092 **Date:** 10-13-06

Totals from Data Pages	Calculated Waste Material Parameter Totals (Kg)										Total Weight (Kg)
	Iron-Based Alloy (Kg)	Aluminum Based Alloy (Kg)	Other Metals (Kg)	Other Inorganic Materials (Kg)	Cellulosics (Kg)	Rubber (Kg)	Plastics (Kg)	Organic Matrix (Kg)	Inorganic Matrix (Kg)	Soils/Gravel (Kg)	
Total Page 1	20.70		1.46		6.84	2.22	1.33		2.05		32.60
Total Page 2											
Total Page 3											
Total Page 4											
Total Page 5											
Total Page 6											
Total Page 7											
Waste Packaging Materials	27.60				3.80		1.00				32.40
Waste Material Parameter Totals for Package	48.30		1.46		10.64	2.22	1.33		2.05		Total 65.00 / Total 65.00

Attachment F: Visual Examination Technique Data Form

Page 4 of 4

Section 4: Comments

Container Number:	X10C0501534	Batch Number:	WET-0610B-052 17 MD 10-17-06

Note #1 Incorrect Data Entered MD 10/17/06 no 10/17/06

Note #2 Incorrect Date Entered & Corrected MD 10/17/06

Section 5: Approvals

Signature below signifies that waste parameters in this container have been examined and determined to be acceptable waste forms, that weight estimations shown on this form have been properly completed, and that calculations are correct.

☒ I certify that the listed container does not contain WIPP WAC Prohibited Items.

☐ I certify that the listed container does not contain NTS WAC Prohibited Items (#2)

Visual Examination Operator 1:		
Nick Dunaway	Matthew Dunaway	17 MD 10/17/06 10/17/06
Print Name	Signature	Date
Visual Examination Operator 2:		
Anthony Posley	Anthony Posley	17 10/17/06 (#2) 10/17-06 MD
Print Name	Signature	Date

Section 6: Container Weight

Container Scale Information:	Calibration Due Date: 4-11-07
Serial/ID Number: 00640156 HD	Daily Calibration Check performed? ☒ YES

Waste Container Weights: Tare Wt. 32.40 Kg Gross Wt. 64.80 Kg Net Waste Wt. 32.40 Kg

Visual Examination Operator:		
Nick Dunaway	Matthew Dunaway	17 MD 10/17/06 10/17/06 (#2)
Print Name	Signature	Date

DIVIDER PAGE

Attachment F: Visual Examination Technique Data Form

Page 1 of 4

Section 1: General Information	
Examination Start Date: 12/21/06	
Container Number: X10C501650	Batch Number: VET-061221-107
Container Type: 55 gal drum	Thickness of Bag Liner: 6 mil
Bag Liner Description: ☑ Non-Rigid ☑ Filtered Vent ☑ Poly ☐ Rigid ☐ Non-vented ☐ Other:	
Waste Stream Identification #: ORFWENC-008	Waste Matrix Code: 55490
Summary Category Group: 55000	TRUCON Code: OR-125
Physical waste form matches the assigned Waste Stream Description, Waste Matrix Code, and RCRA characterization? ☐ NO ☑ YES	
Are sharp or heavy objects are blocked, braced, or packaged to provide puncture protection for the waste container? ☐ NO ☑ YES	
Volume Utilization Percentage: 100 %	
Number of Container Liners used: 1	
Closure Method for Container Liner: Twist and tape	
Number of Inner Bags: 1	
Verified no inner packages are heat sealed? ☐ NO ☑ YES	
Layers of Confinement: Number of Layers: 2	
Container Filter and Lid Ring Bolt Torque Data: Filter Torque Wrench: Serial/ID No. 405041764 9 Calibration Due Date 5/16/07 Filter: Model No. NUCFIL-01905 Serial No. LF-70 Torque Value 10 FT lbs Lid Ring Bolt Torque Wrench: Serial/ID No. 405041764 9 Calibration Due Date 5/16/07 Lid Ring Bolt Torque Value 25 FT lbs	

Source Container Numbers:	
X10C93 12391	

Attachment F: Visual Examination Technique Data Form

Page 2 of 4

Section 2: Waste Package Data — Data Page 1 of 1

Container Number: X10C0501650 **Batch Number:** VET-061271-107 **Examination Date:** 12/21/06

Waste Scale Serial/ID Number: 5352354-60E **Calibration Due Date:** 9/28/07 **Daily Calibration Check performed?** ☑ YES

Item #	Waste Item Description	Waste Material Parameter Estimated Weight Percentile / Calculated Weights (Kg)																		Total Item Weight Percent (%)	Total Item Weight (Kg)
		Iron-Based Alloy (%)	(Kg)	Aluminum Based Alloy (%)	(Kg)	Other Metals (%)	(Kg)	Other Inorganic Materials (%)	(Kg)	Cellulosics (%)	(Kg)	Rubber (%)	(Kg)	Plastics (%)	(Kg)	Organic Matrix (%)	(Kg)	Inorganic Matrix (%)	(Kg)	Soils/Gravel (%)	(Kg)		
	Absorbed liquids, plastic bags, plastic fittings, wooden tongue depressor, absorbent pads, tygon tubing, paper, aluminum, cleaning sponge																				
	Stainless band, PLEXIGLASS	2.0	1.02	2.0	0.68					5.0	1.70			88.0	29.94	2.0	0.68					100	34.02
	Total – This Page		1.02		0.68						1.70				29.94		0.68					Total Weight 34.02	

VE Operator 1:	[signature] Print Name	[signature] Signature	12/21/06	**VE Operator 2:**	P.E Johnson Print Name / [signature] 12/21/06 Signature

BDR Page # ___

COPY

Attachment F: Visual Examination Technique Data Form

Page 3 of 4

Section 3: Waste Package Summary Data

Container Number: X10C050165D **Batch Number:** VET-061221-107 **Date:** 12-21-06

Totals from Data Pages	Calculated Waste Material Parameter Totals (Kg)										
	Iron-Based Alloy (Kg)	Aluminum Based Alloy (Kg)	Other Metals (Kg)	Other Inorganic Materials (Kg)	Cellulosics (Kg)	Rubber (Kg)	Plastics (Kg)	Organic Matrix (Kg)	Inorganic Matrix (Kg)	Soils/Gravel (Kg)	Total Weight (Kg)
Total Page 1	1.02	0.68			1.70		29.94	0.68			34.02
Total Page 2											
Total Page 3											
Total Page 4											
Total Page 5											
Total Page 6											
Total Page 7											
Waste Packaging Materials	27.20				4.00		1.20				32.40
Waste Material Parameter Totals for Package	28.22	0.68			5.70		31.14	0.68			Total 66.42 / 66.42 Total

BDR Page #____

Attachment F: Visual Examination Technique Data Form

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Section 4: Comments			
Container Number:	X10C0501650	Batch Number:	VET-061221-107

Section 5: Approvals

Signature below signifies that waste parameters in this container have been examined and determined to be acceptable waste forms, that weight estimations shown on this form have been properly completed, and that calculations are correct.

☑ I certify that the listed container does not contain WIPP WAC Prohibited Items.

☐ I certify that the listed container does not contain NTS WAC Prohibited Items

Visual Examination Operator 1:		
Print Name	Signature	Date 12/21/06
Visual Examination Operator 2:		
P.E. Johnson		12.21.06
Print Name	Signature	Date

Section 6: Container Weight

Container Scale Information:
Serial/ID Number: 00L40156HD

Calibration Due Date: 4-11-07
Daily Calibration Check performed? ☒ YES

Waste Container Weights: Tare Wt. 32.40 Kg Gross Wt. 66.80 Kg Net Waste Wt. 34.40 Kg

Visual Examination Operator:		
MIKE FRYBERGER		12/21/06
Print Name	Signature	Date

DIVIDER

PAGE

Attachment F: Visual Examination Technique Data Form

Page 1 of 4

Section 1: General Information AD 10/17/06 Note 2	
Examination Start Date: 10-13-06	AD 10/17/06 (#2)
Container Number: X10C0501534	Batch Number: WET-061013-092
Container Type: 55 GAL Drum	Thickness of Bag Liner: 6 1/2 mil
Bag Liner Description: ☒ Non-Rigid ☒ Filtered Vent ☒ Poly ☐ Rigid ☐ Non-vented ☐ Other:	
Waste Stream Identification #: ORFWENL-0078	Waste Matrix Code: S5490
Summary Category Group: S-5000 AD 10-17-06 Note 1	TRUCON Code: OR125E
Physical waste form matches the assigned Waste Stream Description, Waste Matrix Code, and RCRA characterization? ☐ NO ☒ YES	
Are sharp or heavy objects are blocked, braced, or packaged to provide puncture protection for the waste container? ☐ NO ☒ YES	
Volume Utilization Percentage: 100 %	
Number of Container Liners used: 1	
Closure Method for Container Liner: Twist N- Tape	
Number of Inner Bags: 2	
Verified no inner packages are heat sealed? ☐ NO ☒ YES	
Layers of Confinement: Number of Layers: 3	
Container Filter and Lid Ring Bolt Torque Data: Filter Torque Wrench: Serial/ID No. 405041764 9 Calibration Due Date 5-16-07	Filter: Model No. NUCFIL-0425 Serial No. LF-18 Torque Value 10 FT/LBS
Lid Ring Bolt Torque Wrench: Serial/ID No. 405041764 9 Calibration Due Date 5-16-07	Lid Ring Bolt Torque Value 25 ft/lbs

Source Container Numbers:	
X10C9311139	

Attachment F: Visual Examination Technique Data Form

Page 2 of 4

Section 2: Waste Package Data — 17 MD 10/17/06 (#2) — **Data Page** 1 of 1 (#2) MD 10/17/06

Container Number: X10C050/1534 **Batch Number:** VET-06102-092 **Examination Date:** 10-13-06 MD 10/17/06

Waste Scale Serial/ID Number: WS600VB00 **Calibration Due Date:** 10-5-07 **Daily Calibration Check performed?** ☒ YES

Item #	Waste Item Description	Waste Material Parameter Estimated Weight Percentile / Calculated Weights (Kg)																		Total Item Weight Percent (%)	Total Item Weight (Kg)
		Iron-Based Alloy (%)	Iron-Based Alloy (Kg)	Aluminum Based Alloy (%)	Aluminum Based Alloy (Kg)	Other Metals (%)	Other Metals (Kg)	Other Inorganic Materials (%)	Other Inorganic Materials (Kg)	Cellulosics (%)	Cellulosics (Kg)	Rubber (%)	Rubber (Kg)	Plastics (%)	Plastics (Kg)	Organic Matrix (%)	Organic Matrix (Kg)	Inorganic Matrix (%)	Inorganic Matrix (Kg)	Soils/Gravel (%)	Soils/Gravel (Kg)		
1.	Hand Tools, Elec. Tape S/S Rods	90	20.70			2	.46					8	1.84									100	23.00
	Rubber Gloves Paper Towels, Elec. Motor														Note 1								
2.	Paper, Plastic, Smears, Wipe TVrec. Alk. Batteries									90	3.06			8 ~~Note 1~~ 10/17/06 (#2)	1.27			2	1.07			100	3.40
3.	Plastic Bag Flourescent Light Bulb													1	1.02			99	1.98			100	2.00 ~~.02~~ MD 10/17/06 (#2) MD 10/17/06 Note 1
4	TVrek, Rubber Booties/Gloves Paper Smears Dry Wipes									90	3.78	9	.38	1	.04							100	4.20
	Total – This Page		20.70				.46				6.84		2.22		1.33				2.05			Total Weight 100	32.60
	VE Operator 1:	Nick Dunaway Print Name		Nick Dunaway Signature		10/13/06 17 (#2) MD 10/17/06		**VE Operator 2:**		Anthony Presley Print Name		Signature											

10-13-06 17 (#2) MD 10/17/06

RMD Form #

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Attachment F: Visual Examination Technique Data Form

Page 3 of 4

Section 3: Waste Package Summary Data

17 nd 10/17/06 (#2) 17 nd 10/17/06 (#2)

Container Number: X10C0501534 **Batch Number:** VET-061013-092 **Date:** 10-18-06

Totals from Data Pages	Calculated Waste Material Parameter Totals (Kg)										Total Weight (Kg)
	Iron-Based Alloy (Kg)	Aluminum Based Alloy (Kg)	Other Metals (Kg)	Other Inorganic Materials (Kg)	Cellulosics (Kg)	Rubber (Kg)	Plastics (Kg)	Organic Matrix (Kg)	Inorganic Matrix (Kg)	Soils/Gravel (Kg)	
Total Page 1	20.70		.146		6.84	2.22	.133		2.05		32.60
Total Page 2											
Total Page 3											
Total Page 4											
Total Page 5											
Total Page 6											
Total Page 7											
Waste Packaging Materials	27.60				3.80		1.00				32.40
Waste Material Parameter Totals for Package	48.30		.146		10.64	2.22	1.33		2.05		Total 65.00 / Total 65.00

Attachment F: Visual Examination Technique Data Form

Page 4 of 4

Section 4: Comments

Container Number:	X10C0501534	Batch Number:	WET-061013-052 17 MD 10-17-06

Note #1 Incorrect Data Entered MD 10/17/06 no 10/17/06

Note #2 Incorrect Date Entered & Corrected MD 10/17/06

Section 5: Approvals

Signature below signifies that waste parameters in this container have been examined and determined to be acceptable waste forms, that weight estimations shown on this form have been properly completed, and that calculations are correct.

☒ I certify that the listed container does not contain WIPP WAC Prohibited Items.

☐ I certify that the listed container does not contain NTS WAC Prohibited Items (#2)

Visual Examination Operator 1:		
Nick Dunaway	Matthew Dunaway	17 MD 10/17/06 10/17/06
Print Name	Signature	Date
Visual Examination Operator 2:		
Anthony Presley	Anthony Presley	17 10/17/06 (#2) 10/17-06 MD
Print Name	Signature	Date

Section 6: Container Weight

Container Scale Information:	Calibration Due Date: 4-11-07
Serial/ID Number: 00640156 MD	Daily Calibration Check performed? ☒ YES

Waste Container Weights: Tare Wt. 32.40 Kg Gross Wt. 64.80 Kg Net Waste Wt. 32.40 Kg

Visual Examination Operator:		
Nick Dunaway	Matthew Dunaway	17 MD 10/17/06 10/17/06 Note (#2)
Print Name	Signature	Date

DIVIDER PAGE

(NOTE: All information (i.e., RFD, NDA data, Analytical, change logs, etc.) needs to be reviewed for best available data.)

RFD: X10IS040369 ✓ Origin Facility: 9204-3 ✓ Reviewed by: Courtney L. Lester
Container ID: X10C9312391 ✓ Review date: 6-29-04

Waste Item ID: X10IS040369-1
Description: FROM MOD 2 LOG. SNM-19960

Circle data checked: (2109/RFD) NDA Analytical PKform Other: Trabalka

CONSTITUENTS

Do Constituents match folder? (Yes) No

ISOTOPES
U-233 0.0673939 CI

Do Isotope(s) match folder? (Yes) No

EPA CODES
~~D006~~ SUSP

Do EPA codes match folder? Yes (No)

Attachment: B
RAD: Y RCRA: Y
LLW N PCB: N
TRU: Y TSCA: N
SNF: N

Is attachment designation correct? (Yes) No
Do flags reflect what data represents? Yes No

RCRA start date: ~~11/19/80~~

Is RCRA start date correct? (Yes) No

PCB start date:

Is PCB start date correct? (Yes) No

ATN-3623
No record of lead found

(If WITS changes need to be made, fill out a change log with justification and submit to WIMSHELP@bjcllc.org)

Data/Manifest Package Change Log

Site ID: X10 **RFD (2109) Number:** X10IS040369

Container or Waste Item ID(s): X10C9312391

Date: 12/08/04 **Signature:** [signature] **Badge #:** 707313 **Effective as of:** 12/08/04

Instructions: Document necessary changes made to 2109 or Manifest Data Packages. Retain this form inside the Data Package indefinitely.

Description of Change/Addition:

Change EPA Code from D008 to SUSP.
Delete RCRA start date.

Justification:

No indication of lead in RFD or by RTR per Trabalka Review.

Actions to be Taken: (i.e. Field Operations apply label)

~~none~~ Verify labelled "Haz Waste Analysis pending" (No start date, No code) [illegible]

Reviewer Use Only:

Rad Review: Y ☐ N ☒ **Reviewed by:** [signature] **Date:** 12/13/04

Chem Review: Y ☒ N ☐ **Reviewed by:** [signature] **Date** 12/12/04

WIMS Use Only
Magic Case No.:_____ Initials:_____ Date:_____

Table B-41. Recorded characteristics of stored solid CH-TRU waste from Bldg. 9204-3 at ORNL

ATN No.	Waste description and comments
0137	(a) 100 lb (gross wt) of combustible dry solids, containing 1 g of Pu-239, in 55-gal drum; now over-packed into 79-gal SS drum. *[Note conflict with passive neutron assay (note d).]*
	(b) No original paperwork in file; information obtained from replica of disposal form generated from SWIMS.
	(c) RTR: Free liquid in two bottles at bottom of drum (R).
	(d) NDA: PAN (10/23/84): (active) 0.49 g, (passive) 0.74 g (neutron source strength 1.8 x 10^3/sec).
3623	(a) 100 lb (gross wt) of combustible dry solids, containing 7 g of U-233, in 55-gal SS drum. *[Note conflict with NDA results (note e).]*
	(b) Formerly identified as ATN-0165-2.
	(c) No original paperwork in file; information obtained from replica of disposal form generated from SWIMS. NMIT SNM-19960 was attached to the original, but not to the replica.
	(d) RTR: 51–75% combustible; rim of drum corroded; filters suspected.
	(e) NDA: PAN (02/27/85): (active) 1.05 g, (passive) 0.30 g (neutron source strength 6.6 x 10^2/sec).
3696	(a) 100 lb (gross wt) of combustible dry solids, containing 8 g of U-233, in 55-gal SS drum.
	(b) Formerly identified as ATN-0165-1.
	(c) No original paperwork in file; information obtained from replica of disposal form generated from SWIMS. NMIT SNM-19960 was attached to the original, but not to the replica.
	(d) RTR: Liquid in bottle at 26 in (R).
	(e) NDA: PAN (12/12/84): (active) 8.28 g, (passive) 0.56 g (neutron source strength 1.6 x 10^3/sec).
0172	(a) 100 lb (gross wt) of combustible dry solids, containing 0.5 g of Pu-239, in 30-gal SS drum; now over-packed into 55-gal SS drum. *[Note conflict with NDA results (note d).]*
	(b) No original paperwork in file; information obtained from replica of disposal form generated from SWIMS.
	(c) RTR: 0–25% combustible; may be Pb tamper seal at 15 in.
	(d) NDA: PAN (03/26/85): (active) 0.081 g, (passive) 0.00 g (neutron source strength 2.3 x 10^2/sec).

Explanation of EPA Code "SUSP" on TRU Waste Containers

The attached response to the State of Tennessee provides the regulatory explanation for the assignment of the EPA Code "SUSP". The use of this code is restricted to TRU mixed waste.

Synopsis of Response to EPA Inspection Report of September 8, 2003

1. EPA pointed out 19 instances of waste stored greater than one year in Buildings 7652 and 7653. Of these, 9 containers were acknowledged at the October 1, 2003 TDEC Show Cause meeting as having inadequate basis for storage beyond one year, and 5 containers were supported with an adequate basis for storage beyond one year. Of the balance of 19 containers, one was empty and had never been used, two were not hazardous, and two were mixed waste covered by the STP.

2. EPA pointed out three instances of waste stored for greater than one year in Building 7507W. All waste containers at this facility were mixed waste covered by the STP. No bar code numbers were provided. Inspector's report noted that all containers were labeled with HW stickers and LLW labels.

3. EPA pointed out several instances of waste stored for greater than one year in the Transuranic (TRU) storage buildings. All of these are mixed TRU waste covered by the Waste Isolation Pilot Plant Land Withdrawal Act exemption, according to DOE. The matter is in formal dispute resolution.

4. EPA pointed out numerous instances of waste stored in the TRU storage buildings without being characterized. The radiation hazard associated with TRU waste is the overwhelming health and environmental concern with the waste. Much of the waste is suspected of having incidental items of hazardous waste present in many of the containers. Thus, most of the TRU waste cited is presumed to be RCRA hazardous, and managed accordingly. Containers cannot be safely opened and characterized where they are presently located. DOE intends to have TRU waste processed for disposal at the newly constructed $75 million facility at the cost of about $200 million. This facility is designed to adhere to principles of radiation exposure to levels as low as reasonably achievable

5. EPA pointed out two containers in Building 7572 that did not have dates marked. No bar codes were provided. Attempts will be made to locate these two containers during routine inspections, and mark dates on them.

6. Two satellite accumulation areas in the 3001 area are used under the CERCLA ROD for this area.

7. WESKEM asserts that training records are complete and compliant. There may have been confusion in supplying records for review in the absence of the file keeper that day.

Complex at the East Tennessee Technology Park. A few drums were relocated to Building 7654. All containers were marked with radioactive labels. The EPA inspector's report also noted for this location that "All containers were closed, labeled as "Hazardous Waste" and marked as "LLW." No bar codes were provided for these items, so they could not be traced. There is no indication of any violation.

✳ 8. **Building 7572, CH-TRU Waste Storage Facility: TN Rule 12-1-11.03(1)(b)/40 C.F.R. § 262.11, requires a facility to make a hazardous waste determination for all solid waste generated by the facility.** EPA alleges that ORNL did not determine if solid waste in numerous containers is hazardous waste.

A total of 796 55-gallon containers were stored in this unit at the time of this inspection (Figure 31 & 32). The containers consisted of stainless steel or metal overpack drums. Numerous original 55-gallon containers required additional management in overpack drums. **Each container was labeled as "Pending Analysis for Hazardous Waste, (Figures 17, 18 & 19)."** All containers were closed, stacked on metal scaffolding on wooden pallets from two to three high and stored with adequate aisle space. Several containers appeared to be rusting on the bottom and near the top or along the container's lid (Figure 30). Several containers were affixed with a yellow EPA hazardous waste label. According to facility representatives the lab pack waste in the containers possibly consists of LLW-contaminated equipment, lead shielding, and bottles of laboratory chemical residues and heels. According to facility representatives the containers have possibly been stored in this unit since 1980 and 1986. Facility representatives explained to inspectors that the waste in the containers will be characterized upon repackaging for treatment or disposal in an on-site facility. The following containers of hazardous waste were stored for more than one year or not clearly marked with the date storage began (Figures 22 through 29).

Response: Waste containers stored at this location are either known or presumed to contain items of hazardous waste. As indicated in Attachment 7 of the TNHW-097 Permit, *Container Management*, the "wastes stored in the TRU units primarily consists of solid transuranic waste containing RCRA metals or other hazardous constituents." As such, they are managed as RCRA hazardous waste and marked with labels that indicate "Pending Analysis for Hazardous Waste."

These containers have been properly stored and managed as hazardous wastes until such time that additional characterization can be safely performed to determine that such wastes are or are not hazardous. These transuranic (TRU) wastes pose a significant safety and health risk to human health and the environment due to levels of radiation. The principle of limiting exposure to levels "as low as reasonably achievable" (ALARA) protects workers from the harmful effects of radiation. In such instances when compliance with RCRA would result in violation of a basic tenet of radioactive waste management, keeping radiation exposures ALARA, RCRA yields to the AEA (and the DOE orders and NRC regulations implementing this Act) and the conflicting RCRA requirements are inapplicable [RCRA §1006(a); 53 FR 37048, September 23, 1988]. Foster Wheeler Company has constructed and will operate a $75 million facility to safely open these containers, further characterize the contents, segregate the hazardous waste, treat the TRU

TRU waste, and ultimately ship it for disposal at the DOE Waste Isolation Pilot Plant in New Mexico. DOE will spend about $200 million to process TRU waste in Oak Ridge over the next few years. The Foster Wheeler facility is expected to be operational the first quarter of 2004.

9. **Building 7572, CH-TRU Waste Storage Facility: The following containers of hazardous waste were stored for more than one year in storage building 7572.** EPA alleges that ORNL did not meet the requirements in RCRA Section § 3004 and T.C.A. § 68-212-108(a) given in TN Rule 1200-01-11-.10(4)(a)3./40 C.F.R. § 268.50(c), that requires anyone who stores hazardous waste for more than one year bears the burden of proving that such storage was solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal. ORNL stored containers of hazardous waste for more than one year.

One 55-gallon container labeled as hazardous waste. The writing on the label could not be read due to the position and height of the container.

Response: EPA did not provide a bar code number. During routine inspections, an attempt will be made to locate this container to apply a radioactive label to avoid future confusion. However, radioactive labels are not required by RCRA regulations or by the permit. The DOE notified TDEC of the termination of requirements in the Site Treatment Plan, including milestones, regarding mixed TRU waste streams (addressed in Section 4.0 of the STP) in the "Site Treatment Plan for Mixed Wastes on the U.S. Department of Energy Oak Ridge Reservation," TDEC-REV-6, submitted to TDEC on October 31, 2001. DOE's position is that the Waste Isolation Pilot Plant (WIPP) Land Withdrawal Act exempts TRU mixed waste from RCRA LDRs and the one-year storage prohibition. This matter is in the formal dispute resolution process at the DOE Assistant Manager and TDEC Administrator level, pursuant to STP Sections 2.7.

One over-pack container labeled as hazardous waste. The writing on the label could not be read due to the position and stacked height of the container.

Response: This item is a TRU mixed waste covered by the WIPP Land Withdrawal Act exemption, discussed above. EPA did not provide a bar code number. During routine inspections, an attempt will be made to locate this container to apply a radioactive label to avoid future confusion. However, radioactive labels are not required by RCRA regulations or by the permit.

One 55-gallon container labeled as hazardous waste (D008). The label was marked with the date 8/3/94.

Response: This item is a TRU mixed waste covered by the WIPP Land Withdrawal Act exemption, discussed above. EPA did not provide a bar code number. During routine inspections, an attempt will be made to locate this container to apply a radioactive label to avoid future confusion. However, radioactive labels are not required by RCRA regulations or by the permit.

NON RECORD COPY

X10C9312391

REQUEST FOR STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE OR SPECIAL MATERIALS

REQUESTER: EXECUTES THIS SECTION BEFORE ARRANGING MATERIAL TRANSFER NO. 40369

DATE	ORIGIN OF WASTE (BLDG NO.)	REQUESTER'S SIGNATURE	BADGE NO.	PHONE NO.	BLDG/MS
	9204-3		000007789		

(CHECK IF APPLICABLE)	TOTAL VOLUME (CU. FT. ONLY)	COMBUSTIBLE VOL. (CU. FT. ONLY)	WEIGHT (LBS ONLY)	ACCOUNTABILITY NO. (MM NO.):
[X] OFFSITE	8.0	8.0	100	
[ ] CONSTRUCTION	CHARGE/WORK ORDER NUMBER:	(FOR WASTE OPERATIONS USE ONLY) COST SYMBOL:		COST ADJUSTMENT:

WASTE CLASSIFICATION (CHECK ONLY ONE)

1. [X] TRU OR 233U (RETRIEVABLE) (>100 Ci/Kg)
2. [ ] URANIUM/THORIUM
3. [ ] FISSION PRODUCT
4. [ ] INDUCED ACTIVITY
5. [ ] TRITIUM
6. [ ] BETA-GAMMA TRU OR 233U (>100 Ci/Kg)(RETRIEVABLE)
7. [ ] ALPHA TRU OR 233U (<100 Ci/Kg). BETA-GAMMA TRU OR 233U (<100 Ci/Kg)
8. [ ] OTHER _____
9. [ ] LANDFILL/SUSPECT
A. [ ] CONTAMINATED ASBESTOS

TYPE OF WASTE (CHECK ONLY ONE)

- [ ] (BW) BIOLOGICAL WASTE
- [ ] (CE) CONTAMINATED EQUIPMENT
- [ ] (DD) DECONTAMINATION DEBRIS
- [X] (DS) DRY SOLIDS
- [ ] (SS) SOLIDIFIED SLUDGE
- [ ] (NC) NOT CLASSIFIED

BRIEF DESCRIPTION _____

12. [ ] DUMPSTER
14. [ ] CASK NO. _____ WALL THICKNESS _____ IN. SHIELDING MTL _____

CONTAINER TYPE (CHECK ONLY ONE)

1. [X] 55 GAL SS DRUM
2. [ ] 30 GAL SS DRUM
3. [ ] 4-1/2" WALL CONCRETE CASK
4. [ ] 6" WALL CONCRETE CASK
5. [ ] 12" WALL CONCRETE CASK
6. [ ] 55 GAL BI DRUM
7. [ ] 30 GAL BI DRUM
8. [ ] WOODEN BOX _____
9. [ ] OTHER _____
10. [ ] GI CAN 11. [ ] PLASTIC
13. [ ] NONE
15. [ ] METAL BOX _____

PRINCIPAL ISOTOPE(S): (BEST ESTIMATE)

1. IDENTITY U-233 QUANTITY 7.0000 [X] GRAMS [ ] CURIES
2. IDENTITY _____ QUANTITY _____ [ ] GRAMS [ ] CURIES
3. IDENTITY _____ QUANTITY _____ [ ] GRAMS [ ] CURIES
4. IDENTITY _____ QUANTITY _____ [ ] GRAMS [ ] CURIES

CAUTION

This information must NOT be released externally until it has been reviewed by the appropriate site Classification and Information Control Office.

REQUESTER'S COMMENTS FOR THOSE HANDLING WASTE IN THE FIELD:

TOTAL CURIES (BEST ESTIMATE): 0.0662900

WMO FIELD REPRESENTATIVE (APPROVAL SIGNATURE): DATE:

HEALTH PHYSICIST: EXECUTES THIS SECTION BEFORE MATERIAL TRANSFER

RADIATION DATA:

ATN-3623 Bib 8-12-94

BETA-GAMMA: FOR PACKAGE 0 mrem/hr @ _____ IN. ATN-1652

_____ dpm (beta/gamma) ; NEUTRON READING _____ mrem/hr

WASTE IN THE FIELD:

	HP'S SIGNATURE	PHONE NO.

ATN-3623 X10C9312391
Per DOE, a physical inventory was performed in Feb. 1998. All changes are logged in the data change logbook.

UCN-2822 (Fasimile from SWIMS data base)

* This is old data, the original is still filed by storage date. The replica was generated to show move.

STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE OR SPECIAL MATERIALS

DOCUMENT NO. 40369
PAGE 2

COMPACTION TEAM: COMPLETES AND FORWARDS TO STORAGE AREA FOREMAN

SYSTEM OPERATION CHECKS:

|_| Compactor ventilation system operating |_| Constant air monitor operating

|_| Empty compactible dumpster surveyed prior to returning to generator

|_| Floor cleaned and mopped after compaction process |_| Floor surveyed by Health Physics Technician

LL BOX NUMBER	TOTAL POST-VOL	(%) PORTION	LOCNO	FFZ/ RANK	FFS/ FILE	FFT/ LAYER	SURFACE READING	COMMENTS:
TOTALS:								

DATE OF COMPACTION:

COMPACTING OPERATORS: _____ AND _____

HEALTH PHYSICS TECHNICIAN:

WASTE EXAMINATION (WEAF): COMPLETES AND FORWARDS TO STORAGE AREA FOREMAN

DRUM NO.:	WASTE INSPECTION LEVEL: |_| RTR |_| NAS/SGS	RATED: |_| PASS |_| FAIL	INSPECTION OFFICER:	DATE:

STORAGE AREA FOREMAN: COMPLETES AND SENDS COPY TO ORIGINATOR AFTER HANDLING WASTE

WASTE WAS: (CHECK ONE) |X| RETRIEVABLE |_| BURIED	SWSA NO.:	STORAGE/DISPOSAL DATE: 08/25/71	ATN NO.: 165-2	LOW LEVEL DRUM NO.: 0

(CHECK ONE)
FACILITY: |_| BUILDING |_| WELL |_| LANDFILL |_| TUMULUS |_| TRENCH |_| QDRX |_| ON GROUND STORAGE

LOCATION NUMBER:	LOCATION WITHIN FACILITY:	WASTE DESCRIPTION:
B7826	FFZ/RANK:IB3 FFS/FILE: 0 FFT/LAYER: 02	

COMMENTS FROM SWSA FOREMAN REGARDING WASTE AND/OR OPERATIONS:

FROM MOD 2 LOG. SNM-19960

FOREMAN'S SIGNATURE:

UCN-2822A
(07/18/88)

DISTRIBUTION: Original - SWSA Foreman forwards to DCC
1 Copy - Retained by SWSA Foreman
1 Copy - Retained by WEAF/Compacting Team

STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE OR SPECIAL MATERIALS WASTE TRACKING UPDATE

DOCUMENT NO. / PAGE 3: 4D3169

THIS PORTION TO BE COMPLETED BY BURIAL GROUND/WEAF

TRANSFERRED FROM:	DATE OF TRANSFER: 5/16/89

CONTAINER TYPE: ☐ LL Drum _____ ☐ LL Vault _____

☑ TRU Drum 165-2 ☐ Other _____

Comments:

Updated per inventory list completed by L.C. Williams & Joe Bolinsky dated 5/16/89

BURIAL INFORMATION: ☐ Buried ☑ Stored

FFZ/RANK 6U FFS/FILE _____ FFT/LAYER _____

New Disposal/Storage Location B4826 Shipment No. _____

BURIAL GROUND FOREMAN

J E Van Cleve

THIS PORTION TO BE COMPLETED BY DOCUMENTATION CONTROL CENTER

DATE RECEIVED	DATE UPDATED
7/89	~~11/2/89~~ 11/30/89

UPDATED BY

C Parnell

DISTRIBUTION: Original - SWSA Foreman forwards to DCC
1 Copy - Retained by SWSA Foreman
1 Copy - Retained by WEAF (if applicable)

UCN-2822B
(3 8-88)

MARTIN MARIETTA

WASTE T/S/D RECORD

Document ID

FACILITY INFORMATION

F1. T/S/D Site	F2. T/S/D Facility	(Reserved)
X10	7842	

ACTIVITY LOG

C1. Activity Code	C2. Date	C3. Container/Item ID No.	C4. T/S/D Area	C5. Location			C6. Net Vol.	C7. Vol. (Units)	C8. Gross Wt (Kg)	C9. Operator's Signature	C10. Badge No.
Store	12-9-93	ATN-2453									
		2456									
		~~165-2~~									
		959-3									
Store	12-9-93	ATN-4-2*									

COMMENTS

Drums from B7826 Cell U.

* This drum was taken from B7826 Cell O and stored in 7878

ENTERED DEC 18 1993

SIGNATURE and APPROVALS

1. Foreman	Badge	Date
PG Cleveland	12661	12-10-93

	Badge	Date

7572 Verification of RCRA Accumulation Start Dates

Date _____

Row	Z	Container ID	RCRA Start Date	EPA Codes	First Storage Date	Container Type	Gross Wt (KG)	Start Date on Drum (Initial)
18	BOT	X10C9311029	11/19/1980	D008	9/24/1971	DRUM79	34	
18	BOT	X10C9311031	11/19/1980	D008	10/20/1971	DRUM79	34	
8	BOT	X10C9311032	11/19/1980	D008	2/8/1972	DRUM79	34	
17	BOT	X10C9311048	11/19/1980	D008	11/9/1971	DRUM79	34	
14	BOT	X10C9311049	11/19/1980	D008	9/22/1971	DRUM79	34	
13	TOP	X10C9311054	11/19/1980	D008	12/13/1971	DRUM79	34	
14	MID	X10C9311057	**12/17/1981**	D008	12/17/1981	DRUM79	34	
7	BOT	X10C9311068	11/19/1980	D008	3/1/1972	DRUM79	45	
15	TOP	X10C9311073	**9/3/1985**	D008	9/3/1985	DRUMSS55	91	
13	MID	X10C9311089	**11/2/1981**	D008	11/2/1981	DRUM79	91	
17	MID	X10C9311188	**3/1/1985**	D008	3/1/1985	DRUMSS55	91	
17	MID	X10C9311427	11/19/1980	D008	1/18/1972	DRUM79	34	
13	TOP	X10C9311460	11/19/1980	D008	2/6/1976	DRUMSS55	57	
8	TOP	X10C9311598	11/19/1980	D008	11/7/1974	DRUMSS55	58	
25	MID	X10C9311614	**10/30/1984**	D008	10/30/1984	DRUMSS55	48	
24	TOP	X10C9311765	**3/20/1986**	D008	3/20/1986	DRUMSS55	57	
19	MID	X10C9311845	11/19/1980	D008	10/16/1975	DRUM79	45	
8	TOP	X10C9311923	**6/13/1986**	D008	6/13/1986	DRUMSS55	67	
11	BOT	X10C9311953	**4/26/1983**	D008	4/26/1983	DRUM79	108	
35	MID	X10C9312135	11/19/1980	D008	11/4/1970	DRUMSS55	85	
23	MID	X10C9312192	11/19/1980	D008	9/12/1973	DRUMSS55	45	
23	BOT	X10C9312267	11/19/1980	D008	2/24/1975	DRUMSS55	54	
28	TOP	X10C9312286	11/19/1980	D008	8/31/1973	DRUMSS55	56	
14	MID	X10C9312366	11/19/1980	D008	11/4/1970	DRUM79	45	
4	BOT	X10C9312391	11/19/1980	D008	8/25/1971	DRUMSS55	59	
4	BOT	X10C9312393	11/19/1980	D008	2/21/1979	DRUMSS55	71	
27	MID	X10C9312410	**6/4/1982**	D008	6/4/1982	DRUMSS55	100	
20	TOP	X10C9312419	11/19/1980	D008	11/5/1976	DRUMSS55	66	
25	TOP	X10C9312455	**8/21/1981**	D008	8/21/1981	DRUMSS55	88	

7572 Verification of RCRA Accumulation Start Dates

Date _____

34	TOP	X10C9312465	11/19/1980	D008	1/23/1978	DRUMSS55	125	
34	TOP	X10C9312472	**9/21/1983**	D008	9/21/1983	DRUMSS55	61	
1	BOT	X10C9312614	11/19/1980	D008	6/10/1971	DRUMSS79	34	
4	BOT	X10C9312629	11/19/1980	D008	4/13/1971	DRUM79	34	
3	BOT	X10C9312631	11/19/1980	D008	1/21/1972	DRUM79	34	
19	BOT	X10C9312703	**4/16/1985**	D008	4/16/1985	DRUMSS55	179	
32	TOP	X10C9312751	**7/31/1984**	D008	7/31/1984	DRUMSS55	142	
6	TOP	X10C9312753	11/19/1980	D008	12/21/1970	DRUM79	34	
8	BOT	X10C9312754	11/19/1980	D008	6/2/1971	DRUM79	45	
16	TOP	X10C9312756	11/19/1980	D008	11/7/1974	DRUMSS79	45	
25	MID	X10C9312790	11/19/1980	D008	7/19/1972	DRUMSS55	95	
30	TOP	X10C9312806	**4/28/1981**	D008	4/28/1981	DRUMSS55	84	
26	BOT	X10C9312821	**3/26/1985**	D008	3/26/1985	DRUMSS55	72	
25	TOP	X10C9312846	11/19/1980	D008	8/11/1972	DRUMSS55	87	
27	BOT	X10C9312901	**1/23/1984**	D008	1/23/1984	DRUMSS55	66	
11	BOT	X10C9312920	**11/19/1980**	D008	2/17/1972	DRUM79	34	
14	MID	X10C9312924	11/19/1980	D008	11/4/1971	DRUM79	34	
1	BOT	X10C9312938	11/19/1980	D008	11/16/1972	DRUMSS55	65	
16	MID	X10C9312945	11/19/1980	D008	9/15/1971	DRUMSS55	62	
20	TOP	X10C9312974	11/19/1980	D008	10/7/1974	DRUMSS55	59	
37	BOT	X10C9312990	11/19/1980	D008	10/25/1971	DRUM110	34	
26	BOT	X10C9313000	11/19/1980	D008	1/11/1971	DRUM79	135	
24	BOT	X10C9313004	11/19/1980	D008	6/17/1971	DRUM79	94	
22	BOT	X10C9313009	11/19/1980	D008	11/12/1971	DRUM79	108	
24	TOP	X10C9313021	11/19/1980	D008	4/1/1971	DRUM79	99	
33	TOP	X10C9313075	11/19/1980	D008	9/20/1978	DRUMSS55	55	
35	MID	X10C9313119	11/19/1980	D008	12/6/1972	DRUMSS55	175	
36	MID	X10C9313133	11/19/1980	D008	3/31/1978	DRUMSS55	42	
14	BOT	X10C9400083	11/19/1980	D008	11/12/1974	DRUMSS55	45	
19	MID	X10C9400088	11/19/1980	D008	10/7/1976	DRUM79	57	
19	BOT	X10C9400093	**3/26/1985**	D008	3/26/1985	DRUMSS55	73	

7572 Verification of RCRA Accumulation Start Dates

Date _____

8	BOT	X10C9400096	11/19/1980	D008	11/4/1977	DRUM79	34	
12	BOT	X10C9400167	**11/2/1981**	D008	11/2/1981	DRUMSS55	91	
12	BOT	X10C9400179	11/19/1980	D008	3/2/1971	DRUMSS55	45	
10	MID	X10C9400214	**3/26/1985**	D008	3/26/1985	DRUMSS55	73	
15	MID	X10C9400221	**3/1/1985**	D008	3/1/1985	DRUMSS55	48	
24	MID	X10C9400243	11/19/1980	D008	3/31/1978	DRUMSS55	45	
18	BOT	X10C9400251	11/19/1980	D008	4/19/1972	DRUMSS55	45	
21	TOP	X10C9400277	11/19/1980	D008	11/7/1977	DRUMSS55	91	
11	TOP	X10C9601350	**7/22/1997**	D008	7/22/1997	DRUM	3	

Complete SQC 1/28/04

Magic Case 14755
RCRA Start Dates
7572

Waste Item	Container ID	Facility	Area	X	Y	Z	RCRA Start	EPA Codes	
X10IS038492-1	X10C9311029	7572	NONE	NONE	18	BOT	11/19/80	D008	
X10IS038288-1	X10C9311031	7572	NONE	NONE	18	BOT	11/19/80	D008	
X10IS038506-1	X10C9311032	7572	NONE	NONE	8	BOT	11/19/80	D008	
X10IS038813-1	X10C9311048	7572	NONE	NONE	17	BOT	11/19/80	D008	
X10IS038772-1	X10C9311049	7572	NONE	NONE	14	BOT	11/19/80	D008	
X10IS038501-1	X10C9311054	7572	NONE	NONE	13	TOP	11/19/80	D008	
X10IS044856-1	X10C9311057	7572	NONE	NONE	14	MID	12/17/81	D008	
X10IS039879-1	X10C9311068	7572	NONE	NONE	7	BOT	11/19/80	D008	
X10IS049038-1	X10C9311073	7572	NONE	NONE	15	TOP	9/3/85	D008	
X10IS045419-1	X10C9311089	7572	NONE	NONE	13	MID	11/2/81	D008	
X10C9311188-1	X10C9311188	7572	NONE	NONE	17	MID	3/1/85	D008	
X10IS038311-1	X10C9311427	7572	NONE	NONE	17	MID	11/19/80	D008	
X10IS041395-1	X10C9311460	7572	NONE	NONE	13	TOP	11/19/80	D008	
X10IS040474-1	X10C9311598	7572	NONE	NONE	8	TOP	11/19/80	D008	
X10IS047999-1	X10C9311614	7572	NONE	NONE	25	MID	10/30/84	D008	
X10IS050032-1	X10C9311765	7572	NONE	NONE	24	TOP	3/20/86	D008	
X10IS040832-1	X10C9311845	7572	NONE	NONE	19	MID	11/19/80	D008	
X10IS053760-1	X10C9311923	7572	NONE	NONE	8	TOP	6/13/86	D008	
X10IS046213-1	X10C9311953	7572	NONE	NONE	11	BOT	4/26/83	D008	
X10IS040319-1	X10C9312135	7572	NONE	NONE	35	MID	11/19/80	D008	
X10IS039530-1	X10C9312192	7572	NONE	NONE	23	MID	11/19/80	D008	
X10IS040606-1	X10C9312267	7572	NONE	NONE	23	BOT	11/19/80	D008	
X10IS039523-1	X10C9312286	7572	NONE	NONE	28	TOP	11/19/80	D008	
X10IS040320-1	X10C9312366	7572	NONE	NONE	14	MID	11/19/80	D008	
X10IS040369-1	X10C9312391	7572	NONE	NONE	4	BOT	11/19/80	D008	
X10IS041449-1	X10C9312393	7572	NONE	NONE	4	BOT	11/19/80	D008	
X10IS045301-1	X10C9312410	7572	NONE	NONE	27	MID	6/4/82	D008	
X10IS041651-1	X10C9312419	7572	NONE	NONE	20	TOP	11/19/80	D008	
X10IS044568-1	X10C9312455	7572	NONE	NONE	25	TOP	8/21/81	D008	
X10IS038905-1	X10C9312465	7572	NONE	NONE	34	TOP	11/19/80	D008	
X10IS046693-1	X10C9312472	7572	NONE	NONE	34	TOP	9/21/83	D008	
X10IS038746-1	X10C9312614	7572	NONE	NONE	1	BOT	11/19/80	D008	
X10IS038736-1	X10C9312629	7572	NONE	NONE	4	BOT	11/19/80	D008	
X10IS038312-1	X10C9312631	7572	NONE	NONE	3	BOT	11/19/80	D008	
X10IS048686-1	X10C9312703	7572	NONE	NONE	19	BOT	4/16/85	D008	
X10IS047645-1	X10C9312751	7572	NONE	NONE	32	TOP	7/31/84	D008	
X10IS038256-1	X10C9312753	7572	NONE	NONE	6	TOP	11/19/80	D008	
X10IS040363-1	X10C9312754	7572	NONE	NONE	8	BOT	11/19/80	D008	
X10IS039816-1	X10C9312756	7572	NONE	NONE	16	TOP	11/19/80	D008	
X10IS039746-1	X10C9312790	7572	NONE	NONE	25	MID	11/19/80	D008	
X10IS044211-1	X10C9312806	7572	NONE	NONE	30	TOP	4/28/81	D008	
X10IS048516-1	X10C9312821	7572	NONE	NONE	26	BOT	3/26/85	D008	
X10IS039943-1	X10C9312846	7572	NONE	NONE	25	TOP	11/19/80	D008	
X10IS047069-1	X10C9312901	7572	NONE	NONE	27	BOT	1/23/84	D008	
X10IS038325-1	X10C9312920	7572	NONE	NONE	11	BOT	11/19/80	D008	
X10IS038811-1	X10C9312924	7572	NONE	NONE	14	MID	11/19/80	D008	
X10IS039370-1	X10C9312938	7572	NONE	NONE	1	BOT	11/19/80	D008	
X10IS039706-1	X10C9312945	7572	NONE	NONE	16	MID	11/19/80	D008	
X10IS039794-1	X10C9312974	7572	NONE	NONE	20	TOP	11/19/80	D008	
X10IS038800-1	X10C9312990	7572	NONE	NONE	37	BOT	11/19/80	D008	
X10IS039672-1	X10C9313000	7572	NONE	NONE	26	BOT	11/19/80	D008	

Magic Case 14755
RCRA Start Dates
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X10IS038747-1	X10C9313004	7572	NONE	NONE	24	BOT	11/19/80	D008	
X10IS038816-1	X10C9313009	7572	NONE	NONE	22	BOT	11/19/80	D008	
X10IS038735-1	X10C9313021	7572	NONE	NONE	24	TOP	11/19/80	D008	
X10IS040660-1	X10C9313075	7572	NONE	NONE	33	TOP	11/19/80	D008	
X10IS039379-1	X10C9313119	7572	NONE	NONE	35	MID	11/19/80	D008	
X10IS039127-1	X10C9313133	7572	NONE	NONE	36	MID	11/19/80	D008	
X10IS039819-1	X10C9400083	7572	NONE	NONE	14	BOT	11/19/80	D008	
X10IS041644-1	X10C9400088	7572	NONE	NONE	19	MID	11/19/80	D008	
X10IS048517-1	X10C9400093	7572	NONE	NONE	19	BOT	3/26/85	D008	
X10IS038540-1	X10C9400096	7572	NONE	NONE	8	BOT	11/19/80	D008	
X10IS044751-1	X10C9400167	7572	NONE	NONE	12	BOT	11/2/81	D008	
X10IS039684-1	X10C9400179	7572	NONE	NONE	12	BOT	11/19/80	D008	
X10IS048519-1	X10C9400214	7572	NONE	NONE	10	MID	3/26/85	D008	
X10IS048384-1	X10C9400221	7572	NONE	NONE	15	MID	3/1/85	D008	
X10IS039126-1	X10C9400243	7572	NONE	NONE	24	MID	11/19/80	D008	
X10IS039916-1	X10C9400251	7572	NONE	NONE	18	BOT	11/19/80	D008	
X10IS038541-1	X10C9400277	7572	NONE	NONE	21	TOP	11/19/80	D008	
X10I9602735-1	X10C9601350	7572	NONE	NONE	11	TOP	7/22/97	D008	

DIVIDER PAGE

WITS / 2109 (RFD)

(NOTE: All information (i.e., RFD, NDA data, Analytical, change logs, etc.) needs to be reviewed for best available data.)

RFD: X10IS065477 Origin Facility: 3038 Reviewed by: K. A. Dale

Container ID: X10C9311139 Review date: 5/25/04

Waste Item ID: X10IS065477-1

Description: "ACCT. NO. 12597 BOX = 8.5 X 7.2 X 4.7, PER TRABALKA REVIEW: CONTAMINATEDE EQUIPMENT FROM THE AHF (MBA 35) IN A PLYWOOD BOX NOW OVERPACKED INTO A STEEL BOX. ; WIMS INVENTORY CONFLICTS WITH INVENTORY REPORTED ON THE NMIT. RTR PASSED BUT NO RTR FORM WAS

Circle data checked: (2109/RFD) NDA Analytical PKform Other: Trabalka Report

CONSTITUENTS

Do Constituents match folder? (Yes) No

ISOTOPES

✓AM-241 1.02 CI ✓PU-239 0.32 CI ✓PU-240 0.764 CI

Do Isotope(s) match folder? Yes No

EPA CODES

SUSP

Do EPA codes match folder? Yes (No)

Is attachment designation correct? (Yes) No

Do flags reflect what data represents? (Yes) No

Attachment: B

RAD: Y RCRA: Y

LLW N PCB: N

TRU: Y TSCA: N

SNF: N

RCRA start date:

Is RCRA start date correct? (Yes) No

PCB start date:

Is PCB start date correct? (Yes) No

ATN-3085

Add regulatory explanation for EPA codes.

Total	2.968g	4.610g	0.392g
239 Pu	0.003	4.569	
240 Pu	2.965	0.041	
241 Pu		too small	
241 Am			0.284
243 Am			0.038
NM #	1068	455A	79AMB4

(If WITS changes need to be made, fill out a change log with justification and submit to WIMSHELP@bjcllc.org)

Explanation of EPA Code "SUSP" on TRU Waste Containers

The attached response to the State of Tennessee provides the regulatory explanation for the assignment of the EPA Code "SUSP". The use of this code is restricted to TRU mixed waste.

Data/Manifest Package Change Log

Site ID: X10 RFD (2109) Number: XIS065477

Container or Waste Item ID(s): X10C9311139

Date: 6/1/04 Signature: T. A. Bato Badge #: 30338 Effective as of: 6/1/04

Instructions: Document necessary changes made to 2109 or Manifest Data Packages. Retain this form inside the Data Package indefinitely.

Description of Change/Addition:

Change isotope data to the following:
Pu-239 4.572 grams
Pu-240 3.006 grams
Am 241 0.284 grams
Am 243 0.038 grams

Justification:

The above information is based on the Nuclear Material records attached to the RFD and notes from the Trabalka report.

Actions to be Taken: (i.e. Field Operations apply label)

Reviewer Use Only:

COPY

Data/Manifest Package Change Log

Rad Review: Y ☒ N ☐ Reviewed by: _____ Date: 6/2/04

Chem Review: Y ☐ N ☒ Reviewed by: _____ Date _____

WIMS Use Only
Magic Case No.:_____ Initials:_____Date:_____

Synopsis of Response to EPA Inspection Report of September 8, 2003

1. EPA pointed out 19 instances of waste stored greater than one year in Buildings 7652 and 7653. Of these, 9 containers were acknowledged at the October 1, 2003 TDEC Show Cause meeting as having inadequate basis for storage beyond one year, and 5 containers were supported with an adequate basis for storage beyond one year. Of the balance of 19 containers, one was empty and had never been used, two were not hazardous, and two were mixed waste covered by the STP.

2. EPA pointed out three instances of waste stored for greater than one year in Building 7507W. All waste containers at this facility were mixed waste covered by the STP. No bar code numbers were provided. Inspector's report noted that all containers were labeled with HW stickers and LLW labels.

3. EPA pointed out several instances of waste stored for greater than one year in the Transuranic (TRU) storage buildings. All of these are mixed TRU waste covered by the Waste Isolation Pilot Plant Land Withdrawal Act exemption, according to DOE. The matter is in formal dispute resolution.

4. EPA pointed out numerous instances of waste stored in the TRU storage buildings without being characterized. The radiation hazard associated with TRU waste is the overwhelming health and environmental concern with the waste. Much of the waste is suspected of having incidental items of hazardous waste present in many of the containers. Thus, most of the TRU waste cited is presumed to be RCRA hazardous, and managed accordingly. Containers cannot be safely opened and characterized where they are presently located. DOE intends to have TRU waste processed for disposal at the newly constructed $75 million facility at the cost of about $200 million. This facility is designed to adhere to principles of radiation exposure to levels as low as reasonably achievable

5. EPA pointed out two containers in Building 7572 that did not have dates marked. No bar codes were provided. Attempts will be made to locate these two containers during routine inspections, and mark dates on them.

6. Two satellite accumulation areas in the 3001 area are used under the CERCLA ROD for this area.

7. WESKEM asserts that training records are complete and compliant. There may have been confusion in supplying records for review in the absence of the file keeper that day.

Complex at the East Tennessee Technology Park. A few drums were relocated to Building 7654. All containers were marked with radioactive labels. The EPA inspector's report also noted for this location that "All containers were closed, labeled as "Hazardous Waste" and marked as "LLW." No bar codes were provided for these items, so they could not be traced. There is no indication of any violation.

✳ 8. **Building 7572, CH-TRU Waste Storage Facility: TN Rule 12-1-11.03(1)(b)/40 C.F.R. § 262.11, requires a facility to make a hazardous waste determination for all solid waste generated by the facility.** EPA alleges that ORNL did not determine if solid waste in numerous containers is hazardous waste.

A total of 796 55-gallon containers were stored in this unit at the time of this inspection (Figure 31 & 32). The containers consisted of stainless steel or metal overpack drums. Numerous original 55-gallon containers required additional management in overpack drums. **Each container was labeled as "Pending Analysis for Hazardous Waste, (Figures 17, 18 & 19)."** All containers were closed, stacked on metal scaffolding on wooden pallets from two to three high and stored with adequate aisle space. Several containers appeared to be rusting on the bottom and near the top or along the container's lid (Figure 30). Several containers were affixed with a yellow EPA hazardous waste label. According to facility representatives the lab pack waste in the containers possibly consists of LLW-contaminated equipment, lead shielding, and bottles of laboratory chemical residues and heels. According to facility representatives the containers have possibly been stored in this unit since 1980 and 1986. Facility representatives explained to inspectors that the waste in the containers will be characterized upon repackaging for treatment or disposal in an on-site facility. The following containers of hazardous waste were stored for more than one year or not clearly marked with the date storage began (Figures 22 through 29).

Response: Waste containers stored at this location are either known or presumed to contain items of hazardous waste. As indicated in Attachment 7 of the TNHW-097 Permit, *Container Management*, the "wastes stored in the TRU units primarily consists of solid transuranic waste containing RCRA metals or other hazardous constituents." As such, they are managed as RCRA hazardous waste and marked with labels that indicate "Pending Analysis for Hazardous Waste."

These containers have been properly stored and managed as hazardous wastes until such time that additional characterization can be safely performed to determine that such wastes are or are not hazardous. These transuranic (TRU) wastes pose a significant safety and health risk to human health and the environment due to levels of radiation. The principle of limiting exposure to levels "as low as reasonably achievable" (ALARA) protects workers from the harmful effects of radiation. In such instances when compliance with RCRA would result in violation of a basic tenet of radioactive waste management, keeping radiation exposures ALARA, RCRA yields to the AEA (and the DOE orders and NRC regulations implementing this Act) and the conflicting RCRA requirements are inapplicable [RCRA §1006(a); 53 FR 37048, September 23, 1988]. Foster Wheeler Company has constructed and will operate a $75 million facility to safely open these containers, further characterize the contents, segregate the hazardous waste, treat the TRU

TRU waste, and ultimately ship it for disposal at the DOE Waste Isolation Pilot Plant in New Mexico. DOE will spend about $200 million to process TRU waste in Oak Ridge over the next few years. The Foster Wheeler facility is expected to be operational the first quarter of 2004.

9. Building 7572, CH-TRU Waste Storage Facility: The following containers of hazardous waste were stored for more than one year in storage building 7572. EPA alleges that ORNL did not meet the requirements in RCRA Section § 3004 and T.C.A. § 68-212-108(a) given in TN Rule 1200-01-11-.10(4)(a)3./40 C.F.R. § 268.50(c), that requires anyone who stores hazardous waste for more than one year bears the burden of proving that such storage was solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal. ORNL stored containers of hazardous waste for more than one year.

One 55-gallon container labeled as hazardous waste. The writing on the label could not be read due to the position and height of the container.

Response: EPA did not provide a bar code number. During routine inspections, an attempt will be made to locate this container to apply a radioactive label to avoid future confusion. However, radioactive labels are not required by RCRA regulations or by the permit. The DOE notified TDEC of the termination of requirements in the Site Treatment Plan, including milestones, regarding mixed TRU waste streams (addressed in Section 4.0 of the STP) in the "Site Treatment Plan for Mixed Wastes on the U.S. Department of Energy Oak Ridge Reservation," TDEC-REV-6, submitted to TDEC on October 31, 2001. DOE's position is that the Waste Isolation Pilot Plant (WIPP) Land Withdrawal Act exempts TRU mixed waste from RCRA LDRs and the one-year storage prohibition. This matter is in the formal dispute resolution process at the DOE Assistant Manager and TDEC Administrator level, pursuant to STP Sections 2.7.

One over-pack container labeled as hazardous waste. The writing on the label could not be read due to the position and stacked height of the container.

Response: This item is a TRU mixed waste covered by the WIPP Land Withdrawal Act exemption, discussed above. EPA did not provide a bar code number. During routine inspections, an attempt will be made to locate this container to apply a radioactive label to avoid future confusion. However, radioactive labels are not required by RCRA regulations or by the permit.

One 55-gallon container labeled as hazardous waste (D008). The label was marked with the date 8/3/94.

Response: This item is a TRU mixed waste covered by the WIPP Land Withdrawal Act exemption, discussed above. EPA did not provide a bar code number. During routine inspections, an attempt will be made to locate this container to apply a radioactive label to avoid future confusion. However, radioactive labels are not required by RCRA regulations or by the permit.

X10C9311139

REQUEST FOR STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE OR SPECIAL MATERIALS

REQUESTER: EXECUTES THIS SECTION BEFORE ARRANGING MATERIAL TRANSFER — NO. 065477

DATE	ORIGIN OF WASTE (BULDG. NO.)	REQUESTER'S SIGNATURE	BADGE NO.	PHONE NO.	BUILDING/MAIL STOP
9-8-89	3038AHF	S.A. Richardson	18735	4-5899	3525/6295

(CHECK IF APPLICABLE)	TOTAL VOLUME (CU. FT. ONLY)	COMBUSTIBLE VOL. (CU. FT. ONLY)	WEIGHT (LBS ONLY)	ACCOUNTABILITY NO. (MM NO.)
☐ OFFSITE	284	30	2000	12597

☐ CONSTRUCTION — CHARGE/WORK ORDER NUMBER: G 3292E-AA

(FOR WASTE OPERATIONS USE ONLY) COST SYMBOL: D — COST ADJUSTMENT:

WASTE CLASSIFICATION (CHECK ONLY ONE)

1. ☒ TRU OR U-233 (RETRIEVABLE) (> 100 μ Ci/Kg)
2. ☐ URANIUM/THORIUM
3. ☐ FISSION PRODUCT
4. ☐ INDUCED ACTIVITY
5. ☐ TRITIUM
6. ☐ BETA-GAMMA TRU OR U-233 (> 100 μ Ci/Kg) (RETRIEVABLE)
7. ☐ ALPHA TRU OR U-233 (<100 μCi/Kg) BETA-GAMMA TRU OR U-233 (< 100 μ Ci/Kg)
8. ☐ OTHER
9. ☐ LANDFILL/SUSPECT
A. ☐ CONTAMINATED ASBESTOS

TYPE OF WASTE (CHECK ONLY ONE)

- ☐ (BW) BIOLOGICAL WASTE
- ☒ (CE) CONTAMINATED EQUIPMENT
- ☐ (DD) DECONTAMINATION DEBRIS
- ☐ (DS) DRY SOLIDS
- ☐ (SS) SOLIDIFIED SLUDGE
- ☐ (NC) NOT CLASSIFIED

BRIEF DESCRIPTION

NON-RECORD COPY

CONTAINER TYPE (CHECK ONLY ONE)

1. ☐ 55 GAL SS DRUM
2. ☐ 30 GAL SS DRUM
3. ☐ 4-½ " WALL CONCRETE CASK
4. ☐ 6" WALL CONCRETE CASK
5. ☐ 12" WALL CONCRETE CASK
6. ☐ 55 GAL BI DRUM
7. ☐ 30 GAL BI DRUM
8. ☒ WOODEN BOX 8.5 X 7.2 X 4.7
9. ☐ OTHER
10. ☐ CAN
11. ☐ PLASTIC
12. ☐ DUMPSTER
13. ☐ NONE
14. ☐ CASK NO. — WALL THICKNESS ____ IN. — SHIELDING MTL ____
15. ☐ METAL BOX

CAUTION
This information must NOT be released externally until it has been reviewed by the appropriate site Classification and Information Control Office

PRINCIPAL ISOTOPE(S): (BEST ESTIMATE)

	IDENTITY	QUANTITY	GRAMS	CURIES
1.	Am^{241}	1.02	☐	☒
2.	Pu^{240}	.764	☐	☒
3.	Pu^{239}	.320	☐	☒
4.			☐	☐

REQUESTER'S COMMENTS FOR THOSE HANDLING WASTE IN THE FIELD:

TOTAL CURIES (BEST ESTIMATE)

WMO FIELD REPRESENTATIVE (APPROVAL SIGNATURE) — DATE

HEALTH PHYSICIST: EXECUTES THIS SECTION BEFORE MATERIAL TRANSFER

ENTERED IN SWIMS DATABASE

RADIATION DATA:

BETA-GAMMA: FOR PACKAGE 2.5 mrem/hr @ 1½ in.

SURFACE CONT. <20 dpm (alpha); <500 dpm (beta/gamma); NEUTRON READING NA mrem/hr

BILLED OCT 25 1989

HP SU

ATN-3085 X10C9311139

✓ Per DOE, a physical inventory was performed in Feb. 1998. All changes are logged in the data change logbook.

WASTE IN THE FIELD: ATN 3085

HP'S SIGNATURE: R.A. Anderson — DATE: 10-19-89

UCN-2822 (3 9-88)

DISTRIBUTION: WHITE - SWSA FOREMAN ... TOWARDS TO DCC
BLUE - RETAINED BY SWSA FOREMAN
CANARY - RETAINED BY GENERATOR

STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE
OR
SPECIAL MATERIALS

DOCUMENT NO.
PAGE 2 65477

COMPACTION TEAM: COMPLETES AND FORWARDS TO STORAGE AREA FOREMAN

SYSTEM OPERATION CHECKS:

- ☐ Compactor ventilation system operating
- ☐ Constant air monitor operating
- ☐ Empty compactible dumpster surveyed prior to returning to generator
- ☐ Floor cleaned and mopped after compaction process
- ☐ Floor surveyed by Health Physics Technician

LL BOX NUMBER	TOTAL POST-VOL	(%) PORTION	LOCNO	FFZ/ RANK	FFS/ FILE	FFT/ LAYER	SURFACE READING	COMMENTS:
TOTALS								

Date of Compaction:

Compacting Operators:

and

Health Physics Technician:

WASTE EXAMINATION (WEAF): COMPLETES AND FORWARDS TO STORAGE AREA FOREMAN

Waste Inspection Level:
☐ RTR ☐ PAN/SGS

Rated:
☐ Pass ☐ Fail

Inspection Officer

Date

STORAGE AREA FOREMAN: COMPLETES AND SENDS ORIGINAL TO DCC AFTER HANDLING WASTE

Waste Was: (check one)
☒ Retrievable
☐ Buried

SWSA No.	Storage/Disposal Date	ATN. No.	Low Level No.
5	10-19-89	3085	

Facility: (check one)
☒ Building ☐ Well ☐ Landfill ☐ Tumulus ☐ Trench ☐ QDRX ☐ On Ground Storage

Location No.: B 7823

Location Within Facility: FFZ/RANK: FFS/FILE: FFT/LAYER:

Waste Description:

Comments from SWSA Foreman regarding waste and/or operations:

Foreman's Signature

DISTRIBUTION:
Copy 1 - Attach to 2822 and forward to DMC
Copy 2 - Retained by SWSA Foreman
Copy 3 - Retained by WEAF/Compacting Team

UCN-2822A
(3 2-89)

COPY 1

ORNL NUCLEAR MATERIALS INTRA-LABORATORY TRANSFER

DATE [1]	TRANSACTION TYPE [2]	TRANSACTION NO.
10/17/89		MC- 12597

	MBA [3]	CONTROL AREA [4]	MBA REPR. SIGNATURE [5]	NM MGMT. AUTHORIZED [6]	PURPOSE OF TRANSFER-TRANSACTION [7]
FROM	035	3033A	S. R. Reynolds		to burial ground
TO	BA220		J. E. VanCleve	NM MGMT. REVIEWED	

LINE	ITEM NUMBER [8] FROM	ITEM NUMBER [8] TO	PROJECT NO. [9]	M/T [10]	C/P [11]	OWNER CODE [12]	PIECE NO. [13]	COUNTRY OF ORIGIN [14]	GROSS WT. (lbs.) [15]	MAT'L NET WT. [16]	ELEMENT WEIGHT [17]	WT. % ISOTOPE [18]	ISOTOPE WEIGHT [19]
1	41P1068		FKC0000003	57	454					3.365g	2.906g	99.7	2.896
2	794HB4		FGE038 1054	44	454					.322g	.322g	100	.321
3	455A		FKC0000003	51	454					5.227g	4.610g.	99.10	4.581
4													
5													

LINE	LIMITS OF ERROR [20] ELEMENT	LIMITS OF ERROR [20] ISOTOPE	WPAS NO. [21]	DATE EXP. TO RETURN [22]	I/C [23]	S/C [24]	MEASUREMENT [25] DATE	MEASUREMENT [25] METH.	ANALY. REPORT NO. [26]	ASSAY REPORT NO. [27]	TAMPER SEAL NO. [28]	CONT. NO. [29]
1				Never	N/A	LC89	10/89	B				
2												
3												
4												
5												

LINE	PERTINENT COMMENTS [30]
1	R1283 to Burial Ground 10/9/89
2	
3	
4	
5	

DISTRIBUTION: White - Accountability Office
Canary - Receiver
Blue - Shipper

UCN-2681

STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE OR SPECIAL MATERIALS WASTE TRACKING UPDATE

DOCUMENT NO.
PAGE 3 05477

THIS PORTION TO BE COMPLETED BY SWSA FOREMAN/WEAF

TRANSFERRED FROM: 7823

DATE OF TRANSFER: 4/2/91

CONTAINER TYPE: ☐ LL Drum _____ ☐ LL Vault _____ ☐ LL Box _____

☐ TRU Drum _____ ☑ Other ATN 3085

Comments:

☐ Buried ☑ Retrievable

New Disposal/Storage Location: B 7879

RANK: _____ FILE: _____ LAYER: _____ Shipment No.: _____

SWSA FOREMAN'S APPROVAL: R L White

THIS PORTION TO BE COMPLETED BY DOCUMENTATION MANAGEMENT CENTER

DATE RECEIVED: APR 04 1991

DATE UPDATED: APR 08 1991

UPDATED BY: CMR

DISTRIBUTION: Copy 1 - Forward to DMC
Copy 2 - Retained by SWSA Foreman
Copy 3 - Retained by WEAF (If Applicable)

UCN-2822B
(3 3-90)

COPY 1

DRUM ATM NO. _____

Log-In Data Sheet - Transuranic (TRU) Waste Generation

Page _____ of _____

Building No. _____

WASTE CATEGORY: ATM-3085
(TRU or TRU Mixed)

(Entry(ies) must be made in every applicable column for each packet or item placed in this container before waste can be certified and removed for storage or disposal.)

Room No. _____

1 Waste Pack No.	2 Date	3 Physical Form	4 Source of Waste	5 Est. Combustible Content (Vol. %)	6 Est. Wt. (Kg) Opt.	7 Radiation Data (mrem/h) 7a B/g	7b n	8 Radionuclide Content 8a Nuclide	8b Chemical Form	8c Est. Act. (Ci/Kg) Opt.	8d Est. Total Act. (Ci)	9 Hazardous Material Content (Yes or No) Atch. UCN-13698 if yes	10 Technician's Signature Certifying Waste Data	11 Date Inspection 11a Date	11b Signature
1	9-8-89	Glovebox	3038 AHF	10%	2000 lbs			Pu^{239}	oxide		.320		SA Richardson	10/19	RA Underwood
								[redacted]	[redacted]						
								Pu^{240}	oxide		.764				
								Am^{241}	oxide		1.02				

NOTES:

1. Drum Weight N/A
2. Drum Closure: Gasket has been put in place and closure ring bolt tightened to 45 ft-lb.
3. This certifies that the named TRU waste materials are properly described and are in accordance with the WIPP-WAC and ORNL TRU Waste Certification requirements and procedures.
4. *Additional facility specific instructions: _____

Signature N/A
GCO Signature
(First Page Only)

Date

TX-5301
(0-16-87)

MARTIN MARIETTA

WASTE T/S/D RECORD

Document ID

FACILITY INFORMATION

F1. T/S/D Site	F2. T/S/D Facility	(Reserved)
X-10	7878	

ACTIVITY LOG

L1. Activity Code	*	L2. Date	L3. Container/Item ID No.	L4. T/S/D Area	L5. Location			L6. Net Vol.	L7. Vol. (Units)	L8. Gross Wt (Kg)	L9. Operator's Signature	L10. Badge No.
Store		11-23-93	ATN-2504							1790		
Store		11-23-93	ATN-3150							1032		
Store		11-23-93	ATN-3085							4980		
Store		11-23-93	ATN-2787							3512		
Store		11-23-93	ATN-2998							3430		
Store		11-23-93	ATN-3099							476		
Store		11-23-93	ATN-3138							768		
Store		11-24-93	ATN-2503							2054		
Store		11-24-93	ATN-2506							3118		
Store		11-24-93	ATN-3000							2810		
Store		11-24-93	ATN-2505							1520		
Store		11-24-93	ATN-2523							1496		

* REJECT CODES: D - Description incorrect; P - Packaged improperly; C - Cancelled by generator request; O - Other

COMMENTS

Boxes from B 7879

ENTERED DEC 0 9 1993 YM

SIGNATURE and APPROVALS

S1. Foreman	Badge	Date
P G Cleveland	12661	11-24-93

	Badge	Date

DIVIDER

PAGE

Attachment D: Contact Handled Waste Repackaging Data Form

Page 1 of 3

Section 1: General Information	
Examination Start Date: 11-29-10	Originally packaged as RH Waste ☐ Yes ☑ No
Container Number: NFS0478A	
Container Type: 55 gal	Thickness of Bag Liner: 6 mil
Bag Liner Description: ☑ Non-Rigid ☑ Filtered Vent ☑ Poly ☐ Rigid ☐ Non-vented ☐ Other:	
Waste Stream Identification #: PKNFS-OR-NFS-CH-Hom	
Physical waste form matches the assigned Waste Stream Description and RCRA characterization? ☐ NO ☑ YES	
New Waste Stream Identification Number if assigned	NA
Are sharp or heavy objects are blocked, braced, or packaged to provide puncture protection for the waste container? ☐ NO ☑ YES	
Volume Utilization Percentage: N/A %	
Number of Container Liners used: 1	
Closure Method for Container Liner: twist & tape	
Number of Inner Bags: 0	
Verified no inner packages are heat sealed? ☐ NO ☑ YES	
Layers of Confinement: Number of Layers:	
Container Filter and Drum Enclosure Data Filter Torque Wrench Serial/ID No. PS0750411SB Calibration Due Date: 2/2/11 Lid Ring Bolt Torque Wrench: 05100145 18 Manufacturer's Closure spec: 60ft lbs	Filter Model No. 4T942X00213 Serial No. 0364 Torque Value 60ft lbs Calibration Due Date: 6-24-11

Source Container #:	Waste Stream #:	Original Parent Container #:	Waste Stream #:
NFS0478	PKNFS-OR-NFS-		
	CH-Hom		

Attachment D: Contact Handled Waste Repackaging Data Form

Page 2 of 3

Section 2: Waste Package Data			Data Page 1 of 1
Container Number: NFS0478A			Examination Date: 11-29-10
Item #	If Drum Puck, SS or CS	Waste Item Description	
1	N/A	Plastic, Tape, Cardboard, 2 plastic bottles with grout	
Waste Repackaging Operator:		Jonathan Phillips (Print Name)	Jonathan Phillips (Signature) 11-29-10 (Date)

Attachment D: Contact Handled Waste Repackaging Data Form
Page 3 of 3

Section 3: Comments			
Container Number:	NFS0478A	Examination Date:	11-29-10
Waste repackaged in accordance with OPIP N/A ☑ Yes ☐ No ☐ If No, explanation required			
OPIP # NA			
Waste repackaged in accordance with WNCR N/A ☑ Yes ☐ No ☐ If No, explanation required			
WNCR # NA			
Sealed Bags around Note 1 JP 12-2-10 ~~grout~~ grout bottles was cut & vented JP 12-2-10			
Note 1: Data Error JP 12-2-10			

Section 4: Approvals		
Signature below signifies that waste in this container has been examined and determined to be acceptable waste forms.		
Waste Repackaging Operator:		
Jonathan Phillips Print Name	Jonathan Phillips Signature	11-29-10 Date
Waste Repackaging Data Form Reviewer:		
Steve Bland Print Name	 Signature	11-29-10 Date
Signature below signifies that the Waste Stream Identification Number has been verified to be consistent with the original parent container and that objective evidence of the Waste Stream Identification Number is included in the applicable Waste Container Traveler.		
Waste Package Certifier:		
Bernie Moore Print Name	Bernie Moore Signature	11-29-10 Date

Attachment C: Bottle Placement Form

Drum Number NFS0478A

Tube Number	Bottom		Middle		Top	
1	Bottle Id:		Bottle Id:		Bottle Id:	
	Dose Rate:		Dose Rate:		Dose Rate:	
2	Bottle Id:		Bottle Id:		Bottle Id:	
	Dose Rate:		Dose Rate:		Dose Rate:	
3	Bottle Id:	8772	Bottle Id:	8770	Bottle Id:	
	Dose Rate:	250 mR	Dose Rate:	80 mR	Dose Rate:	
4	Bottle Id:		Bottle Id:		Bottle Id:	
	Dose Rate:		Dose Rate:		Dose Rate:	
5	Bottle Id:		Bottle Id:		Bottle Id:	
	Dose Rate:		Dose Rate:		Dose Rate:	
6	Bottle Id:		Bottle Id:		Bottle Id:	
	Dose Rate:		Dose Rate:		Dose Rate:	

Comments:

Note 1 : Tube 8772 behind drum wall 20 mR

DIVIDER PAGE

Accepted ~~REJECTED~~ 12/15/94 dh

REQUEST FOR STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE OR SPECIAL MATERIALS

87883

Requestor: Executes this section before arranging material transfer

Date	Origin of Waste bldg. no.	Requester's Signature	Badge No.	Phone No.	Building/Mail Stop
03/10/94	NFS 110/234	D Smith	NON-RECORD	P.O. Box 1234 Erwin, TN 7702	

(CHECK IF APPLICABLE)	Total Volume (Cu. Ft. only)	Combustible Vol. (Cu. Ft. only)	Weight (Lbs. only)	Accountability no. (mm.no.)
X OFFSITE	7.50	0.0	144	
___ CONSTRUCTION	Charge Work Order Number: 3325-7016		(FOR WASTE OPERATIONS USE ONLY) COST SYMBOL	COST ADJUSTMENT

Waste Classification (check only one)

1. X TRU or U-233 (Retrievable) (>100μCi/Kg)
2. __ URANIUM/THORIUM
3. __ FISSION PRODUCT
4. __ INDUCED ACTIVITY
5. __ TRITIUM
6. __ BETA-GAMMA TRU or U-233 (>100μCi/Kg)
7. __ ALPHA TRU or U-233 (<100μCi/Kg) BETA-GAMMA TRU or U-233
8. __ OTHER
9. __ LANDFILL/SUSPECT
A. __ CONTAMINATED ASBESTOS

Type of Waste (check only one) BRIEF DESCRIPTION

__ (BW) BIOLOGICAL WASTE
__ (CE) CONTAMINATED EQUIPMENT
__ (DD) DECONTAMINATION DEBRIS
X (DS) DRY SOLIDS 2-LITER BOTTLES
__ (SS) SOLIDIFIED SLUDGE
__ (NC) NOT CLASSIFIED

CONTAINER TYPE (check only one)

1. X 55 GAL SS DRUM
2. __ 30 GAL SS DRUM
3. __ 4-1/2" WALL CONCRETE CASK
4. __ 6" WALL CONCRETE CASK
5. __ 12" WALL CONCRETE CASK
6. __ 55 GAL BI DRUM
7. __ 30 GAL BI DRUM
8. __ WOODEN BOX
9. __ OTHER
10. __ GI CAN
11. __ PLASTIC
12. __ DUMPSTER
13. __ NONE
14. __ CASK NO ___ WALLTHICKNESS ___ IN. SHIELDING MTL ___
15. __ METAL BOX

COPY

CAUTION

This information must NOT be released externally until it has been reviewed by the appropriate Classification and Information Control Office

PRINCIPAL ISOTOPE(S): (BEST ESTIMATE)
*Refer to the Attached Manifests

1. IDENTITY ___	QUANTITY ___	__ GRAMS __ CURIES	
2. IDENTITY ___	QUANTITY ___	__ GRAMS __ CURIES	
3. IDENTITY ___	QUANTITY ___	__ GRAMS __ CURIES	
4. IDENTITY ___	QUANTITY ___	__ GRAMS __ CURIES	

REQUESTER'S COMMENTS FOR THOSE HANDLING WASTE IN THE FIELD:
~~REJECTED~~ Accepted dh 12/15/94

TOTAL CURIES (BEST EST.) 1.170E+01

WMO FIELD REPRESENTATIVE (APPROVAL SIGNATURE): P G Cleveland

DATE: 5-13-94

HEALTH PHYSICIST: EXECUTES THIS SECTION BEFORE MATERIAL TRANSFER

RADIATION DATA:
BETA-GAMMA: FOR PACKAGE 1.0 mrem/hr. @ 0 in.

MARTIN FOR IG

SURFACE CONT. <20 dpm (alpha): <200 dpm (beta/gamma): Neutron reading <0.5 mrem/hr

HP SURVEYOR'S COMMENTS FOR THOSE HANDLING WASTE IN THE FIELD:
*868 was rejected + the same data package came back as 929.

ENTERED MAY 20 1994

Drum ATN: NFS ~~0868~~ 929
Shipment #: 4226-75

HP'S SIGNATURE: dh 12/15/94

DATE: BILLED MAY 21 1994

WASTE T/S/D RECORD

Document ID

P2

FACILITY INFORMATION

1. T/S/D Site	F2. T/S/D Facility	(Reserved)
X-10	7824	

ACTIVITY LOG

C1. Activity Code	C2. Date	C3. Container/Item ID No.	C4. T/S/D Area	C5. Location			C6. Net Vol.	C7. Vol. (Units)	C8. Gross Wt (Kg)	C9. Operator's Signature	C10. Badge No.
STR-Pass	12-6-94	NFS-0929							92.5	Sherry Williams	26014

COPY

COMMENTS

Cost Code = B

SIGNATURE and APPROVALS

1. Foreman	Badge	Date
K. D. Bailey	26328	12-7-94

	Badge	Date

MARTIN MARIETTA

WASTE T/S/D RECORD

Document ID

FACILITY INFORMATION

F1. T/S/D Site	F2. T/S/D Facility	(Reserved)
X-10	7879	

ACTIVITY LOG

L1. Activity Code	*	L2. Date	L3. Container/Item ID No.	L4. T/S/D Area	L5. Location			L6. Net Vol.	L7. Vol. (Units)	L8. Gross Wt (Kg)	L9. Operator's Signature	L10. Badge No.
STORE		5/9/94	NFS 880									
			868*									
			853									
			870**									
			875**									

* REJECT CODES: D - Description incorrect; P - Packaged improperly; C - Cancelled by generator request; O - Other

COMMENTS

* mixed waste
** MOX

SIGNATURE and APPROVALS

S1. Foreman	Badge	Date
P2 White	20405	5/10/94

	Badge	Date

WASTE T/S/D RECORD

Document ID

FACILITY INFORMATION

F1. T/S/D Site	F2. T/S/D Facility	(Reserved)
X-10	7824	

ACTIVITY LOG

C1. Activity Code	C2. Date	C3. Container/Item ID No.	C4. T/S/D Area	C5. Location			C6. Net Vol.	C7. Vol. (Units)	C8. Gross Wt (Kg)	C9. Operator's Signature	C10. Badge No.
RTR-REJECT	~~5-26-94~~ 5/26/94 Jem 5-18-94	NFS-0868							65.8	J.E. Madison	13940

COMMENTS

COST CODE A
MIXED WASTE (CONTAINS Mercury AND Cadmium)
DRUM INSPECTED ON 5-18-94

SIGNATURE and APPROVALS

SI. Foreman	Badge	Date
Richard A. Ramey	26328	5-27-94

	Badge	Date

OAK RIDGE NATIONAL LABORATORY
MARTIN MARIETTA ENERGY SYSTEMS, INC.

USE THIS NUMBER ON ALL CONTINUATION PAGES

Continuation Sheet

Generator Name: Nuclear Fuel Services, Inc.

Shipment ID No: IC#: 4226-75

Disposal Container

(20) ITEM NUMBER	(21) RADIO-NUCLIDE EACH CONTAINER	(22) PERCENT OF ACTIVITY or nCi of EACH NUCLIDE	(23) ACTIVITY EACH CONTAINER (mCi)	(24) PHYSICAL FORM	(25) CHEMICAL FORM and NAME & % of CHELATING AGENT	(26) WASTE DESCRIPTION	(27) WASTE FORM CLASS	(28) SPECIAL NUCLEAR MATERIAL (grams)	(29) SOURCE MATERIAL (pounds)	(30) CONTAINER WEIGHT (pounds)	(31) CONTAINER VOLUME (Cu Ft)	(32) CONTAINER TYPE	(33) RADIATION LEVELS CONTAINER SURFACE (x) mR/hr ( ) R/hr	(33) (TI) 1 Meter mR/hr	(34) CONTAMINATION CONTAINER SURFACE (DPM/100cm2) Alpha	(34) Beta-Gamma	(35) FISSILE CLASS	(36) LABELS/MARKINGS USED
A45315	U234	5.68E+00	2.385E+03	SOLID	OXIDE	2-LITER BOTTLES	>C	5.11E+00	0.04	200	7.50	DRUM	< 2.00	< 0.10	< 20	< 200	III	Radioactive- N.O.S.
2775	U235	1.81E-04																Radioactive-
NFS-0880	U238	5.76E-03																Radioactive-
	PU238	3.55E+01																Radioactive-
	PU239	2.73E+02																Radioactive-
	PU240	1.29E+02																Radioactive-
	PU241	1.86E+03																Radioactive-
	PU242	9.48E-03																Radioactive-
	AM241	8.68E+01																Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
1			2.385E+03			PAGE TOTALS		5.11E+00	0.04	200	7.50			< 0.10				

Form No.
( )

DISPOSAL SITE COPY

P5

TX-5352

DATA LOG SHEET FOR PACKAGING TRU WASTE

[An entry is required for each column. See instruction sheet for directions.]

Drum ATN: NFS-0868
Building No.: NFS 110/234
Room No.: _____

Content Code: _____ OR125A
_____ OR125B

1. Pak No.	2. Date	3. Radiation (mRem/h) Beta, Gamma	3. Radiation (mRem/h) Neut.	4. Activity (Ci)	5. Dominant Radionuclides	6. Physical Form	7. Chemical Form	8. Percent Comb.	9. Haz. Mtl (Y/N)	10. Signature	11. Data Log Sheet Verification Date	11. Data Log Sheet Verification Signature
1623-1	03/10/94			9.221E+00	* See Manifest	SOLID	OXIDE	0.0	Y	O. Hurley	3-10-94	D Smith
4853-2	03/10/94			2.412E+00	* See Manifest	SOLID	OXIDE	0.0	Y	↓	↓	D Smith
10927-3	03/10/94			6.790E-02	* See Manifest	SOLID	OXIDE	0.0	Y	↓	↓	D Smith

Proper Drum Closure (Signature): D Smith

Generator Certification Official (Signature): Donald Seume

Authorized Radioactive Solid Waste Operations (Signature): Donald Seume for C Cleveland

Note: If column 9 = Yes, complete supplemental form TX-5352A.

NFS Shipment IC#: 4226-75

Radionuclide	Specific Activity (Ci/g)	U235 Equivalent Factor	Container Number: NFS-0868		
			Act. (mCi)	Wght (g)	U235 Equiv (g)
U233	9.47E-03	1.40E+00			
U234			2.34E+01		
U235	2.14E-06	1.00E+00	1.81E-03	8.46E-01	8.46E-01
U238			2.54E-02		
Pu238	1.74E+01	2.30E-01	4.76E+01	2.74E-03	6.29E-04
Pu239	6.14E-02	1.56E+00	8.05E+02	1.31E+01	2.05E+01
Pu240			4.80E+02		
Pu241	1.12E+02	3.50E+00	1.01E+04	9.02E-02	3.16E-01
Pu242			1.84E-02		
Am241	3.24E+00	4.40E-02	2.34E+02	7.22E-02	3.18E-03
			TOTAL U235 Equiv (g):		**2.16E+01**

Appendix 1 **CHECK SHEET for NFS DRUM RECEIPT**

SWSA Foreman		INITIALS
1.	55-gallon drum NFS number NFS-868	
2.	Bar code sticker installed in two locations on the drum.	RLW
3.	Tamper Indicating Device (TID) is attached to the drum. TID # A44720	RLW
4.	Drum is free from damage (visual inspection).	RLW
5.	Nuc-Filter is installed in the drum lid.	RLW
6.	Bolt ring is installed properly and bolt is torqued to 45-ft-lb.	RLW
7.	HP has surveyed the drum, UCN-2785 is attached.	RLW
8.	A "Hazardous Waste" label is on the drum (if required).	RLW

Comments: _____

SWSA Foreman signature R L White Badge No. 20405 Date 5/9/94

RSWO Technician		
9.	Form UCN-2822 complete.	PGC
10.	Form TX-5352 complete.	PGC
11.	Form TX-5352A complete (if applicable).	PGC 5-13-94 ~~MH~~ PGC
12.	IC number recorded on form UCN-2822. IC # 4226-75.	PGC
13.	^{235}U equivalent fissile material total has been calculated. (2.16E+01 grams)	PGC
14.	Drum/documentation is accepted by RSWOG for WEAF inspection.	PGC

Comments: _____

RSWO Technician signature P G Cleveland Badge No. 12661 Date 5-13-94

TRU WASTE DATA PACKAGE

1. Drum ATN Number: NFS-0868
2. Shipment Number: FC#: 4226-75
3. Date Packaged: 03/10/94
4. Date of Shipment: 5/6/94
5. Date Certified: 03/10/94
6. Gross Weight: 144 lbs, Tare: 107 lbs

7. CONTENT INFORMATION (* See Attached Manifest for Isotopic Breakdown)

a. Physical Description: 2-LITER BOTTLES	
b. Chemical Form: OXIDE J.V. 4/21/94	c. Iron Content: 8.0 % by weight
d. Thermal Power: 1.5 ~~1.4E-01~~ W/ft³	e. Organic Content: 98.0 % by volume
f. Organic Content: 90.0 % by weight	g. ^{239}Pu - fissile gram equivalent: 13.95 +/- 3.95
h. Homogenous: [ ] YES [X] NO	i. ^{239}Pu - equivalent activity: 1.766 +/- 0.500 Ci
j. TRU Activity Concentration: 92315 +/- 26112 nCi/gm	

8. HAZARDOUS CONSTITUENTS

Constituent	Concentration	Analytical Method
Cadmium	24.0 PPM	A-TCLP
Mercury	276,372 PPM	B-Engineering Estimate

Date of Analyses: 03/10/94

9. NEUTRON ABSORBERS PRESENT

Element	Weight %	Volume %	Analytical Method
Not Present	0.0	0.0	

Date of Analyses: 03/10/94

MARI FOR 18

10. MAXIMUM SURFACE DOSE RATE

Beta / Gamma	Alpha	Neutron
< 200 dpm/100cm² ~~2.0~~ 1.0 mrem/hr FC# 4-22-94	< 20 dpm/100cm²	4.5 mrem/hr
Performed by: B Lew		Date: 3-11-94

OAK RIDGE NATIONAL LABORATORY
MARTIN MARIETTA ENERGY SYSTEMS, INC.

USE THIS NUMBER ON ALL CONTINUATION PAGES

Generator Name: Nuclear Fuel Services, Inc.

Continuation Sheet

Shipment ID No: IC#: 4226-75

(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	Disposal Container (30)	(31)	(32)	(33)		(34)		(35)	(36)	
ITEM NUMBER	RADIO-NUCLIDE EACH CONTAINER	PERCENT OF ACTIVITY or mCi of EACH NUCLIDE	ACTIVITY EACH CONTAINER (mCi)	PHYSICAL FORM	CHEMICAL FORM and NAME & % of CHELATING AGENT	WASTE DESCRIPTION	WASTE FORM CLASS	SPECIAL NUCLEAR MATERIAL (grams)	SOURCE MATERIAL (pounds)	CONTAINER WEIGHT (pounds)	CONTAINER VOLUME (Cu Ft)	CONTAINER TYPE	RADIATION LEVELS CONTAINER SURFACE (x) mR/hr ( ) R/hr	(TI) 1 Meter mR/hr	CONTAMINATION CONTAINER SURFACE (DPM/100cm2) Alpha	Beta-Gamma	FISSILE CLASS	LABELS/MARKINGS USED	
A43547	U234	7.72E-01	2.737E+02	SOLID	OXIDE	PLASTIC, METAL, AND TRASH	>C	7.42E-01	0.01	491	7.50	DRUM	< 0.10	< 0.10	< 20	< 200	III	Radioactive-	N.O.S.
2700	U235	1.15E-05																Radioactive-	
NFS-0853	U238	7.66E-04																Radioactive-	
	PU238	5.65E+00																Radioactive-	
	PU239	4.03E+01																Radioactive-	
	PU240	1.77E+01																Radioactive-	
	PU241	1.98E+02																Radioactive-	
	PU242	1.27E-03																Radioactive-	
	AM241	1.15E+01																Radioactive-	
																		Radioactive-	
A44720	U234	2.34E+01	1.170E+04	SOLID	OXIDE	2-LITER BOTTLES	>C	1.61E+01	0.18	144	7.50	DRUM	< 1.00	< 0.10	< 20	< 200	III	Radioactive-	N.O.S.
2765	U235	1.81E-03																Radioactive-	
NFS-0868	U238	2.54E-02																Radioactive-	
	PU238	4.76E+01																Radioactive-	
	PU239	8.05E+02																Radioactive-	
	PU240	4.80E+02																Radioactive-	
	PU241	1.01E+04																Radioactive-	
	PU242	1.84E-02																Radioactive-	
	AM241	2.34E+02																Radioactive-	
																		Radioactive-	
2			1.197E+04			PAGE TOTALS		1.69E+01	0.19	635	15.00			< 0.20					

Form No.
( )

DISPOSAL SITE COPY

TX-5352A
(3/90)

DATA LOG SHEET FOR PACKAGING TRU MIXED WASTE
[Supplement to Form TX-5352. An entry is required for each column. See instruction sheet for directions.]

Drum ATN: NFS-0868
Building No.: NFS 110/234
Room No.: ____

Content Code: ____ OR125A
____ OR125B

1. Pak No.	2. Date	3. Description of Hazardous Material	4. Haz. Met. (A/B)	5. Quantity	6. Hazard Information	7. EPA Waste No.	8. Signature	9. Data Log Sheet Verification	
								Date	Signature
1623	03/10/94	Cadmium	A	24.0	Toxic (T)	D006	D. Henley	3-10-94	D Smith
4853	03/10/94	Mercury	B	276,372	Toxic (T)	D009	D. Henley	3-10-94	D Smith
10927	3/10/94	Mercury	B	276,372	Toxic (T)	D009	D. Henley	3-10-94	D Smith

GCO Signature: Donald Spencer

Page 1 of 1

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DRUM NO. NFS-0868

PROCUREMENT QUALITY
SOURCE SURVEILLANCE PLAN

PLAN NO.	REV. NO.
SS WMRA-106	Original
ISSUE DATE	REV. DATE
12-18-92	

ITEM NAME	VENDOR(S)	PAGE
Contact-Handled Transuranic and Mixed Oxide Waste	NFS/ECOTEK/SEG	1 of 2

P.O. NO. / ITEM	SPEC. NO. / REV.	DWG. NO. / REV.
	WMRA-WMPC-106 Contact-Handled Transuranic and Mixed Oxide Waste	

FOR ACTIVITIES — REFERENCE

SHIP TO: ORNL

SHIPMENT NO: 4226-75 (C45 FROM NFS)

QUANITY: 5 55-GALLON DRUMS

TRANSURANIC WASTE - MIXED WASTE

By affixing his signature or stamp to the checklist, the Field Quality Representative (FQR) assures that he has reviewed or observed the activity and verifies all Testing and Packaging operations were performed per approved procedures.

Note: Some activities may be performed at SEG.

NOTE: 2 DRUMS (NFS-0870, 0875) ARE REPACKAGE OF MOX TO CH-TRU WASTE. SEE COMMENTS ON PAGE 2

ACTIVITY	SOURCE SURVEILLANCE PLAN REFERENCE PARAGRAPH	STAMP/ SIGNATURE	DATE
1. Waste Certification Requirements	4.1 thru 4.9	MARTIN FOR 18	4/27/94
2. Containers	4.10	MARTIN FOR 18	
3. Immobilization	~~4.11~~ "WAIVED" ON DRUM NO. NFS-0870 AND 0875 PER CONTRACT MOD. M005 TO NFS DATED 3/3/94.	MARTIN FOR 18	
4. No Liquids	4.12	MARTIN FOR 18	
5. Pyrophoric Materials	4.13	MARTIN FOR 18	
6. No Explosives or Compressed gas	4.14	MARTIN FOR 18	
7. Hazardous Waste Characterization	4.15	MARTIN FOR 18	
8. Specific Activity	4.16	MARTIN FOR 18	
9. Weight	4.17	MARTIN FOR 18	
10. Fissile Content	4.18	MARTIN FOR 18	4/27/94

MARTIN FOR 18

DRUM NO. NFS-0868

PROCUREMENT QUALITY
SOURCE SURVEILLANCE PLAN

PLAN NO	REV. NO
SS WMRA-106	Original
ISSUE DATE	REV. DATE
12-18-92	

ITEM NAME	VENDOR(S)	PAGE
Contact-Handled Transuranic and Mixed Oxide Waste	NFS/ECOTEK/SEG	2 of 2
P.O. NO. ITEM	SPEC. NO. REV.	DWG. NO. REV.
	WMRA-WMPC-106 Contact-Handled Transuranic and Mixed Oxide Waste	

FQR ACTIVITIES	REFERENCE	
11. Equivalent Activity	4.19	MARTIN FOR 18 4/27/94
12. Surface Dose Rate	4.20	MARTIN FOR 18
13. Surface Contamination	4.21	MARTIN FOR 18
14. Thermal Power	4.22	MARTIN FOR 18
15. Gas Generation	4.23	MARTIN FOR 18
16. Labeling	4.24	MARTIN FOR 18
17. Data Package	4.25	MARTIN FOR 18
18. Notification	6.0	MARTIN FOR 18
19. Certification	7.0	MARTIN FOR 18 4/27/94

Drum ATN: NFS-0853, *NFS-0868, **NFS-0870, **NFS-0875, NFS-0880

Comments: *NFS-0868 IS MIXED WASTE

**NFS-0870 (MOX CANS #207, #208) **NFS-0875 (MOX CANS #213, #214)

FQR R.G. Williams Stamp MARTIN FOR 18 Date 4/27/94

R.G. WILLIAMS
MARTIN MARIETTA FQR

MARTIN FOR 18

P 14

NFS-0868
2765
A44720

NFS-DCM-SWI-94004
February 10, 1994

Attachment 1

WASTE CERTIFICATION CHECKLIST FOR CH-TRU

Criteria	Specification	Supervisor Initial
1	WASTE CONTAINER: *(Interim package for SEG):*	
	DOT Spec 17C or 17H	VJ
	Stainless Steel *(N/A)*	VJ
	55-gallon capacity *(40-gallon capacity)*	VJ
	polyethylene liner, including lid with 3/8" hole *(N/A)*	VJ
	No handles, cleats, or lifting devices	VJ
2	IMMOBILIZATION:	
	Particulate bearing material screened	N/A
	Particulate immobilized	VJ
	Vermiculite added	N/A
3	LIQUID WASTES:	
	No free liquids present	VJ
4	PYROPHORIC MATERIALS:	
	No pyrophoric materials present	VJ
	Pyrophoric materials stabilized, if present; otherwise N/A	N/A
5	EXPLOSIVES AND COMPRESSED GASES:	
	Gas can pins removed / can compacted	N/A
	No explosive material present	VJ
	Explosive material stabilized, if present; otherwise N/A	N/A
6	RADIOACTIVE MIXED WASTES:	
	No 40CFR261/761 hazardous waste/substance present	N/A
	Material identified/quantified, if present; otherwise N/A	VJ
7	ACTIVITY CONCENTRATION OF WASTE:	
	Waste package ≥ 100 nCi/gm	VJ

MARTIN FOR 18

NFS-0868
A44720

NFS-DCM-SWI-94004
February 10, 1994
PAGE 2 OF 2

Criteria	Specification	Supervisor Initial
8	WASTE PACKAGE WEIGHT: Waste package ≤ 800 pounds	
9	NUCLEAR CRITICALITY: ^{239}Pu fissile gram equivalent ≤ 128 gm *(≤42 gm)*	
10	^{239}Pu EQUIVALENT ACTIVITY: ^{239}Pu equivalent activity ≤ 1,000 Ci *(≤333 Ci)*	
11	SURFACE DOSE RATE: Maximum surface dose rate ≤ 200 mRem/hr Neutron dose rate ≤ 20 mRem/hr Neutron dose reported if > 20 mRem/hr; otherwise N/A	 N/A
12	SURFACE CONTAMINATION: Surface contamination ≤ 20 dpm/100cm^2 α Surface contamination ≤ 200 dpm/100cm^2 ß/γ	
13	THERMAL POWER: Thermal power ≤ .1 watt/ft^3 Thermal power reported if ≥ .1 watt/ft^3; otherwise N/A	N/A 3/4-27-94
14	GAS GENERATION: Polyethylene liner fitted with 3/8" hole *(N/A)* Drum lid bung fitted with HEPA filter (Torque) *(N/A)*	
15	LABELING: ORNL accountability transfer bar code attached	
16	DATA PACKAGE: Data package verified complete and accurate	
17	HEPA Filter torque: 15±1.5 ft-lbs. (raised nipple bung) 25±2.5 ft-lbs (flush bung) Closure Lug Bolt Torque - 45-50 ft. lbs; lock nut on outside	
18	Approved absorbent material added	

SIGNATURES:

Supervisor completing checksheet D Smith Date: 3/10/94

MTS QA review Scott A Tolen Date: 3/10/94

Project Manager/Director Donald Sevens Date: 3/10/94

RTIN FOR LB

P 1 6

LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM

INSTRUCTIONS—READ AND REMOVE THIS PAGE BEFORE USING THIS FORM

The USEPA Hazardous Waste Land Disposal Restrictions (40 CFR 268) require that every generator of restricted hazardous waste send, with every shipment of his waste, a notification that describes the waste and its status under the Land Ban regulations. This form should assist you in meeting these requirements. Effective May 8, 1990, almost all hazardous wastes are restricted (have a treatment standard). The exceptions, for which there are no Land Disposal Restrcitions (and no required LDR notification) include: D018 through D043 (these become hazardous wastes effective 9/25/90) F032, F034, F035 (effective 6/6/91), F037, F038 (effective 5/2/91), K064, K065, K066, K088, K090, K091, K107 through K110 (become hazardous waste on 11/2/90), K111, K112, K117, K118, K123, K124, K125, K126, K131, K132, K136, U328, U353, and U359. These wastes will be added to part 268 in the future.

To properly manage your waste under the land disposal restrictions, it is essential that you accurately identify your waste. These are the same tests required to complete the Waste Profile Sheet. If your waste is different from the profile description, such as additional USEPA waste codes apply, or the characteristics or properties have changed, or the waste now requires treatment (when it did not earlier), then you must amend your profile and have the amendments approved by Chemical Waste Management. This must be done prior to scheduling and shipment of the waste. Once you have determined that the waste you are about to ship is consistent with your CWM-approved profile, you should prepare this form, and call the CWM facility to which you are shipping to schedule the waste. The following instructions should assist you in completing this form.

Generator Name: Write in the name of the generator, as it appears on your "Notification of Hazardous Waste Activity" form and your CWM Waste Profile Sheet.
CWM Profile Number: Write in the six-digit CWM profile number here.
Manifest Doc. No.: Enter the unique five-digit manifest document number assigned by the generator, (written in the last five positions of item #1 of the manifest).
State Manifest No.: If the manifest that is being used for this shipment has a state manifest number (item A of the manifest), then enter this number here.

1. Wastewater/Nonwastewater: Check only ONE box here, to indicate whether the waste is a "nonwastewater" or a "wastewater". Wastewaters are wastes that contain less than one percent (1%) by weight Total Organic Carbon (TOC) and less than 1% by weight Total Suspended Solids (TSS), with the following exceptions: (1) F001, F002, F003, F004, F005 solvent-water mixtures are wastewaters if they contain less than 1% by weight TOC or less than 1% by weight total F001, F002, F003, F004, F005 solvent constituents listed in 268.41 Table CCWE, (2) K011, K013, and K014 wastewaters (as generated) contain less than 5% by weight TOC and less than 1% by weight TSS, (3) K103 and K104 wastewaters contain less than 4% by weight TOC and less than 1% by weight TSS. Any waste that does not meet the applicable definition of wastewater is a nonwastewater. See 40 CFR Part 268.2(a)(6).

2. California List Restrictions: If the waste is subject to any California List restrictions (which are not superceded* by an explicit waste-code related treatment standard (268 Subpart D), then the letter from the bottom of the form that corresponds to the status of the restriction must be inserted next to any applicable restrictions. For example, if there are greater than or equal to 1,000 ppm of HOCs listed in Part 268 Appendix III that are not listed in the treatment standard for this waste, then you would put "A" next to "HOCs". If this is incinerator ash from hazardous waste that contained 50 ppm or more of PCBs, you would put "B2" next to "PCBs". * Note: Acids have been replaced by the D002-Acid Subcategory treatment standard (after 8/8/90). Likewise, metals and cyanides generally have been replaced by the corresponding characteristic waste treatment standards.

3. Table instructions: Read and continue to #4. Note: if there are more than 10 waste code/subcategories, continue on CWM form 2001-B, Supplemental Page.

4. USEPA hazardous waste codes: Put all USEPA hazardous waste codes that correctly apply to this waste in this section.

5. Subdivisions: Next to each code identify the corresponding subdivision by either writing in the subdivision description or by checking "NONE". The waste codes that do have subdivisions and the descriptions include:

- **D001:** Ignitible Compressed Gas, Ignitible Liquid High TOC (> = 10%), Ignitible Liquid Low TOC (< 10%), Ignitible Reactive, or Oxidizer;
- **D002:** Acid (pH < =2.0), Alkaline (pH > =12.5), or Other Corrosive (Corrosive to SAE 1020 steel at a rate > =0.25 inch/year);
- **D003:** Reactive Cyanide, Reactive Sulfide, Water Reactive (for nonwastewaters only), Explosive, or Other Reactive (see 261.23(a)(1));
- **D006:** Cadmium Batteries, or NONE;
- **D008:** Lead Acid Batteries, or NONE;
- **D009:** Nonwastewaters: (1) Organic High Mercury (> =260 ppm, with organics, not incinerated), (2) Inorganic High Mercury (> = 260 ppm), or (3) Low Mercury (<260 ppm). Wastewaters: NONE;
- **F001, F002, F003, F004, F005:** NonWastewaters: NONE. Wastewaters: Pharmaceutical, or NonPharmaceutical;
- **F025:** Light Ends, or Filters/Filter Aids/Desiccants;
- **K006:** Nonwastewaters: Anhydrous or Hydrated. Wastewaters: NONE
- **K046:** Reactive or NonReactive;
- **K061:** Nonwastewaters: Low Zinc (< 15%) or High Zinc (> =15%), Wastewaters: NONE;
- **K069:** Nonwastewaters: Calcium Sulfate or NonCalcium Sulfate. Wastewaters: NONE;
- **K106 and U151:** Nonwastewaters: (1) High Mercury > = 260 ppm, (2) Low Mercury 260 ppm and RMERC residue, or (3) Low Mercury 260 ppm not RMERC residues. Wastewaters: NONE
- **P047:** Salts or Nonsalts;
- **P065 and P092:** Nonwastewaters: (1) Not Incinerator or roasting/retorting residue, (2) High Mercury > =260 ppm and it is incinerator or roasting/retorting residue, or (3) Low Mercury <260 ppm and it is Incinerator residue, or (4) Low Mercury <260 ppm and it is roasting/retorting residue. Wastewaters: NONE;

6. Applicable treatment standards: 6a. Identify the performance-based treatment standards that correspond to the waste on the line by putting an X in the applicable box(es). 6b. If the waste is subject to a specified technology requirement (268.42), enter the five-letter treatment code(s) from 268.42 Table 1 that corresponds to the treatment required and intended for the waste. Spent Solvent and California List waste standards are printed on the back of the form. If the waste code F039 (multi-source leachate) applies to the waste, then the treatment standards that correspond to F039 must be attached by the generator.

7. Management Under Land Disposal Restrictions: Using the six descriptions at the bottom of the page, write the letter (A, B1, B2, B3, C. D), of the description that corresponds to the status of the waste under 40 CFR Part 268.7. If the waste is subject to a variance, then after entering "C" in column 7. you must write the date of expiration of the variance (effective date of the prohibition) next to it in column 7. Call the number below if you have any questions.

This form has been printed on self-duplicating paper. After you have completed this form, signed and dated it, remove the back page (labeled "GENERATOR: Remove this copy before shipment and retain in your files"). Keep the back page with your manifest records. Send all other copies (except these instructions) with the shipment. This form is NOT for Lab Packed wastes. Use form CWM-2002 "Lab Packed Hazardous Waste Land Disposal Notification and Certification Form".

If you have any questions, please call 1-800-843-3604 for Customer Service.

LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM—REVERSE SIDE

SOLVENT AND CALIFORNIA LIST TREATMENT STANDARDS

If the waste identified on the other side of this form is described by any of the following US EPA hazardous waste codes: F001, F002, F003, F004, F005, and/or this hazardous waste is subject to any prohibitions identified as California List restrictions (40 CFR 268.32 and/or RCRA Section 3004(d)), then this page MUST accompany the shipment, along with the opposite side of this form. If the waste code F039 describes this waste, then the corresponding treatment standards must be attached.

SOLVENT WASTE TREATMENT STANDARDS

F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s)	Treatment Standard [1]		F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s)	Treatment Standard [1]	
	Wastewaters	Nonwastewaters		Wastewaters	Nonwastewaters
Acetone	0.28	160	Methylene chloride	0.089	33
Benzene	0.07	3.7	Methylene chloride from pharmaceutical production	0.44	
n-Butyl alcohol	5.6	2.6	Methyl ethyl ketone	0.28	36
Carbon disulfide	1.05 (0.014) [2]	40CFR 268.41 4.8	Methyl isobutyl ketone	0.14	33
Carbon tetrachloride	0.057	5.6	Nitrobenzene	0.068	14
Chlorobenzene	0.057	5.7	2-Nitropropane	40 CFR 268.42 [(WETOX or CHOXD) followed by CARBN] or INCIN	40 CFR 268.42 INCIN
o - Cresol	0.11	5.6			
Cresols (M - and P - isomers)	0.77	3.2	Pyridine	0.014	16
Cyclohexanone	0.125 (0.36) [2]	40 CFR 268.41 0.75	Tetrachloroethylene	0.056	5.6
1,2-Dichlorobenzene	0.088	6.2	Toluene	0.08	28
2-Ethoxyethanol (also called ethylene glycol monoethyl ether)	40 CFR 268.42 - INCIN or BIODG	40 CFR 268.42 - INCIN	1,1,1-Trichloroethane	0.054	5.6
Ethyl acetate	0.34	33	1,1,2-Trichloroethane	0.030	7.6
Ethylbenzene	0.057	6.0	1,1,2-Trichloro-1,2,2-trifluoroethane	0.057	28
Ethyl ether	0.12	160	Trichloroethylene	0.054	5.6
Isobutanol	5.6	170	Trichlorofluoromethane	0.02	33
Methanol	0.25 (5.6) [2]	40 CFR 268.41 0.75	Xylenes (Total)	0.32	28

1. All spent solvent treatment standards are taken from 40 CFR Part 268.43 (a) unless otherwise noted. Wastewater units are mg/l, nonwastewater are mg/kg.
2. These values are correct per verbal discussions between CWM and the USEPA. A technical correction will be issued in the fourth quarter of 1992 to reflect these values in the regulation.

CALIFORNIA LIST TREATMENT STANDARDS—40 CFR 268.32, 40 CFR 268.42 and RCRA Section 3004(d)

A waste must first be designated as a US EPA Hazardous waste before the waste can be subject to the California List restrictions.

Restricted waste description	Prohibition	Treatment Standard
Liquid* or nonliquid wastes containing Halogenated Organic Compounds listed in 40 CFR 268, Appendix III	Liquid* wastes: Greater than or equal to 1,000 mg/l Nonliquid wastes: Greater than or equal to 1,000 mg/kg	40 CFR 268.42(a)(2) - INCIN
Liquid* wastes containing PolyChlorinated Biphenyls (PCBs)	Greater than or equal to 50 ppm	40 CFR 268.42(a)(1) - INCIN or FSUBS Also see 40 CFR 761.60 and .70
Liquid* wastes containing Cyanides	Free (amenable to chlorination) cyanides at concentrations greater than or equal to 1,000 mg/l	RCRA Section 3004(d)
Liquid* wastes containing Metals	One or more of the following metals (or elements) at concentrations greater than or equal to the following: Arsenic and/or compounds as As: 500 mg/l Cadmium and/or compounds as Cd: 100 mg/l Chromium and/or compounds as Cr: 500 mg/l Lead and/or compounds as Pb: 500 mg/l Mercury and/or compounds as Hg: 20 mg/l Nickel and/or compounds as Ni: 134 mg/l Selenium and/or compounds as Se: 100 mg/l Thallium and/or compounds as Th: 130 mg/l	RCRA Section 3004(d)
Liquid* Acid wastes	pH is less than or equal to 2.0	RCRA Section 3004(d) and 40 CFR 268.32(a)

* - For the definition of "liquid" refer to Method 9095, the Paint Filter Liquids Test from EPA manual SW-846

268.42 TABLE 3.—TECHNOLOGY-BASED STANDARDS FOR SPECIFIC RADIOACTIVE HAZARDOUS MIXED WASTE

Waste code	Waste descriptions and/or treatment category	CAS No.	Technology code	
			Wastewaters	Nonwastewaters
D002	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT.
D004	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT.
D005	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT.
* D006	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT.
D007	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT.
D008	Radioactive lead solids subcategory (Note: these lead solids include, but are not limited to, all forms of lead shielding and other elemental forms of lead. These lead solids do not include treatment residuals such as hydroxide sludges, other wastewater treatment residuals, or incinerator ashes that can undergo conventional pozzolanic stabilization, nor do they include organolead materials that can be incinerated and stabilized as ash.).	7439-92-1	NA	MACRO.
D008	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT.
* D009	Elemental mercury contaminated with radioactive materials	7439-97-6	NA	AMLGM.
D009	Hydraulic oil contaminated with mercury; radioactive materials subcategory	7439-97-6	NA	IMERC.
D009	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT.
D010	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT.
D011	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT.
U151	Mercury: Elemental mercury contaminated with radioactive materials	7439-97-6	NA	AMLGM.

Note: NA means Not Applicable.

50-147 O—91——26

TCLP Simulation (EPA Method 1311)

Will NFS Hg bearing mixed waste fail TCLP analysis?

assume: ① due to age most of mercury is in chemical form of mercuric oxid
② assume 20% leaching of Hg into leachate

27.6 g Hg in 100 g sample for TCLP

5.52 g Hg in leachate at 20%

$$\text{Hg ppm in leachate} = \frac{5520 \text{ mg Hg}}{2 \text{ L leachate}} = 2760 \text{ ppm}$$

2760 ppm >> .2 ppm TCLP limit

therefore, NFS mercury bearing waste will fail TCLP

Hg concentration determination

≈ 250 ml of Hg total in (2) 2-liter bottles

$$250 \text{ ml Hg} \times \frac{13.5 \text{ g Hg}}{1 \text{ ml Hg}} \times \frac{.0022 \text{ lbs}}{\text{g}} = 7.43 \text{ lbs. Hg in (2) 2-liter bottles}$$

w/o Hg in waste

$$\frac{7.4 \text{ lbs. Hg}}{26.8 \text{ lbs. waste}} \times 100 = 27.6\% \text{ Hg}$$

$$\text{Hg ppm} = \frac{3371734 \text{ mg Hg}}{12.2 \text{ Kg}} = 276,372 \text{ ppm Hg}$$

Hazardous Waste Stream Report

Tennessee Department of Environment and Conservation, Division of Solid Waste Management.
Fifth Floor, L & C Tower, 401 Church Street, Nashville, TN 37243-1535

Please complete and/or correct, certify and return regardless. Retain a copy for your records.

1. Organization's full name at facility. NUCLEAR FUEL SERVICES, INC	EPA identification code TND 00-309-5635
2. Waste name. Use standard name from regulations whenever possible. MIXED TRU (PU)/CADMIUM TCLP HAZARDOUS WASTE	Waste Stream number 24

3. Give the years that this waste has been generated, e.g. 1975, 1982-. 1992	Date no longer generated. (MM/DD/YY)	Frequency of generation: Continuous / Accidental/One time / Various (V)
4. Circle all appropriate hazard criteria below. Ignitable (a), EP toxic (b), Corrosive (c), Reactive (e), Other toxic (f), TCLP (g). G	EPA waste codes. (Primary first; six maximum.) D006	SIC code for generating process. 2819,

5. Physical form	% Solid	% Water	Vol. to wt. conversion (pounds/gallon)	If used for fuel, chlorine content (PPM)	BTU per pound
Sld:Othr (9)			0.098	0.0	0.0

6. Generation rates. Supply all rates in kilograms. Monthly maximum (kg)	Annual average (kg)	Maximum amount stored on-site (kg)	Maximum days stored
2.5	2.5	2.5	90

7. DOT shipping name	DOT hazard class		DOT ID code
RADIOACTIVE MATERIAL, NOS	Radioactive	16	UN2918

8. Describe generation process.

~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~ Less than 55 GALLONS OF THIS WASTE IS BEING STORED IN A SATELLITE ACCUMULATION AREA. THE WASTE WILL BE HELD IN THIS AREA UNTIL55 GALLONS ARE ACCUMULATED OR SHIPPED OFF-SITE, AS ALLOWED BY RULE 1200-1-11.

9. Chemical Characteristics. pH	Flash point	Reactive code	Concentration units. For EP toxic and TCLP wastes, use PPM. % volume( ), % weight( ), PPM( ) XX (P)

Major and hazardous constituents. Give range of values at right.	lower value	upper value
a. CADIUM	23	25
b. ~~XXXX~~	~~X~~	~~XXX~~
c.		
d.		
e.		

10. If this waste is recovered, reclaimed, recycled or reused, describe how.

. Annual Generation and Handling Data: If the waste was shipped off-site, summarize in block (a) and submit an Off-te Shipping Report. Report onsite handling in blocks (b) - (d). For offsite or onsite handling that requires interim atus or a permit, use "T", "S", or "D" codes from the instructions. For other handling, use "H" codes.

Report Year 1993	Amount generated during year (kg)	Amount on-site in temporary storage on the first day of year (kg)	Amount on-site in temporary storage on the last day of year (kg)
	-0-	2.5	2.5

	Total Handled OFFsite	TSDR handling/Waste management methods		Amount Handled ONsite	TSDR handling/Waste management methods
a			b	-	
c	Amount Handled ONsite	TSDR handling/Waste management methods	d	Amount Handled ONsite	TSDR handling/Waste management methods

zardous Waste Reduction Data: Large Quantity Generators (LQGs) in 1989 are required to answer questions 12-15. Gen-ators not in operation in 1989 have a different schedule for required reporting; see the instructions. Small quantity nerators (SQGs) in 1989 are not required to answer questions 12-15 until the report due for calendar year 1994. However, urge SQGs to answer them as it should help later when answers are required.

. Specify your actual hazardous waste generation and final reduction goal as ratios of hazardous waste generated to the item, service or intermediary produced in its standard production units. See instructions for further details.

This year's actual ratio	Goal year's ratio	Goal Year	If no numeric goal has been set, describe your efforts to set one in line 15 below.

. Check the efforts undertaken to reduce the volume and/or toxicity in the generation of this waste during the reported year. This includes the efforts undertaken in previous years that affected the reported year. The reduction effort relates to generation processes and not treatment methods.

a. Reformulation/redesign of product . (a)
b. In process recycling. . . . . (b)
c. Equipment/technology modification . (c)
d. Substituting raw materials . . . . (d)
e. Improved operations . . . . . (e)
f. Reduction research/planning . . . . . .(r)
g. No effort . . . . . .(fX)
h. Other - briefly explain here. . . . . .(g)

. Rate the helpfulness of the items below that affected your hazardous waste reduction plan and its results. To the right of each item, circle one code: YES, this item helped reduction; NO, it hurt reduction; or NA, it was not necessary or did not affect reduction. See the instructions for further explanation.

a. Training or technical assistance.....a(No (NA) Yes)
b. Technical feasibility.....b(No (NA) Yes)
c. Economic practicality.....c(No (NA) Yes)
d. Measurement/accounting methods.....d(No (NA) Yes)
e. TN hazardous waste regulations.....e(No NA (Yes))
f. Implementation experience.....f(No (NA) Yes)
g. High costs of haz. waste mgt....g(No NA (Yes))
h. Accidental generation.....h(No (NA) Yes)
i. Other - describe here:.....i(No NA Yes)

. Narrative: provide additional explanation of any of the above data that will show your efforts to reduce the generation of this hazardous waste or describe impediments to its reduction.

Upon completion of Pu Facilities decommissioning, this waste stream will no longer be generated and is anticipated to be a one-time generation.

. Certification: I certify that the information given on this form is true, accurate and complete.

SIGNATURE: (Generator or authorized representative) [signature] | TITLE: Acting Vice President Safety & Regulatory Mgmt. | DATE: 2/23/94

* Below is for Department use only. **********

. Date received (MM/DD/YY)	Complete? Yes No	Test results? Yes No	Reasonable? Yes No	Follow up Yes No	Initials

Status: Not hazardous (1); Demonstrated not hazardous (2); Resource recovery (4); Partial exemption (5); Hazardous (6); Accidental (7); No longer generated (8); Variance granted (9); Conditionally exempt (A); Mixed radiological wastes (R); Corrective Action (C); Waste water Rx (W).

Status:

Further Reporting Y N

. Comments.

Hazardous Waste Stream Report

Tennessee Department of Environment and Conservation, Division of Solid Waste Management.
Fifth Floor, L & C Tower, 401 Church Street, Nashville, TN 37243-1535

Please complete and/or correct, certify and return regardless. Retain a copy for your records.

1. Organization's full name at facility.	EPA identification code
NUCLEAR FUEL SERVICES, INC	TND 00-309-5635

2. Waste name. Use standard name from regulations whenever possible.	Waste Stream number
MIXED TRU (PU)/MERCURY HAZARDOUS WASTE	23

3. Give the years that this waste has been generated, e.g. 1975, 1982-.	Date no longer generated. (MM/DD/YY)	Frequency of generation (V)
1992		Continuous / Accidental/ One time / Various

4. Circle all appropriate hazard criteria below. Ignitable (a), EP toxic (b), Corrosive (c), Reactive (e), Other toxic (f), TCLP (g).	EPA waste codes. (Primary first; six maximum.)	SIC code for generating process.
G	D009	2819,

5. Physical form	% Solid	% Water	Vol. to wt. conversion (pounds/gallon)	If used for fuel, chlorine content (PPM)	If used for fuel, BTU per pound
Sld:Othr (9)			0.155	0.0	0.0

6. Generation rates. Supply all rates in kilograms. Monthly maximum (kg)	Annual average (kg)	Maximum amount stored on-site (kg)	Maximum days stored
3.9	3.9	3.9	3

7. DOT shipping name	DOT hazard class		DOT ID code
RADIOACTIVE MATERIAL, NOS	Radioactive	16	UN2918

8. Describe generation process.

DECOMMISSIONING OF PLUTONIUM FACILITY *AS ALLOWED BY RULE 1200-1-11, LESS THAN 55 GALLONS (405 KGS.) OF THIS WASTE IS BEING STORED IN THE SATELLITE ACCUMULATION AREA. THE WASTE WILL BE HELD IN THE SATELLITE AREA UNTIL 55 GALLONS IS ACCUMULATED OR SHIPPED OFFSITE.

9. Chemical Characteristics.

pH	Flash point	Reactive code	Concentration units. For EP toxic and TCLP wastes, use PPM. % volume( ), % weight( ), PPM( ) XX (P)

Major and hazardous constituents. Give range of values at right.	lower value	upper value
a. XXXXXX		
b.		
c.		
d.		
e. —		

10. If this waste is recovered, reclaimed, recycled or reused, describe how.

24

11. Annual Generation and Handling Data: If the waste was shipped off-site, summarize in block (a) and submit an Off-site Shipping Report. Report onsite handling in blocks (b) - (d). For offsite or onsite handling that requires interim status or a permit, use "T", "S", or "D" codes from the instructions. For other handling, use "H" codes.

Report Year 1993	Amount generated during year (kg)	Amount on-site in temporary storage on the first day of year (kg)	Amount on-site in temporary storage on the last day of year (kg)
	-0-	3.9	3.9

	Total Handled OFFsite	TSDR handling/Waste management methods		Amount Handled ONsite	TSDR handling/Waste management methods
a			b		
c	Amount Handled ONsite	TSDR handling/Waste management methods	d	Amount Handled ONsite	TSDR handling/Waste management methods

Hazardous Waste Reduction Data: Large Quantity Generators (LQGs) in 1989 are required to answer questions 12-15. Generators not in operation in 1989 have a different schedule for required reporting; see the instructions. Small quantity generators (SQGs) in 1989 are not required to answer questions 12-15 until the report due for calendar year 1994. However, We urge SQGs to answer them as it should help later when answers are required.

12. Specify your actual hazardous waste generation and final reduction goal as ratios of hazardous waste generated to the item, service or intermediary produced in its standard production units. See instructions for further details.

This year's actual ratio	Goal year's ratio	Goal Year	If no numeric goal has been set, describe your efforts to set one in line 15 below.

13. Check the efforts undertaken to reduce the volume and/or toxicity in the generation of this waste during the reported year. This includes the efforts undertaken in previous years that affected the reported year. The reduction effort relates to generation processes and not treatment methods.

a. Reformulation/redesign of product . (a)
b. In process recycling. . . . . (b)
c. Equipment/technology modification . (c)
d. Substituting raw materials . . . . (d)
e. Improved operations . . . . . (e)
f. Reduction research/planning . . . . . .(r)
g. No effort . . . . . .(f X)
h. Other - briefly explain here. . . . . .(g)

14. Rate the helpfulness of the items below that affected your hazardous waste reduction plan and its results. To the right of each item, circle one code: YES, this item helped reduction; NO, it hurt reduction; or NA, it was not necessary or did not affect reduction. See the instructions for further explanation.

a. Training or technical assistance.....a(No (NA) Yes)
b. Technical feasibility.....b(No (NA) Yes)
c. Economic practicality.....c(No (NA) Yes)
d. Measurement/accounting methods.....d(No (NA) Yes)
e. TN hazardous waste regulations.....e(No NA (Yes))
f. Implementation experience.....f(No (NA) Yes)
g. High costs of haz. waste mgt....g(No NA (Yes))
h. Accidental generation.....h(No (NA) Yes)
i. Other - describe here:.....i(No NA Yes)

15. Narrative: provide additional explanation of any of the above data that will show your efforts to reduce the generation of this hazardous waste or describe impediments to its reduction.

Upon completion of Pu Facilities decommissioning, this waste stream will no longer be generated and is anticipated to be a one-time generation.

16. Certification: I certify that the information given on this form is true, accurate and complete.

SIGNATURE: (Generator or authorized representative)	TITLE:	DATE:
[signature]	Acting Vice President Safety & Regulatory Mgmt.	2/23/94

*** Below is for Department use only. **********

17. Date received (MM/DD/YY)	Complete? Yes No	Test results? Yes No	Reasonable? Yes No	Follow_up Yes No	Initials

Status: Not hazardous (1); Demonstrated not hazardous (2); Resource recovery (4); Partial exemption (5); Hazardous (6); Accidental (7); No longer generated (8); Variance granted (9); Conditionally exempt (A); Mixed radiological wastes (R); Corrective Action (C); Waste water Rx (W).

Status:

Further Reporting Y N

18. Comments.

NONMIXED CH-TRU
VERIFICATION CHECKLIST
(DATA PACKAGE)

WASTE PACKAGE NO. NFS-0868

Note: A completed Data Package checklist must be generated with each 55-gal waste container during the verification process and will become part of the documentation retained for that waste package.

Data Package

1. Date of Packaging	✓
2. Max Surface Dose Rate	✓
3. Weight	✓
4. Physical Description	✓
5. Assay Information	✓
6. Radionuclide Data (Qual & Quan)	✓
7. Organics (Weight & Volume %)	✓
8. Thermal Power	✓
9. Shipment No.	✓
10. Date of Shipment	✓
11. Radionuclide Chemical Form	✓
12. Neutron Poisons	N/A
13. Iron Content	✓
14. Radionuclide Distribution	✓
15. Sampling Results (If Required)	N/A
16. Documentation	✓

Verification complete, Items 1 - 16 verified.

Laboratory Certification Official

7/28/94
Date

WEAF DATA ENTRY SYSTEM FOR THE NFS WASTE STORAGE PROJECT

DATA ENTRY VERIFICATION FORM (ver. 1.3c)

Name Input	: S E Williams	Waste Type	: TRU-MIX
ATN Number	: NFS-0868	Date of Input	: 07-06-94
Gross Weight (lb)	: 144	Date of Shipment	: 05-06-94
Tare Weight (lb)	: 107	Date of Receipt	: 05-06-94

Iron Content by Weight% :	8.00			
TRU Activity Conc. (nCi/g):	92315.00	Error:	26112.00	%error: 0.28
Pu239 Fissile Gram Eq. (g):	13.95	Error:	3.95	%error: 0.28
Pu239 Equiv. Activity (Ci):	1.77	Error:	0.50	%error: 0.28
Thermal Power (> 0.1W/ft^3) :	1.50			
Inhalation Dose Eq.(MOX ONLY):	0.00			
Neutron Absorbers {text} :	0.00			

ISOTOPE ACTIVITY (mCi)

U-233:	0.00E+00	Pu-238:	4.76E+01	Am-241:	2.34E+02
U-234:	2.34E+01	Pu-239:	8.05E+02		
U-235:	1.81E-03	Pu-240:	4.80E+02		
U-238:	2.54E-02	Pu-241:	1.01E+04		
		Pu-242:	1.84E-02		
Sum:	2.34E+01		1.14E+04		2.34E+02

Total Radioactivity Reported on Manifest (mCi): 1.17E+04

DRUM PROFILE FOR SUPERCOMPACTED WASTE

	Pack Number	Activity (mCi)	
Top Pack :	10927	6.79E+01	
Middle Pack :	4853	2.41E+03	Activity
Bottom Pack :	1623	9.22E+03	Total (mCi): 1.17E+04

Technician Notes:
Time > 2:31:54 PM

Signature: Sherry E. Williams Date: 7-15-94

Written to: D:\NFS\DATA\NFS_IN.TMP, WAC file: D:\NFS\V1.1\WAC.DAT
File saved as: D:\NFS\DATA\NFS0868.DAT

WEAF DATA ENTRY SYSTEM FOR THE NFS WASTE STORAGE PROJECT
CHECK OF COMPUTED VALUES AND NOMINAL EXPECTATION

ATN Number	: NFS-0868	Waste Type	: TRU-MIX
Gross Weight (lb)	: 144	Date of Input	: 07-06-94
Tare Weight (lb)	: 107	Density (g/cm3)	: 0.08
Net Weight (lb)	: 37.0		
Net Weight (kg)	: 16.8		

	Isotope	Activity (mCi)	Mass (g)	Element Mass(g)
	*U-233 :	0.00E+00	0.000	
	U-234 :	2.34E+01	3.849	
	U-235 :	1.81E-03	0.854	
	U-238 :	2.54E-02	76.737	81.440
	*PU-238 :	4.76E+01	0.003	
	*PU-239 :	8.05E+02	12.984	
	*PU-240 :	4.80E+02	2.115	
	PU-241 :	1.01E+04	0.098	
	*PU-242 :	1.84E-02	0.005	15.204
* TRU isotope	*AM-241 :	2.34E+02	0.068	0.068

ISOTOPICS — Total Mass---> 96.712

Weight percent U: 0.842

U233/U: 0.000
U234/U: 0.047
U235/U: 0.010
U238/U: 0.942

Weight percent Pu: 0.157

Pu238/Pu: 0.000
Pu239/Pu: 0.854
Pu240/Pu: 0.139
Pu241/Pu: 0.006
Pu242/Pu: 0.000

Weight percent Am: 0.0007

CALCULATIONS OF WASTE ACCEPTANCE CRITERIA

	Reported Qty.	Calculated Qty.
TRU Activity Concentration (nCi/g) :	92315.000	93262.195
Pu239 Fissile Gram Equivalent (g) :	13.950	13.817
Pu239 Equivalent Activity (Ci) :	1.766	1.766
Thermal Power (W/ft^3) :	1.500	0.007
Inhalation Dose Equivalent (g) :	0.000	0.000
U235 Equivalent Mass (g) :		21.561

RESULTS OF NOMINAL EXPECTATION TESTS

Isotopic weight%:
W% ERRORS---> Pu239/Pu < 90% *

WAC calculations:
CALCS. DIFFER BY > 3%: tp

File Saved As: D:\NFS\DATA\NFS0868.DAT

MARTIN MARIETTA

WASTE T/S/D RECORD

Document ID

FACILITY INFORMATION

F1. T/S/D Site	F2. T/S/D Facility	(Reserved)
NFS	UNK	

ACTIVITY LOG

L1. Activity Code	L2.	L3. Date	L4. Item/Container ID No.	L5. Container ID No.	L6. T/S/D Area	L7. Location			L8. Gross Weight	L9. Wt Units	L10. Net Volume	L11. Vol Units
REJECT		11/29/94	NFS-0868									

COMMENTS

Deleted 12/6/94 dh

SIGNATURE and APPROVALS

S1. WMO Operator	Badge	Date
RA White	20405	11/29/94

S2. WMO Officer	Badge	Date

DIVIDER PAGE

Attachment D: Contact Handled Waste Repackaging Data Form

Page 1 of 3

Section 1: General Information

Examination Start Date: 11-23-10 Originally packaged as RH Waste ☐ Yes ☒ No

Container Number: NFS-09729A

Container Type: 55 gal Thickness of Bag Liner: 6 mil

Bag Liner Description: ☑ Non-Rigid ☑ Filtered Vent ☑ Poly ☐ Rigid ☐ Non-vented ☐ Other:

Waste Stream Identification #: OR-NFS-CH-HET-A

Physical waste form matches the assigned Waste Stream Description and RCRA characterization?
☐ NO ☒ YES

New Waste Stream Identification Number if assigned: NA

Are sharp or heavy objects are blocked, braced, or packaged to provide puncture protection for the waste container?
☐ NO ☒ YES

Volume Utilization Percentage: NA %

Number of Container Liners used: 1

Closure Method for Container Liner: twist & tape

Number of Inner Bags: 0

Verified no inner packages are heat sealed? ☐ NO ☒ YES

Layers of Confinement: Number of Layers: 1

Container Filter and Drum Enclosure Data

Filter Torque Wrench Serial/ID No. BSC250F13.0 Calibration Due Date: 3/2/11

Filter Model No. UT9424X 00213 Serial No. 0350 Torque Value 6 ft lbs

Lid Ring Bolt Torque Wrench: 508025907A Calibration Due Date: 4-19-11

Manufacturer's Closure spec: 60 Ft lbs

Source Container #:	Waste Stream #:	Original Parent Container #:	Waste Stream #:
NFS-0929	OR-NFS-CH-HET-A		

Attachment D: Contact Handled Waste Repackaging Data Form

Page 2 of 3

Section 2: Waste Package Data			Data Page 1 of 1
Container Number: NFS-0929A		Examination Date: 11-23-10	
Item #	If Drum Puck, SS or CS	Waste Item Description	
1	N/A	TAPE, PLASTIC, CARDBOARD, PAPER, CUT OPEN PLASTIC BOTTLES CONTAINING TRASH, 8 PLASTIC BOTTLES FILLED WITH GROUT, 2 EMPTY PLASTIC BOTTLES	
Waste Repackaging Operator:	STEVE BLAIR (Print Name)	(Signature)	11-23-10 (Date)

Attachment D: Contact Handled Waste Repackaging Data Form
Page 3 of 3

Section 3: Comments

Container Number:	NFS-09294	Examination Date:	11-23-10

Waste repackaged in accordance with OPIP N/A [X] Yes [ ] No [ ] If No, explanation required

OPIP # NA

Waste repackaged in accordance with WNCR N/A [X] Yes [ ] No [ ] If No, explanation required

WNCR # NA

NOTE 1: ALL HEAT SEALED BAGS AROUND THE GROUT BOTTLES WERE CUT AND VENTED ON 12-2-10

Section 4: Approvals

Signature below signifies that waste in this container has been examined and determined to be acceptable waste forms.

Waste Repackaging Operator:		
Steve Blair		11-23-10
Print Name	Signature	Date

Waste Repackaging Data Form Reviewer:		
Jason Surber		11-23-10
Print Name	Signature	Date

Signature below signifies that the Waste Stream Identification Number has been verified to be consistent with the original parent container and that objective evidence of the Waste Stream Identification Number is included in the applicable Waste Container Traveler.

Waste Package Certifier:		
DK Brock		11-23-10
Print Name	Signature	Date

Attachment C: Bottle Placement Form

Drum Number NFS-0929A

Tube Number	Bottom		Middle		Top	
1	Bottle Id:	10927B	Bottle Id:	4853A	Bottle Id:	N/A
	Dose Rate:	1	Dose Rate:	40	Dose Rate:	
2	Bottle Id:	10927C	Bottle Id:	10927A	Bottle Id:	
	Dose Rate:	1,5	Dose Rate:	,7	Dose Rate:	
3	Bottle Id:	1623	Bottle Id:	10927D	Bottle Id:	
	Dose Rate:	200	Dose Rate:	1,7	Dose Rate:	
4	Bottle Id:	4853C	Bottle Id:	NFS-TWPC-112310C	Bottle Id:	
	Dose Rate:	10	Dose Rate:	1	Dose Rate:	
5	Bottle Id:	4853B	Bottle Id:	NFS-TWPC-112310A	Bottle Id:	
	Dose Rate:	15	Dose Rate:	,5	Dose Rate:	
6	Bottle Id:	N/A	Bottle Id:	N/A	Bottle Id:	
	Dose Rate:		Dose Rate:		Dose Rate:	

Comments:

Tube 6a was filled with misc. plastic, tape, and other trash from the grout bottle parent drum.

DIVIDER

PAGE

REQUEST FOR STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE OR SPECIAL MATERIALS

78486

Requester: Executes this section before arranging material transfer

Date	Origin of Waste bldg. no.	Requester's Signature	Badge No.	Phone No.	Building/Mail Stop
9/93	NFS 110/234	T. Bennett	NON-RECORD COPY		P. O. Box 1234 Erwin, TN 7702

(CHECK IF APPLICABLE)	Total Volume (Cu. Ft. only)	Combustible Vol. (Cu. Ft. only)	Weight (Lbs. only)	Accountability no. (mm.no.)
X OFFSITE	7.50	0.0	121	
___ CONSTRUCTION	Charge Work Order Number: 3325-7016		(FOR WASTE OPERATIONS USE ONLY) COST SYMBOL B	COST ADJUSTMENT

Waste Classification (check only one)

1. X TRU or U-233 (Retrievable) (>100μCi/Kg)
2. __ URANIUM/THORIUM
3. __ FISSION PRODUCT
4. __ INDUCED ACTIVITY
5. __ TRITIUM
6. __ BETA-GAMMA TRU or U-233 (>100μCi/Kg)
7. __ ALPHA TRU or U-233 (<100μCi/Kg) BETA-GAMMA TRU or U-233
8. __ OTHER _____
9. __ LANDFILL/SUSPECT
A. __ CONTAMINATED ASBESTOS

Type of Waste (check only one) BRIEF DESCRIPTION

__ (BW) BIOLOGICAL WASTE _____
__ (CE) CONTAMINATED EQUIPMENT _____
__ (DD) DECONTAMINATION DEBRIS _____
X (DS) DRY SOLIDS 2-LITER BOTTLES
__ (SS) SOLIDIFIED SLUDGE _____
__ (NC) NOT CLASSIFIED _____

CONTAINER TYPE (CHECK ONLY)

1. X 55 GAL SS DRUM
2. __ 30 GAL SS DRUM
3. __ 4-1/2" WALL CONCRETE CASK
4. __ 6" WALL CONCRETE CASK
5. __ 12" WALL CONCRETE CASK
6. __ 55 GAL BI DRUM
7. __ 30 GAL BI DRUM
8. __ WOODEN BOX _____
9. __ OTHER
10. __ GI CAN
11. __ PLASTIC
12. __ DUMPSTER
13. __ NONE
14. __ CASK NO ____ WALLTHICKNESS ___IN. SHIELDING MTL ____
15. __ METAL BOX __

COPY

CAUTION

This information must NOT be released externally until it has been reviewed by the appropriate Site Classification and Information Control Office.

PRINCIPAL ISOTOPE(S): (BEST ESTIMATE)
*Refer to the Attached Manifests

1. IDENTITY ____ QUANTITY ____ __ GRAMS __ CURIES
2. IDENTITY ____ QUANTITY ____ __ GRAMS __ CURIES
3. IDENTITY ____ QUANTITY ____ __ GRAMS __ CURIES
4. IDENTITY ____ QUANTITY ____ __ GRAMS __ CURIES

REQUESTER'S COMMENTS FOR THOSE HANDLING WASTE IN THE FIELD:

TOTAL CURIES (BEST EST.) 1.350E+02 MARTIN FOR JB

WMO FIELD REPRESENTATIVE (APPROVAL SIGNATURE) P G Cleveland DATE 11/10/93

HEALTH PHYSICIST: EXECUTES THIS SECTION BEFORE MATERIAL TRANSFER

RADIATION DATA:
BETA-GAMMA: FOR PACKAGE 5.0 mrem/hr. @ 0 in.

SURFACE CONT. <20 dpm (alpha): <200 dpm (beta/gamma): Neutron reading <0.5 mrem/hr

SURVEYOR'S COMMENTS FOR THOSE HANDLING WASTE IN THE FIELD: Entered 11/11/93 KM > 12/27/93 KSC
Billed 11/17/93 KM

Drum [redacted] Shipment #: 4226-37	HP'S SIGNATURE	DATE

STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE
OR SPECIAL MATERIALS WASTE TRACKING UPDATE

DOCUMENT NO. 78486
PAGE 2

COMPACTION WASTE: COMPLETED AND THEN APPROVED BY SWSA FOREMAN

LL BOX NUMBER	TOTAL POST-VOL	(%) PORTION	FULL BOX (Y/N)	COMMENTS
TOTALS				

Date of Compaction:

Compacting Operators:

and

SWSA Foreman's Signature:

SWSA FOREMAN COMPLETES AND APPROVES FOR NON-COMPACTED WASTE

Waste Was (check one):	SWSA No.:	Storage/Disposal Date:	ATN NO.:	Low Level No.:
☑ Retrievable ☐ Buried	5	11/10/93	NFS 478	

Facility (check one):

☑ Building ☐ Well ☐ Landfill ☐ Tumulus ☐ Trench ☐ On Ground Storage

Location No.:	Location Within Facility:	Waste Description:
B 7879	Rank: File: Layer:	CH-TRU

Comments from SWSA Foreman regarding waste and/or operations:

Foreman's Signature: R L White

WASTE EXAMINATION (WEAF): COMPLETES AND FORWARDS TO DMC

Waste Inspection Level:	Rated:	Inspection Officier:	Date:
☒ RTR ☐ PAN/SGS	☒ Pass ☐ Fail	Sherry E. Williams	1-11-94

DISTRIBUTION: Copy 1 - Attach to 2822 and forward to DMC
Copy 2 - Retained by SWSA Foreman
Copy 3 - Retained by WEAF/Compacting Team (If Applicable)

UCN-2822A
(3 3-90)

COPY 1

Generator Name: Nuclear Fuel Services, Inc.

OAK RIDGE NATIONAL LABORATORY
MARIETTA ENERGY SYSTEMS, INC.

Continuation Sheet

USE THIS NUMBER ON ALL CONTINUATION PAGES

Shipment ID No: ICH: 4226-37

(20) ITEM NUMBER	(21) RADIONUCLIDE EACH CONTAINER	(22) PERCENT OF ACTIVITY or mCi of EACH NUCLIDE	(23) ACTIVITY EACH CONTAINER (mCi)	(24) PHYSICAL FORM	(25) CHEMICAL FORM and NAME & % of CHELATING AGENT	(26) WASTE DESCRIPTION	(27) WASTE FORM CLASS	(28) SPECIAL NUCLEAR MATERIAL (grams)	(29) SOURCE MATERIAL (pounds)	Disposal Container (30) CONTAINER WEIGHT (pounds)	(31) CONTAINER VOLUME (Cu Ft)	(32) CONTAINER TYPE	(33) RADIATION LEVELS CONTAINER SURFACE (x) mR/hr ( ) R/hr	(33) 1 Meter mR/hr	(34) CONTAMINATION CONTAINER SURFACE (DPM/100cm2) Alpha	(34) Beta-Gamma	(35) FISSILE CLASS	(36) LABELS/MARKINGS USED
A38727	PU238	2.14E+03	1.350E+05	SOLID	OXIDE	2-LITER BOTTLES	>C	5.60E+01	0.00	121	7.50	DRUM	< 5.00	< 0.08	< 20	< 200	III	Radioactive- N.O.S.
1889	PU239	2.58E+03																Radioactive-
NFS-0478	PU240	2.89E+03																Radioactive-
	PU241	1.23E+05																Radioactive-
	PU242	1.02E+00																Radioactive-
	AM241	4.63E+03																Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
A38729	PU238	2.70E+03	1.566E+05	SOLID	OXIDE	2-LITER BOTTLES	>C	5.56E+01	0.00	123	7.50	DRUM	< 4.00	< 0.06	< 20	< 200	III	Radioactive- N.O.S.
1891	PU239	2.54E+03																Radioactive-
NFS-0480	PU240	2.85E+03																Radioactive-
	PU241	1.44E+05																Radioactive-
	PU242	1.35E+00																Radioactive-
	AM241	4.19E+03																Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
2			2.916E+05			PAGE TOTALS		1.12E+02	0.00	244	15.00			< 0.14				

Form No.
( )

DISPOSAL SITE COPY

TX-5352

DATA LOG SHEET FOR PACKAGING TRU WASTE

[An entry is required for each column. See instruction sheet for directions.]

Drum ATN: NFS-0478
Building No.: NFS 110/234
Room No.: _____

Content Code: _____ OR125A
_____ OR125B

1. Pak No.	2. Date	3. Radiation (mRem/h) Beta, Gamma	3. Radiation (mRem/h) Neut.	4. Activity (Ci)	5. Dominant Radionuclides	6. Physical Form	7. Chemical Form	8. Percent Comb.	9. Haz. Mtl (Y/N)	10. Signature	11. Data Log Sheet Verification Date	11. Data Log Sheet Verification Signature
8623-1	07/09/93			1.312E+02	* See Manifest	SOLID	OXIDE	0.0	N	O. Hurley	7-9-93	T Bennett
8770-2	07/09/93			1.408E+00	* See Manifest	SOLID	OXIDE	0.0	N	↓	↓	↓
8772-3	07/09/93			2.355E+00	* See Manifest	SOLID	OXIDE	0.0	N	↓	↓	↓

Proper Drum Closure (Signature): T. Bennett

Generator Certification Official (Signature): T. Bennett

Authorized Radioactive Solid Waste Operations (Signature): LG Cleveland

Note: If column 9 = Yes, complete supplemental form TX-5352A.

1889

TRU WASTE DATA PACKAGE

1. Drum ATN Number: NFS-0478
2. Shipment Number: ID#: 4226-37
3. Date Packaged: 07/09/93
4. Date of Shipment: 11-5-93
5. Date Certified: 07/09/93
6. Gross Weight: 121 lbs, Tare: ~~81~~ 100 lbs OH 7-9-93

7. CONTENT INFORMATION (* See Attached Manifest for Isotopic Breakdown)

a. Physical Description: 2-LITER BOTTLES	
b. Chemical Form: OXIDE	c. Iron Content: 8.0 % by weight
d. Thermal Power: 1.1E+00 W/ft^3	e. Organic Content: 98.0 % by volume
f. Organic Content: 90.0 % by weight	g. ^{239}Pu - fissile gram equivalent: 45.15 +/- 14.22
h. Homogenous: [ ] YES [X] NO 11/1/93	i. ^{239}Pu - equivalent activity 14.443 +/- 4.549 Ci
j. TRU Activity Concentration: 1309096 +/- 412260 nCi/gm	

8. HAZARDOUS CONSTITUENTS

Constituent	Concentration	Analytical Method
Not Present	0.000000000000	

Date of Analyses: 07/09/93

9. NEUTRON ABSORBERS PRESENT

Element	Weight %	Volume %	Analytical Method
Not Present	0.0	0.0	

MARTIN FOR 18

Date of Analyses: 07/09/93

10. MAXIMUM SURFACE DOSE RATE

Beta / Gamma	Alpha	Neutron
< 200 dpm/100cm² 5.0 mrem/hr	< 20 dpm/100cm²	2.5 mrem/hr
Performed by: RE R Edwards		Date: 7/9/93

FORM 28-001 09/92 REVISION 3 DECOMMISSIONING

MARTIN MARIETTA ENERGY SYSTEMS, INC.

ALL CONTINUATION PAGES

Generator Name: Nuclear Fuel Services, Inc.

Continuation Sheet

Shipment ID No: IC#: 4226-37

(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	Disposal Container (30)	(31)	(32)	(33)		(34)		(35)	(36)
ITEM NUMBER	RADIONUCLIDE EACH CONTAINER	PERCENT OF ACTIVITY or mCi of EACH NUCLIDE	ACTIVITY EACH CONTAINER (mCi)	PHYSICAL FORM	CHEMICAL FORM and NAME & % of CHELATING AGENT	WASTE DESCRIPTION	WASTE FORM CLASS	SPECIAL NUCLEAR MATERIAL (grams)	SOURCE MATERIAL (pounds)	CONTAINER WEIGHT (pounds)	CONTAINER VOLUME (Cu Ft)	CONTAINER TYPE	RADIATION LEVELS (TI) CONTAINER SURFACE (x) mR/hr ( ) R/hr	1 Meter mR/hr	CONTAMINATION CONTAINER SURFACE (DPM/100cm2) Alpha	Beta-Gamma	FISSILE CLASS	LABELS/MARKINGS USED
A38727	PU238	2.14E+03	1.350E+05	SOLID	OXIDE	2-LITER BOTTLES	>C	5.60E+01	0.00	121	7.50	DRUM	< 5.00	< 0.08	< 20	< 200	III	Radioactive- N.O.S.
1889	PU239	2.58E+03																Radioactive-
NFS-0478	PU240	2.89E+03																Radioactive-
	PU241	1.23E+05																Radioactive-
	PU242	1.02E+00																Radioactive-
	AM241	4.63E+03																Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
A38729	PU238	2.70E+03	1.566E+05	SOLID	OXIDE	2-LITER BOTTLES	>C	5.56E+01	0.00	123	7.50	DRUM	< 4.00	< 0.06	< 20	< 200	III	Radioactive- N.O.S.
1891	PU239	2.54E+03																Radioactive-
NFS-0480	PU240	2.85E+03																Radioactive-
	PU241	1.44E+05																Radioactive-
	PU242	1.35E+00																Radioactive-
	AM241	4.19E+03																Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
																		Radioactive-
2			2.916E+05			PAGE TOTALS		1.12E+02	0.00	244	15.00			< 0.14				

Form No.
( )

DISPOSAL SITE COPY

Appendix 1 **CHECK SHEET for NFS DRUM RECEIPT**

SWSA Foreman **INITIALS**

1. 55-gallon drum NFS number 478
2. Bar code sticker installed in two locations on the drum. RLW
3. Tamper Indicating Device (TID) is attached to the drum. TID # A38727 RLW
4. Drum is free from damage (visual inspection). RLW
5. Nuc-Filter is installed in the drum lid. RLW
6. Bolt ring is installed properly and bolt is torqued to 45-ft-lb. RLW
7. HP has surveyed the drum, UCN-2785 is attached. RLW
8. A "Hazardous Waste" label is on the drum (if required). ____

Comments: _____

SWSA Foreman signature R L White Badge No. 20405 Date 11/8/93

RSWO Technician

9. Form UCN-2822 complete. PGC
10. Form TX-5352 complete. PGC
11. Form TX-5352A complete (if applicable). NA
12. IC number recorded on form UCN-2822. IC # 426-37 PGC
13. ^{235}U equivalent fissile material total has been calculated. (6.95 E to 1 grams) PGC
14. Drum/documentation is accepted by RSWOG for WEAF inspection. PGC

Comments: _____

RSWO Technician signature P G Cleveland Badge No. 12661 Date 11/10/93

NFS Shipment IC#: 4226-37

Radionuclide	Specific Activity (Ci/g)	U235 Equivalent Factor	Container Number: NFS-00478		
			Act. (mCi)	Wght (g)	U235 Equiv (g)
U233	9.47E-03	1.40E+00			
U234					
U235	2.14E-06	1.00E+00			
U238					
Pu238	1.74E+01	2.30E-01	2.14E+03	1.23E-01	2.83E-02
Pu239	6.14E-02	1.56E+00	2.58E+03	4.20E+01	6.56E+01
Pu240			2.89E+03		
Pu241	1.12E+02	3.50E+00	1.23E+05	1.10E+00	3.84E+00
Pu242			1.02E+00		
Am241	3.24E+00	4.40E-02	4.63E+03	1.43E+00	6.29E-02
			TOTAL U235 Equiv (g):		**6.95E+01**

DRAWN NO. NFS-0478

PROCUREMENT QUALITY
SOURCE SURVEILLANCE PLAN

PLAN NO.	REV. NO.
SS WMRA-106	Original
ISSUE DATE: 12-18-92	REV. DATE

ITEM NAME	VENDOR(S)	PAGE
Contact-Handled Transuranic and Mixed Oxide Waste	NFS/ECOTEK/SEG	1 of 2
P.O. NO. / ITEM	SPEC. NO. / REV.: WMRA-WMPC-106 Contact-Handled Transuranic and Mixed Oxide Waste	DWG. NO. / REV.

FOR ACTIVITIES

REFERENCE

SHIP TO: ORNL

SHIPMENT NO: 4226-37 (NO. 18 FROM NFS)

QUANTITY: 16 55-GALLON DRUMS

TRANSURANIC WASTE

y affixing his signature or stamp to the checklist, the Field Quality epresentative (FQR) assures that he has reviewed or observed the activity nd verifies all Testing and Packaging operations were performed per pproved procedures.

ote: Some activities may be performed at SEG.

ACTIVITY	SOURCE SURVEILLANCE PLAN REFERENCE PARAGRAPH	STAMP/ SIGNATURE	DATE
. Waste Certification Requirements	4.1 thru 4.9	MARTIN FQR 18	11/5/93
. Containers	4.10	MARTIN FQR 18	
. Immobilization	4.11	MARTIN FQR 18	
. No Liquids	4.12	MARTIN FQR 18	
Pyrophoric Materials	4.13	MARTIN FQR 18	
No Explosives or Compressed gas	4.14	MARTIN FQR 18	
Hazardous Waste Characterization	4.15	MARTIN FQR 18	
Specific Activity	4.16	MARTIN FQR 18	
Weight	4.17	MARTIN FQR 18	
Fissile Content	4.18	MARTIN FQR 18	11/5/93

MARTIN FQR 18

DRUM NO. NFS - 0478

PROCUREMENT QUALITY
SOURCE SURVEILLANCE PLAN

	PLAN NO: SS WMRA-106	REV. NO.: Original
	ISSUE DATE: 12-18-92	REV. DATE:
NAME: ntact-Handled Transuranic and ed Oxide Waste	VENDOR(S): NFS/ECOTEK/SEG	PAGE: 2 of 2
NO. ITEM	SPEC. NO. REV.: WMRA-WMPC-106 Contact-Handled Transuranic and Mixed Oxide Waste	DWG. NO. REV.

FOR ACTIVITIES	REFERENCE
Equivalent Activity	4.19
Surface Dose Rate	4.20
Surface Contamination	4.21
Thermal Power	4.22
Gas Generation	4.23
Labeling	4.24
Data Package	4.25
Notification	6.0
Certification	7.0

MARTIN FOR 18 11/5/93

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MARTIN FOR 18 11/5/93

n ATN: NFS-0260, NFS-0262, NFS-0264, NFS-0265, NFS-0266, NFS-0267, NFS-0268, NFS-0269, NFS-0270, NFS-0271, NFS-0272, ~~men~~ NFS-0273, NFS-0277, NFS-0279, NFS-0478, NFS-0480,

R.G. Williams Stamp MARTIN FOR 18 Date 11/5/93

R.G. WILLIAMS

MARTIN MARIETTA FOR

MARTIN FOR 18

1889

NFS-0178

Attachment 6

WASTE CERTIFICATION CHECKLIST FOR CH-TRU

Criteria	Specification	Supervisor Initial
1	WASTE CONTAINER: *(Interim package for SEG):*	
	DOT Spec 17C or 17H	TB
	Stainless Steel *(N/A)*	TB
	55-gallon capacity *(40-gallon capacity)*	TB
	polyethylene liner *(N/A)*	TB
	No handles, cleats, or lifting devices	TB
2	IMMOBILIZATION:	
	Particulate bearing material screened	TB
	Particulate immobilized	TB
	Vermiculite added	N/A
3	LIQUID WASTES:	
	No free liquids present	TB
4	PYROPHORIC MATERIALS:	
	No pyrophoric materials present	TB
	Pyrophoric materials stabilized, if present; otherwise N/A	N/A
5	EXPLOSIVES AND COMPRESSED GASES:	
	Gas can pins removed / can compacted	N/A
	No explosive material present	TB
	Explosive material stabilized, if present; otherwise N/A	N/A
6	RADIOACTIVE MIXED WASTES:	
	No 40CFR261/761 hazardous waste/substance present	TB
	Material identified/quantified, if present; otherwise N/A	N/A
7	ACTIVITY CONCENTRATION OF WASTE:	
	Waste package ≥ 100 nCi/gm	TB

MARTIN FOR JB

1889

Criteria	Specification	Supervisor Initial
8	WASTE PACKAGE WEIGHT: Waste package ≤ 800 pounds	TB
9	NUCLEAR CRITICALITY: ^{239}Pu fissile gram equivalent ≤ 128 gm *(≤42 gm)*	TB
10	^{239}Pu EQUIVALENT ACTIVITY: ^{239}Pu equivalent activity ≤ 1,000 Ci *(≤333 Ci)*	TB
11	SURFACE DOSE RATE: Maximum surface dose rate ≤ 200 mRem/hr Neutron dose rate ≤ 20 mRem/hr Neutron dose reported if > 20 mRem/hr; otherwise N/A	TB TB N/A
12	SURFACE CONTAMINATION: Surface contamination ≤ 20 dpm/100cm² α Surface contamination ≤ 200 dpm/100cm² ß/γ	TB TB
13	THERMAL POWER: Thermal power ≤ .1 watt/ft³ Thermal power reported if ≥ .1 watt/ft³; otherwise N/A	~~TB~~ N/A 11-1-93 ~~N/A~~ TB 11-1-93
14	GAS GENERATION: Polyethylene liner fitted with 3/8" hole *(N/A)* Drum lid bung fitted with HEPA filter (Torque) *(N/A)*	TB TB
15	LABELING: ORNL accountability transfer bar code attached	TB
16	DATA PACKAGE: Data package verified complete and accurate	TB/BJ
17	HEPA Filter torque: 15±1.5 ft-lbs. (raised nipple bung) 25±2.5 ft-lbs (flush bung) Closure Lug Bolt Torque - 45-50 ft. lbs; lock nut on outside	TB TB
18	Approved absorbent material added	TB

SIGNATURES:
Supervisor completing checksheet T L Bennett Date: 7-9-93
MTS QA review S Foley Date: 11/2/93
Project Manager/Director Donald Jones Date: 11/2/93

MARTIN FOR TB

NONMIXED CH-TRU
VERIFICATION CHECKLIST
(DATA PACKAGE)

WASTE PACKAGE NO. NFS-0478

Note: A completed Data Package checklist must be generated with each 55-gal waste container during the verification process and will become part of the documentation retained for that waste package.

Data Package

1. Date of Packaging	✓
2. Max Surface Dose Rate	✓
3. Weight	✓
4. Physical Description	✓
5. Assay Information	✓
6. Radionuclide Data (Qual & Quan)	✓
7. Organics (Weight & Volume %)	✓
8. Thermal Power	✓
9. Shipment No.	✓
10. Date of Shipment	✓
11. Radionuclide Chemical Form	✓
12. Neutron Poisons	N/A
13. Iron Content	✓
14. Radionuclide Distribution	✓
15. Sampling Results (If Required)	N/A
16. Documentation	✓

Verification complete, Items 1 - 16 verified.

Laboratory Certification Official

12-22-93
Date

ATA ENTRY SYSTEM FOR THE NFS WASTE STORAGE PROJECT

DATA ENTRY VERIFICATION FORM (ver. 1.3)

Name Input	: S L Gottman	Waste Type	: TRU-IMM
ATN Number	: NFS-0478	Date of Input	: 11-30-93
Gross Weight (lb)	: 121	Date of Shipment	: 11-05-93
Tare Weight (lb)	: 100	Date of Receipt	: 11-05-93

Iron Content by Weight% : 8.00

TRU Activity Conc. (nCi/g): 1309096.00 Error: 412260.00 %error: 0.31

Pu239 Fissile Gram Eq. (g): 45.15 Error: 14.22 %error: 0.31

Pu239 Equiv. Activity (Ci): 14.44 Error: 4.55 %error: 0.32

Thermal Power (> 0.1W/ft^3) : 1.10 No. of 2-l bottles: 3

Inhalation Dose Eq.(MOX ONLY): 0.00

Neutron Absorbers {text} : 0.0

ISOTOPE ACTIVITY (mCi)

U-233:	0.00E+00	Pu-238:	2.14E+03	Am-241:	4.63E+03
U-234:	0.00E+00	Pu-239:	2.58E+03		
U-235:	0.00E+00	Pu-240:	2.89E+03		
U-238:	0.00E+00	Pu-241:	1.23E+05		
		Pu-242:	1.02E+00		
Sum:	0.00E+00		1.31E+05		4.63E+03

Total Radioactivity Reported on Manifest (mCi): 1.35E+05

DRUM PROFILE FOR SUPERCOMPACTED WASTE

	Pack Number	Activity (mCi)	
Top Pack :	8772	2.36E+03	
Middle Pack :	8770	1.41E+03	Activity
Bottom Pack :	8623	1.31E+05	Total (mCi): 1.35E+05

Technician Notes:
Time > 10:55:55 AM

No maximum placed.
Slight difference of thermal power.

Signature: S. L. Gottman Date: 12-1-93

Written to: D:\NFS\DATA\NFS_IN.TMP, WAC file: D:\NFS\V1.1\WAC.DAT
File saved as: D:\NFS\DATA\NFS0478.DAT

WEAF DATA ENTRY SYSTEM FOR THE NFS WASTE STORAGE PROJECT
CHECK OF COMPUTED VALUES AND NOMINAL EXPECTATION

ATN Number	: NFS-0478	Waste Type	: TRU-IMM
Gross Weight (lb)	: 121	Date of Input	: 11-30-93
Tare Weight (lb)	: 100	Density (g/cm3)	: 0.91
Net Weight (lb)	: 21.0		
Net Weight (kg)	: 9.5		

	Isotope	Activity (mCi)	Mass (g)	Element Mass(g)
	*U-233 :	0.00E+00	0.000	
	U-234 :	0.00E+00	0.000	
	U-235 :	0.00E+00	0.000	
	U-238 :	0.00E+00	0.000	0.000
	*PU-238 :	2.14E+03	0.125	
	*PU-239 :	2.58E+03	41.613	
	*PU-240 :	2.89E+03	12.731	
	PU-241 :	1.23E+05	1.194	
	*PU-242 :	1.02E+00	0.259	55.922
* TRU isotope	*AM-241 :	4.63E+03	1.350	1.350

ISOTOPICS — Total Mass---> 57.272

Weight percent U: 0.000

U233/U: 0.000
U234/U: 0.000
U235/U: 0.000
U238/U: 0.000

Weight percent Pu: 0.976

Pu238/Pu: 0.002
Pu239/Pu: 0.744
Pu240/Pu: 0.228
Pu241/Pu: 0.021
Pu242/Pu: 0.005

Weight percent Am: 0.0236

CALCULATIONS OF WASTE ACCEPTANCE CRITERIA

	Reported Qty.	Calculated Qty.
TRU Activity Concentration (nCi/g) :	1309096.000	1283933.250
Pu239 Fissile Gram Equivalent (g) :	45.150	44.749
Pu239 Equivalent Activity (Ci) :	14.440	14.458
Thermal Power (W/ft^3) :	1.100	1.134
Inhalation Dose Equivalent (g) :	0.000	0.000
U235 Equivalent Mass (g) :		69.828

RESULTS OF NOMINAL EXPECTATION TESTS

Isotopic weight%:
W% ERRORS---> U < 80% * Pu239/Pu < 90% *

WAC calculations:
CALCS. DIFFER BY > 3%: tp

File Saved As: D:\NFS\DATA\NFS0478.DAT

DIVIDER

PAGE

Attachment D: Contact Handled Waste Repackaging Data Form

Page 1 of 3

Section 1: General Information			
Examination Start Date: 7-30-08			
Container Number: X10C0506151B			
Container Type: 55 gal Drum		Thickness of Bag Liner: 6	mil
Bag Liner Description: ☑ Non-Rigid ☑ Filtered Vent ☑ Poly ☐ Rigid ☐ Non-vented ☐ Other:			
Waste Stream Identification #: OR-NFS-CH-Soil		Waste Matrix Code: S4100	
Summary Category Group: S4000			
Physical waste form matches the assigned Waste Stream Description, Waste Matrix Code, and RCRA characterization? ☐ NO ☑ YES			
Are sharp or heavy objects are blocked, braced, or packaged to provide puncture protection for the waste container? ☐ NO ☑ YES			
Volume Utilization Percentage: 100 %			
Number of Container Liners used: 1			
Closure Method for Container Liner: Twist & Tape			
Number of Inner Bags: 0			
Verified no inner packages are heat sealed? ☐ NO ☑ YES			
Layers of Confinement: Number of Layers: 1			

Container Filter and Drum Enclosure Data

Filter Torque Wrench Serial/ID No. 405041764 9 Calibration Due Date: 5/14/09
Filter Model No. NUCFIL-019DS Serial No. AI 2264 Torque Value 10 FT
Lid Ring Bolt Torque Wrench: 405041764 9 Calibration Due Date: 5/14/09
Manufacturer's Closure spec: 60 FT lbs

Source Container #:	Waste Stream #:	Original Parent Container #:	Waste Stream #:
X10C0506150	OR-NFS CH Soil		
X10C0506151	OR-NFS-CH Soil		

Attachment D: Contact Handled Waste Repackaging Data Form

Page 2 of 3

NOTE ①
MAS 8-4-08 ~~MAS~~

Section 2: Waste Package Data MAS 8-4-08 NOTE ①	Data Page 1 of 12
Container Number: ~~X10E050615QD~~ X10C050615LB	Examination Date: 7-30-08

Item #	Waste Item Description
1	Soil

Waste Repackaging Operator:	David Lamance (Print Name)	(Signature)	7-30-08

Attachment D: Contact Handled Waste Repackaging Data Form

Page 2 of 3

Section 2: Waste Package Data		Data Page 2 of 2
Container Number: X10C0506151B		Examination Date: 8-4-08
Item #	Waste Item Description	
1	SOILS	
Waste Repackaging Operator:	Mack Silvey (Print Name)	Mack Silvey (Signature) 8-4-08

Attachment D: Contact Handled Waste Repackaging Data Form

Page 3 of 3

Section 3: Comments			
Container Number:	XDC050615/B	**Examination Date:**	7-30-08
NOTE D E Rhar corrected MAS 8-4-08			

Section 4: Approvals		
Signature below signifies that waste in this container has been examined and determined to be acceptable waste forms.		
Waste Repackaging Operator:		
Mark Silvey **Print Name**	Mark Silvey **Signature**	8-4-08 **Date**
Waste Repackaging Data Form Reviewer:		
Brian K Satterfield **Print Name**	 **Signature**	8-4-08 **Date**
Signature below signifies that the Waste Stream Identification Number, Summary Category Codes, and Waste Matrix Code have been verified to be consistent with the original parent container and that objective evidence of the Waste Stream Identification Number is included in the applicable Waste Container Traveler.		
Waste Package Certifier:		
John Courtney **Print Name**	 **Signature**	8-6-08 **Date**

Attachment D: Contact Handled Waste Repackaging Data Form

Page 1 of 3

Section 1: General Information		
Examination Start Date: 8-4-08		
Container Number: XOC0506151E		
Container Type: 55 Gal Drum	Thickness of Bag Liner: 6	mil
Bag Liner Description: ☐ Non-Rigid ☐ Filtered Vent ☐ Poly ☐ Rigid ☐ Non-vented ☐ Other:		
Waste Stream Identification #: OR-NFS-CH-SOIL	Waste Matrix Code: S4100 Soil 5	
Summary Category Group: S4000		
Physical waste form matches the assigned Waste Stream Description, Waste Matrix Code, and RCRA characterization? ☐ NO ☑ YES		
Are sharp or heavy objects are blocked, braced, or packaged to provide puncture protection for the waste container? ☐ NO ☑ YES		
Volume Utilization Percentage: 100 %		
Number of Container Liners used: 1		
Closure Method for Container Liner: TWIST + TAPE		
Number of Inner Bags: 0		
Verified no inner packages are heat sealed? ☐ NO ☑ YES		
Layers of Confinement: Number of Layers: 1		

Container Filter and Drum Enclosure Data

Filter Torque Wrench Serial/ID No. 4050417649 Calibration Due Date: 5-14-09

Filter Model No. NUCFIL 0190S Serial No. A1 22268 Torque Value 10 FT LB

Lid Ring Bolt Torque Wrench: 4050417649 Calibration Due Date: 5/14/09

Manufacturer's Closure spec: 60 FT LBS

Source Container #:	Waste Stream #:	Original Parent Container #:	Waste Stream #:
XOC0506151	OR-NFS-CH Soil		

Attachment D: Contact Handled Waste Repackaging Data Form

Page 2 of 3

Section 2: Waste Package Data			Data Page 1 of 1
Container Number: X10C0506151E		Examination Date: 8-4-08	
Item #	Waste Item Description		
0	SOIL		
Waste Repackaging Operator:	Mark Silvey (Print Name)	Mark Silvey (Signature)	8-4-08

Attachment D: Contact Handled Waste Repackaging Data Form

Page 3 of 3

Section 3: Comments			NOTED MAS 8-4-08
Container Number:	XDC050651E	Examination Date:	~~8-4-08~~
NOTED ERROR CORRECTED MAS 8-4-08			

Section 4: Approvals		
Signature below signifies that waste in this container has been examined and determined to be acceptable waste forms.		
Waste Repackaging Operator:		
Mark Silvey Print Name	Mark Silvey Signature	8-4-08 Date
Waste Repackaging Data Form Reviewer:		
Brian K Satterfield Print Name	Brian K Satterfield Signature	8-4-08 Date
Signature below signifies that the Waste Stream Identification Number, Summary Category Codes, and Waste Matrix Code have been verified to be consistent with the original parent container and that objective evidence of the Waste Stream Identification Number is included in the applicable Waste Container Traveler.		
Waste Package Certifier:		
John Courtney Print Name	John Courtney Signature	8-6-08 Date

DIVIDER

PAGE

BECHTEL JACOBS

Document ID #

X429664

WASTE ITEM DESCRIPTION

NON-RECORD COPY

ALL FIELDS MUST BE COMPLETED

X10C0506151

Generation Process Information

W1. Generator's Name (Print)	W2. Badge Number	W3. Generator's Phone No.	W4. Mail Stop	W5. Charge No/WO
MOORE, R	000010	(423)743-1774	NA	WR714

W6. Generator's Company	W7. Origin Division	W30. Project ID	W8. Origin Site	W9. Origin Facility	W10. Origin Room/Area
NFS	NA	816	NFS	NFS	NA

Operating Unit	W11. Radiological Area?	W12. Process Stream ID	W13. Process Category	W14. Process Activity	W15. AWA Number
☐	☒ Yes ☐ No	NA	REM	A89	NA

W16. Physical Form	W17. Material Type(s)	W18. Waste Item Desc. Attachment	W19. Master Profile No. / Rev.
SOLID	MT011 MT012	B	TRU-CH-5 (rev 2)

Waste Subcategories (Check all)

	Yes	No		Yes	No		Yes	No
W20. Biological		X	W23. Construction Debris	X		W26. Classified		X
W21. Accountable	X		W24. Medical		X	W27. Friable Asbestos		X
W22. Carcinogen		X	W25. Sanitary/Industrial		X	W28. Non-Friable Asbestos		X

W29. Waste Description

TRU WASTE FROM NFS ON SHIPMENT # 5. CONTAINS 1 HIC OF SOIL. NFS ITEM NUMBER 90006552.

Handling/Pickup Information

P1. Holding Site	P2. Holding Facility	P3. Holding Rm/Area	P4. Pickup Site	P5. Pickup Facility	P6. Pickup Area
X10	7883	BAY4	X10	7883	BAY4

(Reserved)	P7. Respirator	P8. Cartridge Type
	☒ None ☐ Half ☐ Full ☐ Unknown	NA

P9. Handling Instructions

NA

12/2/05 sgn

Imported

I0. Item/Container 1 of 1

Waste Item/Cor

I1. Waste Item ID Number	I2. Origin Date	I3. RCRA 90-day Start Date
X429664 -1	09-23-2005	NA

I5. Container ID Number	I6. PCB Start Date	I17. DOE LLW Start Date
X10C0506151	NA	NA

I7. Absorbent Matls.	I8. NMC&A Form	I9. Est Net Vol	I10. Units
☒ Yes ☐ No	BJC817	96	FT3

Apply to WID

X10C0506151

I11. Area of Contamination	I12. Est Gross Wt	I13. Units	I14. Inner Container Type	I15. Outer Container Type
NA ☐ in² ☐ cm² ☐ ft²	3019	LB	SELF	BOXB25M

I18. Seal No. 1	I19. Seal No. 2	RESERVED
NA	NA	

I16. HP Tag No.	Surface Contamination (dpm/100cm²)		Dose Rate at Surface (mrem/hr)	Dose Rate at 1 Meter (mrem/hr)	Dose Rate at 1 Foot (mrem/hr)	Instrument Identification
NA	Transfer	Direct Read				
Alpha	< 20	8				NFS TN03/2772
Beta/Gamma	< 200	6	< 0.1	< 0.1	NA	NFS TN03/2772
Neutron			NA	NA	NA	NA

Signatures and Approvals

S1. Generator	Badge	Date	S3. HP Technician	Badge	Survey Date
SUBMITTED MOORE R	000010		SUBMITTED		
S2. Verification Officer	**Badge**	**Date**	**S4. Derivative Classifier**	**Badge**	**Date**
SUBMITTED SEAGROVE D	000001		SUBMITTED		

BECHTEL JACOBS

K1. Document ID Number
X429664

TRU/TRU MIXED WASTE ATTACHMENT B

ALL FIELDS MUST BE COMPLETED

Prohibited Items	Yes	No		Yes	No
B1. Pyrophoric Materials		X	B6. Ignition Sources		X
B2. Active Chelating Agents (> 1% of waste)		X	B7. Free Liquids		X
B3. Sealed Internal containers > 1 gallon		X	B8. Etiological Agents		X
B4. Explosive Materials		X	(Reserved)		
B5. Small Particulates (<= 1% by wt < 10um; <= 15% by wt < 200um)					X

B9. Biological Waste	B10. Chelating Agents	B11. Heat Sealed Bags	B12. Ion Exchange Resins	B13. TRUCON Code	B14. Thermal Power
☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No		NA W/ft^3

B15. Combustible Material	B16. Beryllium	B17. TRU Waste Type(s)
25 vol%	☐ Yes ☒ No ☐ ppm ☐ grams NA	CSW FW MW

B18. Number of Sealed Layers	B19. Sealed Layer Type(s)	B20. Special Case Waste	B21. RAD Handling Type
0	NA	☐ Yes ☒ No	☒ Contact ☐ Remote

Radioisotope Determination Method		
Document Type	Document Number(s)	
R1. Analysis LSID#	DATA PACKAGE	
		R2. NDA# NA
R3. PK Documentation #	PK	

R4. Fissile Content (FGE of U-235)	R5. Enrichment (wt% of U-235)	R6. Chemical Form
2.09 grams	1.45	MULTIPLE

☒ R11. Radioisotope Continuation Sheet(s) 1 through 1 attached.

RCRA/TSCA Determination Method	
Document Type	Document Number(s)
T1. Analysis LSID#	DATA PACKAGE
T2. PK Documentation #	PK

T6. PCB Present	T7. PCB Concentration	T8. PCB Source Concentration	T9. PCB Source Concentration Range (ppm)
☐ Yes ☒ No	NA ppm	NA ppm	☒ NA ☐ <=1.99 ☐ 2 - 49.99 ☐ 50 - 499.99 ☐ >= 500

Determination	Yes	No
T3. RCRA Waste		X
T4. TSCA Waste		X
T5. Underlying Hazardous Constituent(s) Present		X

Particulate Information (B22)
B22. Particulate Loading by weight %
☒ < 1% ☐ >= 1 and < 33% ☐ >= 33%

☒ T16. Constituent Continuation Sheet(s) 1 through 1 attached.

V1.

I certify that the waste described above meets the requirements of the Master Profile identified on the UCN-2109.

Or, I certify that the waste meets the conditions stipulated in variance number(s) _____

To the best of my knowledge, I believe the information I have submitted is true, accurate, and complete. I am currently authorized by my company to perform waste certification functions.

SUBMITTED

Signature Waste Certifier	Printed Name	Badge Number	Date

S4. Derivative Classifier	Badge	Date
SUBMITTED		

BECHTEL JACOBS

K1. Document ID Number
X429664

RADIOISOTOPE CONTINUATION SHEET

(Continuation Page 1 of 1)

R7. Radioisotope	R8. Quantity	R9. Units Ci	R9. Units G	R9. Units pCi/l	R10. NARM Yes	R10. NARM No
AM-241	3.26E-2	X			NA	NA
TH-228	2.92E-6	X			NA	NA
PU-238	5.53E-3	X			NA	NA
PU-239	6.58E-2	X			NA	NA
PU-240	2.21E-2	X			NA	NA
PU-241	1.16E-1	X			NA	NA
TC-99	1.74E-4	X			NA	NA
U-232	2.92E-6	X			NA	NA
U-233	2.62E-4	X			NA	NA
U-234	1.88E-5	X			NA	NA
U-235	8.95E-7	X			NA	NA
U-238	9.4E-6	X			NA	NA
TH-232	1.13E-6	X			NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA
					NA	NA

Signatures and Approvals		
S4. Derivative Classifier SUBMITTED	**Badge**	**Date**

BECHTEL JACOBS

K1. Document ID Number
X429664

CONSTITUENT CONTINUATION SHEET

(Continuation Page 1 of 1)

T10. Substance ID	T11. Conc	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent
00000	100	%	NA	☐ Yes ☒ No
T15. Substance Name: MSDS IS NOT AVAILABLE				

T10. Substance ID	T11. Conc	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent
				☐ Yes ☐ No
T15. Substance Name				

T10. Substance ID	T11. Conc	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent
				☐ Yes ☐ No
T15. Substance Name				

T10. Substance ID	T11. Conc	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent
				☐ Yes ☐ No
T15. Substance Name				

T10. Substance ID	T11. Conc	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent
				☐ Yes ☐ No
T15. Substance Name				

T10. Substance ID	T11. Conc	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent
				☐ Yes ☐ No
T15. Substance Name				

T10. Substance ID	T11. Conc	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent
				☐ Yes ☐ No
T15. Substance Name				

T10. Substance ID	T11. Conc	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent
				☐ Yes ☐ No
T15. Substance Name				

T10. Substance ID	T11. Conc	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent
				☐ Yes ☐ No
T15. Substance Name				

T10. Substance ID	T11. Conc	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent
				☐ Yes ☐ No
T15. Substance Name				

Signatures and Approvals		
S4. Derivative Classifier: SUBMITTED	Badge	Date

X10C0506151

Attachment I
TYPICAL

RADWASTE PACKAGE CERTIFICATION RECORD

C14623 C14624, C14625

CONTAINER 90006552 SEAL C14622 SALES ORDER _____ BATCH HIC Single #6 Tru waste

Gross Weight 3019 *Tare 985 *Net 2034 Area Generated Metric Compound
*Entry not required *Entry not required

NuMac ☐ "Remove Material from Process" Completed ☐ "Apply A Seal" Completed

Drum _____ Box ✓ Bulk Bag _____ Intermodal _____
U (g) _____ U-235 (g) _____ Th (g) _____ Am pCi/g _____
Outage 12 Inches (If not full, measurement in inches from top of material to top of container, required measurement for all containers)

Material Type and Container Specifications. Check material type and verify packaging criteria listed.

LSA Material:

__ >2.3 µg of U/g of material

__ <15 g U-235 with package weight ≥ 200 g, including package, for each gram of U-235<1 g of U-235 for each 2000 g of non-fissile material (including package) uniformly distributed

__ DOT UN1A2/Y400/S 55-gallon drum <600 lbs. gross
__ Intermodal < 51,000 lbs. net weight
__ Bulk Bag < 3,000 lbs. gross weight
__ Box 58 < 6,000 lbs. gross weight
✓ Box 90 < 10,000 lbs. gross weight
__ Other Container approved by T&WM

The package contents are identified as:

__ A = Ashes
__ G = Glass / Graphite
__ S = Solidified Wastes
__ B = Bitumen / Asphalt
__ H = Heavy Gauge Structural Metal & Equipment
__ T = Trash
__ C = Concrete / Solid Block
__ I = Insulation
__ V = Absorbent (specify) _____
__ D = Dirt/Soil/Gravel
__ K = Press Cake
__ W = WWTF Solids
__ E = Elastics
__ M = Metals
__ X = Asbestos
__ F = Filters
__ P = Plastics 2180461 G2851
__ Z = Tools G2851
__ O = Other (Specify) _____

Container Checklist. Must Verify All That Apply:

✓ No holes in shipping container
__ Top of Bulk Bag securely fastened
✓ Lid securely fastened on box / intermodal (banded box or bolted lid)
✓ No sharp dents or bulges that could cause container failure
__ Bulk Bags container integrity intact
✓ No excessive rust container integrity intact
__ All welds intact
__ Drums / Bulk Bags have inner liners
✓ No patched holes or bungs
__ Gasket on container in good condition correctly positioned

Prohibited Materials

Based on inspection and your best knowledge, verify that this package meets the following criteria by checking each blank below:

__ At least one dimension < 10 inches and length <12 feet
__ No free standing liquids (includes concealed liquids / fluids in equipment)
__ Waste is not readily capable of detonation, explosive decomposition, reaction at normal pressures and temperatures, or of an explosive reaction with water.
__ Waste does not contain, nor is capable of generating, quantities of toxic gases, vapors, or fumes harmful to persons transporting, handling or disposing of the waste.
__ Waste is not pyrophoric. (i.e. waste that will spontaneously ignite)
__ Waste does not contain biological, pathogenic, or infectious material. (typically not found at NFS Erwin site)
__ Waste does not contain hazardous materials / chemical (including but not limited to lead, mercury, asbestos)

Record known hazardous waste in "Comments" on back. If unknown submit Request for Waste Determination Form (NFS-GH-38) and note on the back.

I hereby certify I have inspected the above-described waste burial package and it complies with the requirements noted in SOP 335, current revision.
**I have reviewed the Attesting Information on the back of the form*

Signatures:

*Packer (Operator, Yard, etc.)	Date	*Packer (Operator, Yard, etc.)	Date	Packer (Operator, Yard, etc.)	Date	*Supervisor	Date
	9-27-05		9-27-05		9-27-05		9-27-05

Knowingly or willfully falsifying or concealing a material fact on this form, or making false, fictitious, or fraudulent statements or representations herein could constitute a felony punishable under federal statutes.

Attachment I
TYPICAL
RADWASTE PACKAGE CERTIFICATION RECORD

Attesting Information

1. Waste Water Treatment Facility container verification for the prohibited materials will be based on the person attesting to the contents as, " to the best of his / her knowledge", without having the container in view at all times while being filled. The person(s) filling the container will attest to the visible contents without disturbing the contents of the container.

2. Three (3) individuals attesting: waste material packaged as the final packaging act, inside a MAA, destined for off-site disposal or removal, not continuously stored in 306 East Secured Storage Area or 310 Warehouse Secured Storage Area.

3. Two (2) individuals attesting: waste material packaged inside an MAA, if after packaging, it is continuously stored in 306 East Secured Storage Area or 310 Warehouse Secured Storage Area, or NDA scanned and goes directly from storage to a shipping conveyance.

4. *Two (2) individuals attesting: waste material packaged outside an MAA.*

   As a minimum these individuals, by their signature, are attesting to:

   Container and/or seal numbers,
   Material type / form,
   Nothing other than stated material type or form placed in the container during loading,
   Material not concealed/shielded within container to avoid detection,
   Verification of material type,
   Container meets waste container specifications.

Comments: _____

_____

_____

_____

Knowingly or willfully falsifying or concealing a material fact on this form, or making false, fictitious, or fraudulent statements or representations herein could constitute a felony punishable under federal statutes.

DIVIDER

PAGE

REQUEST FOR STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE OR SPECIAL MATERIALS

87778
~~87428~~
11/4/93

Requester: Executes this section before arranging material transfer

Date	Origin of Waste bldg. no.	Requester's Signature	Badge No.	Phone No.	Building/Mail Stop
09/18/93	NFS 110/234	T. Bennett			P.O. Box 1234 Erwin, TN 7702

DOCUMENTATION RECORD COPY

(CHECK IF APPLICABLE)	Total Volume (Cu. Ft. only)	Combustible Vol. (Cu. Ft. only)	Weight (Lbs. only)	Accountability no. (mm.no.)
X OFFSITE	7.50	0.0	598	
___ CONSTRUCTION	Charge Work Order Number: 3325-7016		(FOR WASTE OPERATIONS USE ONLY) COST SYMBOL B	COST ADJUSTMENT

Waste Classification (check only one)

1. X TRU or U-233 (Retrievable) (>100μCi/Kg)
2. __ URANIUM/THORIUM
3. __ FISSION PRODUCT
4. __ INDUCED ACTIVITY
5. __ TRITIUM
6. __ BETA-GAMMA TRU or U-233 (>100μCi/Kg)
7. __ ALPHA TRU or U-233 (<100μCi/Kg) BETA-GAMMA TRU or U-233
8. __ OTHER _____
9. __ LANDFILL/SUSPECT
A. __ CONTAMINATED ASBESTOS

Type of Waste (check only one) BRIEF DESCRIPTION

__ (BW) BIOLOGICAL WASTE _____
__ (CE) CONTAMINATED EQUIPMENT _____
__ (DD) DECONTAMINATION DEBRIS _____
X (DS) DRY SOLIDS SOIL
__ (SS) SOLIDIFIED SLUDGE _____
__ (NC) NOT CLASSIFIED _____

CONTAINER TYPE (check only one)

1. X 55 GAL SS DRUM
2. __ 30 GAL SS DRUM
3. __ 4-1/2" WALL CONCRETE CASK
4. __ 6" WALL CONCRETE CASK
5. __ 12" WALL CONCRETE CASK
6. __ 55 GAL BI DRUM
7. __ 30 GAL BI DRUM
8. __ WOODEN BOX _____
9. __ OTHER
10. __ GI CAN
11. __ PLASTIC
12. __ DUMPSTER
13. __ NONE
14. __ CASK NO ____ WALLTHICKNESS ___IN. SHIELDING MTL ____
15. __ METAL BOX __

PRINCIPAL ISOTOPE(S): (BEST ESTIMATE)
*Refer to the Attached Manifests

1. IDENTITY ____ QUANTITY ____ __ GRAMS __ CURIES
3. IDENTITY ____ QUANTITY ____ __ GRAMS __ CURIES

CAUTION
This information must NOT be released externally until it has been reviewed by the appropriate site Classification and Information Control Office.

2. IDENTITY ____ QUANTITY ____ __ GRAMS __ CURIES
4. IDENTITY ____ QUANTITY ____ __ GRAMS __ CURIES

REQUESTER'S COMMENTS FOR THOSE HANDLING WASTE IN THE FIELD:

TOTAL CURIES (BEST EST.) 5.080E+00

COPY

WMO FIELD REPRESENTATIVE (APPROVAL SIGNATURE): P G Cleveland

DATE: 11-15-93

HEALTH PHYSICIST: EXECUTES THIS SECTION BEFORE MATERIAL TRANSFER

RADIATION DATA:
BETA-GAMMA: FOR PACKAGE 1.6 mrem/hr. @ 0 in.

SURFACE CONT. <20 dpm (alpha): <200 dpm (beta/gamma): Neutron reading <0.5 mrem/hr

HP SURVEYOR'S COMMENTS FOR THOSE HANDLING WASTE IN THE FIELD: Entered 11/18/93 KM 12/27/93 KSC
Billed 12/7/93 KM

Drum ATN: NFS-0773 Shipment #: 4226-38	HP'S SIGNATURE	DATE

UCN-2822

STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE OR SPECIAL MATERIALS

DOCUMENT NO.
PAGE 2 87778

COMPACTION WASTE: COMPLETED AND THEN APPROVED BY SWSA FOREMAN

LOW LEVEL BOX INFORMATION

LL NUMBER	FULL BOX (Y/N)	FULL BOX WEIGHT	PORTION (FRACTION)	TOTAL POST-VOL	COMMENTS	FOR DMC USE ONLY
TOTALS						

Date of Compaction:

Compacting Operators:

and

SWSA Foreman's Signature:

SWSA FOREMAN COMPLETES AND APPROVES FOR NON-COMPACTED WASTE

Waste Was (check one): ☑ Retrievable ☐ Buried

SWSA No.: 5

Storage/Disposal Date: 11/22/93

ATN NO.: NFS-773

Low Level No.:

Facility (check one): ☑ Building ☐ Well ☐ Landfill ☐ Tumulus ☐ Trench ☐ On Ground Storage

Location No.: B7879

Location Within Facility: Rank: File: Layer:

Waste Description: CH-TRU

Comments from SWSA Foreman regarding waste and/or operations:

Foreman's Signature: S. L. White

WASTE EXAMINATION (WEAF): COMPLETES AND FORWARDS TO DMC

Waste Inspection Level: ☒ RTR ☐ PAN/SGS

Rated: ☒ Pass ☐ Fail

Inspection Officier: J. E. Madison

Date: 1-14-94

DISTRIBUTION: Copy 1 - Attach to 2822 and forward to DMC
Copy 2 - Retained by SWSA Foreman
Copy 3 - Retained by WEAF/Compacting Team (If Applicable)

UCN-2822A
(3 12-91)

COPY 1

Generator Name: Nuclear Fuel Services, Inc.

OAK RIDGE NATIONAL LABORATORY
MARTIN MARIETTA ENERGY SYSTEMS, INC.

Continuation Sheet

USE THIS NUMBER ON ALL CONTINUATION PAGES

Shipment ID No: ICR: 4226-38

(20) ITEM NUMBER	(21) RADIO-NUCLIDE EACH CONTAINER	(22) PERCENT OF ACTIVITY or mCi of EACH NUCLIDE	(23) ACTIVITY EACH CONTAINER (mCi)	(24) PHYSICAL FORM	(25) CHEMICAL FORM and NAME & % of CHELATING AGENT	(26) WASTE DESCRIPTION	(27) WASTE FORM CLASS	(28) SPECIAL NUCLEAR MATERIAL (grams)	(29) SOURCE MATERIAL (pounds)	Disposal Container (30) CONTAINER WEIGHT (pounds)	(31) CONTAINER VOLUME (Cu Ft)	(32) CONTAINER TYPE	(33) RADIATION LEVELS CONTAINER SURFACE (x) mR/hr ( ) R/hr	(33) RADIATION LEVELS (TI) 1 Meter mR/hr	(34) CONTAMINATION CONTAINER SURFACE (DPM/100cm2) Alpha	(34) Beta-Gamma	(35) FISSILE CLASS	(36) LABELS/MARKINGS USED	
A42616	U234	1.38E+01	5.016E+03	SOLID	OXIDE	SOIL	>C	1.30E+01	0.10	565	7.50	DRUM	< 1.00	< 0.10	< 20	< 200	III	Radioactive-	N.O.S.
2520	U235	1.05E-03	06															Radioactive-	
NFS-0772	U238	1.38E-02	05															Radioactive-	
	PU238	6.05E-01	02															Radioactive-	
	PU239	6.87E+02	01															Radioactive-	
	PU240	2.98E+02	01															Radioactive-	
	PU241	3.72E+02	00															Radioactive-	
	PU242	2.35E-02	05															Radioactive-	
	AM241	2.39E+02	01															Radioactive-	
																		Radioactive-	
A42617	U234	1.39E+01	02 5.050E+03	SOLID	OXIDE	SOIL	>C	1.31E+01	0.10	598	7.50	DRUM	< 1.60	< 0.20	< 20	< 200	III	Radioactive-	N.O.S.
2521	U235	1.07E-03	06															Radioactive-	
NFS-0773	U238	1.39E-02	05															Radioactive-	
	PU238	6.13E+01	02															Radioactive-	
	PU239	6.95E+02	01															Radioactive-	
	PU240	3.02E+02	01															Radioactive-	
	PU241	3.77E+03	06															Radioactive-	
	PU242	2.38E-02	05															Radioactive-	
	AM241	2.42E+02	01															Radioactive-	
																		Radioactive-	
2			1.010E+04			PAGE TOTALS		2.61E+01	0.20	1163	15.00			< 0.30				Radioactive-	

Form No.
( )

DISPOSAL SITE COPY

TX-5352

DATA LOG SHEET FOR PACKAGING TRU WASTE

[An entry is required for each column. See instruction sheet for directions.]

Drum ATN: NFS-0773
Building No.: NFS 110/234
Room No.: _____

Content Code: _____OR125A
_____OR125B

1. Pak No.	2. Date	3. Radiation (mRem/h) Beta, Gamma	3. Radiation (mRem/h) Neut.	4. Activity (Ci)	5. Dominant Radionuclides	6. Physical Form	7. Chemical Form	8. Percent Comb.	9. Haz. Mtl (Y/N)	10. Signature	11. Data Log Sheet Verification Date	11. Data Log Sheet Verification Signature
10365-1	09/18/93			5.080E+00	* See Manifest	SOLID	OXIDE	0.0	N	[signature]	9-18-93	[signature]

Proper Drum Closure (Signature): [signature]

Generator Certification Official (Signature): [signature]

Authorized Radioactive Solid Waste Operations (Signature): [signature]

Note: If column 9 = Yes, complete supplemental form TX-5352A.

TRU WASTE DATA PACKAGE

1. Drum ATN Number: NFS-0773
2. Shipment Number: IC#: 4226-38
3. Date Packaged: 09/18/93
4. Date of Shipment: 11-12-93
5. Date Certified: 09/18/93
6. Gross Weight: 598 lbs, Tare: 81 lbs

7. CONTENT INFORMATION (* See Attached Manifest for Isotopic Breakdown)

a. Physical Description: SOIL	
b. Chemical Form: OXIDE	c. Iron Content: 0.0 % by weight
d. Thermal Power: < 0.1 W/ft^3	e. Organic Content: 0.0 % by volume
f. Organic Content: 0.0 % by weight	g. ^{239}Pu - fissile gram equivalent: 11.79 +/- 5.70
h. Homogenous: [X] YES [ ] NO	i. ^{239}Pu - equivalent activity: 1.372 +/- 0.664 Ci
j. TRU Activity Concentration: 5544 +/- 2682 nCi/gm	

8. HAZARDOUS CONSTITUENTS

Constituent	Concentration	Analytical Method
Not Present	0.000000000000	

Date of Analyses: 09/18/93

9. NEUTRON ABSORBERS PRESENT

Element	Weight %	Volume %	Analytical Method
Not Present	0.0	0.0	

Date of Analyses: 09/18/93

10. MAXIMUM SURFACE DOSE RATE

Beta / Gamma	Alpha	Neutron
< 200 dpm/100cm² 1.6 mrem/hr	< 20 dpm/100cm²	< .5 mrem/hr
Performed by: JPMcClain		Date: 9/18/93

FORM 28-001 09/92 REVISION 3 DECOMMISSIONING

OAK RIDGE NATIONAL LABORATORY
MARTIN MARIETTA ENERGY SYSTEMS, INC.

USE THIS NUMBER ON ALL CONTINUATION PAGES

Generator Name: Nuclear Fuel Services, Inc.

Continuation Sheet

Shipment ID No: ICH: 4226-38

(20) ITEM NUMBER	(21) RADIO-NUCLIDE EACH CONTAINER	(22) PERCENT OF ACTIVITY or mCi of EACH NUCLIDE	(23) ACTIVITY EACH CONTAINER (mCi)	(24) PHYSICAL FORM	(25) CHEMICAL FORM and NAME & % of CHELATING AGENT	(26) WASTE DESCRIPTION	(27) WASTE FORM CLASS	(28) SPECIAL NUCLEAR MATERIAL (grams)	(29) SOURCE MATERIAL (pounds)	Disposal Container (30) CONTAINER WEIGHT (pounds)	(31) CONTAINER VOLUME (Cu Ft)	(32) CONTAINER TYPE	(33) RADIATION LEVELS CONTAINER SURFACE (x) mR/hr ( ) R/hr	(33) RADIATION LEVELS (TI) 1 Meter mR/hr	(34) CONTAMINATION CONTAINER SURFACE (DPM/100cm2) Alpha	(34) CONTAMINATION CONTAINER SURFACE (DPM/100cm2) Beta-Gamma	(35) FISSILE CLASS	(36) LABELS/MARKINGS USED	
A42616	U234	1.38E+01	5.016E+03	SOLID	OXIDE	SOIL	>C	1.30E+01	0.10	565	7.50	DRUM	< 1.00	< 0.10	< 20	< 200	III	Radioactive-	N.O.S.
2520	U235	1.05E-03																Radioactive-	
NFS-0772	U238	1.38E-02																Radioactive-	
	PU238	6.05E+01																Radioactive-	
	PU239	6.87E+02																Radioactive-	
	PU240	2.98E+02																Radioactive-	
	PU241	3.72E+03																Radioactive-	
	PU242	2.35E-02																Radioactive-	
	AM241	2.39E+02																Radioactive-	
																		Radioactive-	
A42617	U234	1.39E+01	5.080E+03	SOLID	OXIDE	SOIL	>C	1.31E+01	0.10	598	7.50	DRUM	< 1.60	< 0.20	< 20	< 200	III	Radioactive-	N.O.S.
2521	U235	1.07E-03																Radioactive-	
NFS-0773	U238	1.39E-02																Radioactive-	
	PU238	6.13E+01																Radioactive-	
	PU239	6.95E+02																Radioactive-	
	PU240	3.02E+02																Radioactive-	
	PU241	3.77E+03																Radioactive-	
	PU242	2.38E-02																Radioactive-	
	AM241	2.42E+02																Radioactive-	
																		Radioactive-	
2			1.010E+04			PAGE TOTALS		2.61E+01	0.20	1163	15.00			< 0.30				Radioactive-	

Form No.
( )

DISPOSAL SITE COPY

Appendix I

CHECK SHEET for NFS DRUM RECEIPT

SWSA Foreman | **INITIALS**

1. 55-gallon drum NFS number 773 — RLW
2. Bar code sticker installed in two locations on the drum. — RLW
3. Tamper Indicating Device (TID) is attached to the drum. TID # A42617 — RLW
4. Drum is free from damage (visual inspection). — RLW
5. Nuc-Filter is installed in the drum lid. — RLW
6. Bolt ring is installed properly and bolt is torqued to 45-ft-lb. — RLW
7. HP has surveyed the drum, UCN-2785 is attached. — RLW
8. A "Hazardous Waste" label is on the drum (if required). — NA

Comments: _____

SWSA Foreman signature RL White Badge No. 20405 Date 11/16/93

RSWO Technician

9. Form UCN-2822 complete. — PGC
10. Form TX-5352 complete. — PGC
11. Form TX-5352A complete (if applicable). — NA
12. IC number recorded on form UCN-2822. IC # 42638 — PGC
13. ^{235}U equivalent fissile material total has been calculated. (1.83 E to 1 grams) — PGC
14. Drum/documentation is accepted by RSWOG for WEAF inspection. — PGC

Comments: _____

RSWO Technician signature PG Cleveland Badge No. 12661 Date 11-18-93

NFS Shipment IC#: 4226-38

Radionuclide	Specific Activity (Ci/g)	U235 Equivalent Factor	Container Number: NFS-0773		
			Act. (mCi)	Wght (g)	U235 Equiv (g)
U233	9.47E-03	1.40E+00			
U234			1.39E+01		
U235	2.14E-06	1.00E+00	1.07E-03	5.00E-01	5.00E-01
U238			1.39E-02		
Pu238	1.74E+01	2.30E-01	6.13E+01	3.52E-03	8.10E-04
Pu239	6.14E-02	1.56E+00	6.95E+02	1.13E+01	1.77E+01
Pu240			3.02E+02		
Pu241	1.12E+02	3.50E+00	3.77E+03	3.37E-02	1.18E-01
Pu242			2.38E-02		
Am241	3.24E+00	4.40E-02	2.42E+02	7.47E-02	3.29E-03
			TOTAL U235 Equiv (g):		**1.83E+01**

DRUM NO. NFS-0773

PROCUREMENT QUALITY
SOURCE SURVEILLANCE PLAN

PLAN NO.	REV. NO.
SS WMRA-106	Original
ISSUE DATE: 12-18-92	REV. DATE:

ITEM NAME	VENDOR(S)	PAGE
Contact-Handled Transuranic and Mixed Oxide Waste	NFS/ECOTEK/SEG	1 of 2
P.O. NO. / ITEM	SPEC. NO. / REV.: WMRA-WMPC-106 Contact-Handled Transuranic and Mixed Oxide Waste	DWG. NO. / REV.

FOR ACTIVITIES — REFERENCE

SHIP TO: ORNL

SHIPMENT NO: 4226-38
(NO. 19 FROM NFS)

QUANITY: 16 55-GALLON DRUM

TRANSURANIC WASTE

By affixing his signature or stamp to the checklist, the Field Quality Representative (FQR) assures that he has reviewed or observed the activity and verifies all Testing and Packaging operations were performed per approved procedures.

Note: Some activities may be performed at SEG.

ACTIVITY	SOURCE SURVEILLANCE PLAN REFERENCE PARAGRAPH	STAMP/ SIGNATURE	DATE
1. Waste Certification Requirements	4.1 thru 4.9	MARTIN FQR 24	11/11/93
2. Containers	4.10	MARTIN FQR 24	
3. Immobilization	4.11	MARTIN FQR 24	
4. No Liquids	4.12	MARTIN FQR 24	
5. Pyrophoric Materials	4.13	MARTIN FQR 24	
6. No Explosives or Compressed gas	4.14	MARTIN FQR 24	
7. Hazardous Waste Characterization	4.15	MARTIN FQR 24	
8. Specific Activity	4.16	MARTIN FQR 24	
9. Weight	4.17	MARTIN FQR 24	
10. Fissile Content	4.18	MARTIN FQR 24	11/11/93

Drum No. NFS-0773

PROCUREMENT QUALITY
SOURCE SURVEILLANCE PLAN

PLAN NO	REV. NO
SS WMRA-106	Original
ISSUE DATE	REV. DATE
12-18-92	

ITEM NAME	VENDOR(S)	PAGE
Contact-Handled Transuranic and Mixed Oxide Waste	NFS/ECOTEK/SEG	2 of 2

P.O. NO. / ITEM	SPEC. NO. / REV.	DWG. NO. / REV.
	WMRA-WMPC-106 Contact-Handled Transuranic and Mixed Oxide Waste	

	FQR ACTIVITIES	REFERENCE	
11.	Equivalent Activity	4.19	MARTIN FQR 24 11/11/93
12.	Surface Dose Rate	4.20	MARTIN FQR 24
13.	Surface Contamination	4.21	MARTIN FQR 24
14.	Thermal Power	4.22	MARTIN FQR 24
15.	Gas Generation	4.23	MARTIN FQR 24
16.	Labeling	4.24	MARTIN FQR 24
17.	Data Package	4.25	MARTIN FQR 24
18.	Notification	6.0	MARTIN FQR 24
19.	Certification	7.0	MARTIN FQR 24 11/11/93

Drum ATN: NFS-0736, 0737, 0738, 0739, 0760, 0762, 0763, 0764, 0768, 0769, 0770, 0771, 0772, 0773, 0774, 0775.

Comments: _____

FQR Paul O. Emerson Stamp MARTIN FQR 24 Date 11/11/93

Lot 431
2521

NFS-773
2142545
A42617

Attachment 6

WASTE CERTIFICATION CHECKLIST FOR CH-TRU

Criteria	Specification	Supervisor Initial
1	WASTE CONTAINER: *(Interim package for SEG):*	
	DOT Spec 17C or 17H	TB
	Stainless Steel *(N/A)*	TB
	55-gallon capacity *(40-gallon capacity)*	TB
	polyethylene liner *(N/A)*	TB
	No handles, cleats, or lifting devices	TB
2	IMMOBILIZATION:	
	Particulate bearing material screened	N/A
	Particulate immobilized	↓
	Vermiculite added	↓
3	LIQUID WASTES:	
	No free liquids present	TB
4	PYROPHORIC MATERIALS:	
	No pyrophoric materials present	TB
	Pyrophoric materials stabilized, if present; otherwise N/A	N/A
5	EXPLOSIVES AND COMPRESSED GASES:	
	Gas can pins removed / can compacted	N/A
	No explosive material present	TB
	Explosive material stabilized, if present; otherwise N/A	N/A
6	RADIOACTIVE MIXED WASTES:	
	No 40CFR261/761 hazardous waste/substance present	TB
	Material identified/quantified, if present; otherwise N/A	N/A
7	ACTIVITY CONCENTRATION OF WASTE:	TB
	Waste package > 100 nCi/gm	

Criteria	Specification	Supervisor Initial
8	WASTE PACKAGE WEIGHT:	
	Waste package ≤ 800 pounds	TB
9	NUCLEAR CRITICALITY:	
	^{239}Pu fissile gram equivalent ≤ 128 gm (≤ 42 gm)	TB
10	^{239}Pu EQUIVALENT ACTIVITY:	
	^{239}Pu equivalent activity ≤ 1,000 Ci (≤ 333 Ci)	TB
11	SURFACE DOSE RATE:	
	Maximum surface dose rate ≤ 200 mRem/hr	TB
	Neutron dose rate ≤ 20 mRem/hr	TB
	Neutron dose reported if > 20 mRem/hr; otherwise N/A	N/A
12	SURFACE CONTAMINATION:	
	Surface contamination ≤ 20 dpm/100cm² α	TB
	Surface contamination ≤ 200 dpm/100cm² ß/γ	TB
13	THERMAL POWER:	
	Thermal power ≤ .1 watt/ft³	TB
	Thermal power reported if ≥ .1 watt/ft³; otherwise N/A	N/A
14	GAS GENERATION:	
	Polyethylene liner fitted with 3/8" hole (N/A)	TB
	Drum lid bung fitted with HEPA filter (Torque) (N/A)	TB
15	LABELING:	
	ORNL accountability transfer bar code attached	TB
16	DATA PACKAGE:	
	Data package verified complete and accurate	TB/VT
17	HEPA Filter torque: 15±1.5 ft-lbs. (raised nipple bung) → 25±2.5 ft-lbs (flush bung)	TB
	Closure Lug Bolt Torque - 45-50 ft. lbs; lock nut on outside	TB
18	Approved absorbent material added	TB

SIGNATURES:

Supervisor completing checksheet T. Bennett Date: 9-18-93

M&S QA review V Tolen Date: 11/9/93

Project Manager/Director Donald Lemmon Date: 11/9/93

NONMIXED CH-TRU
VERIFICATION CHECKLIST
(DATA PACKAGE)

WASTE PACKAGE NO. NFS-0773

Note: A completed Data Package checklist must be generated with each 55-gal waste container during the verification process and will become part of the documentation retained for that waste package.

Data Package

1. Date of Packaging	✓
2. Max Surface Dose Rate	✓
3. Weight	✓
4. Physical Description	✓
5. Assay Information	✓
6. Radionuclide Data (Qual & Quan)	✓
7. Organics (Weight & Volume %)	✓
8. Thermal Power	✓
9. Shipment No.	✓
10. Date of Shipment	✓
11. Radionuclide Chemical Form	✓
12. Neutron Poisons	N/A
13. Iron Content	✓
14. Radionuclide Distribution	✓
15. Sampling Results (If Required)	N/A
16. Documentation	✓

Verification complete, Items 1 - 16 verified.

Laboratory Certification Official

12-22-93
Date

WEAF DATA ENTRY SYSTEM FOR THE NFS WASTE STORAGE PROJECT

DATA ENTRY VERIFICATION FORM (ver. 1.3)

Name Input	: S L Gottman	Waste Type	: TRUSOIL
ATN Number	: NFS-0773	Date of Input	: 11-30-93
Gross Weight (lb)	: 598	Date of Shipment	: 11-12-93
Tare Weight (lb)	: 81	Date of Receipt	: 11-12-93

Iron Content by Weight% :	0.00			
TRU Activity Conc. (nCi/g):	5544.00	Error:	2682.00	%error: 0.48
Pu239 Fissile Gram Eq. (g):	11.79	Error:	5.70	%error: 0.48
Pu239 Equiv. Activity (Ci):	1.37	Error:	0.66	%error: 0.48
Thermal Power (> 0.1W/ft^3) :	0.00			
Inhalation Dose Eq.(MOX ONLY):	0.00			
Neutron Absorbers {text} :	0.0			

ISOTOPE ACTIVITY (mCi)

U-233:	0.00E+00	Pu-238:	6.13E+01	Am-241:	2.42E+02
U-234:	1.39E+01	Pu-239:	6.95E+02		
U-235:	1.07E-03	Pu-240:	3.02E+02		
U-238:	1.39E-02	Pu-241:	3.77E+03		
		Pu-242:	2.38E-02		
Sum:	1.39E+01		4.83E+03		2.42E+02

Total Radioactivity Reported on Manifest (mCi): 5.08E+03

DRUM PROFILE FOR SUPERCOMPACTED WASTE

	Pack Number	Activity (mCi)	
Top Pack :		0.00E+00	
Middle Pack :		0.00E+00	Activity
Bottom Pack :		0.00E+00	Total (mCi): 0.00E+00

Technician Notes:
Time > 12:09:10 PM

Signature: S. L. Gottman Date: 12-1-93

Written to: D:\NFS\DATA\NFS_IN.TMP, WAC file: D:\NFS\V1.1\WAC.DAT
File saved as: D:\NFS\DATA\NFS0773.DAT

WEAF DATA ENTRY SYSTEM FOR THE NFS WASTE STORAGE PROJECT
CHECK OF COMPUTED VALUES AND NOMINAL EXPECTATION

ATN Number	: NFS-0773	Waste Type	: TRUSOIL
Gross Weight (lb)	: 598	Date of Input	: 11-30-93
Tare Weight (lb)	: 81	Density (g/cm3)	: 1.13
Net Weight (lb)	: 517.0		
Net Weight (kg)	: 234.7		

	Isotope	Activity (mCi)	Mass (g)	Element Mass(g)
	*U-233 :	0.00E+00	0.000	
	U-234 :	1.39E+01	2.286	
	U-235 :	1.07E-03	0.505	
	U-238 :	1.39E-02	41.994	44.785
	*PU-238 :	6.13E+01	0.004	
	*PU-239 :	6.95E+02	11.210	
	*PU-240 :	3.02E+02	1.330	
	PU-241 :	3.77E+03	0.037	
	*PU-242 :	2.38E-02	0.006	12.586
* TRU isotope	*AM-241 :	2.42E+02	0.071	0.071

ISOTOPICS — Total Mass---> 57.442

Weight percent U: 0.780

U233/U:	0.000
U234/U:	0.051
U235/U:	0.011
U238/U:	0.938

Weight percent Pu: 0.219

Pu238/Pu:	0.000
Pu239/Pu:	0.891
Pu240/Pu:	0.106
Pu241/Pu:	0.003
Pu242/Pu:	0.000

Weight percent Am: 0.0012

CALCULATIONS OF WASTE ACCEPTANCE CRITERIA

	Reported Qty.	Calculated Qty.
TRU Activity Concentration (nCi/g) :	5544.000	5539.940
Pu239 Fissile Gram Equivalent (g) :	11.790	11.658
Pu239 Equivalent Activity (Ci) :	1.370	1.372
Thermal Power (W/ft^3) :	0.000	0.006
Inhalation Dose Equivalent (g) :	0.000	0.000
U235 Equivalent Mass (g) :		18.190

RESULTS OF NOMINAL EXPECTATION TESTS

Isotopic weight%:
W% ERRORS---> U < 80% *

WAC calculations:
CALCULATIONS ARE NOMINAL, WITHIN 3%

File Saved As: D:\NFS\DATA\NFS0773.DAT

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0230-14 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR6-0443
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): X10CSATN02240J2
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☒ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☐ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [H]states in part "Using Table 1, Prohibited Items, as a reference…confirm there are NO prohibited items in the waste container."
Table 1, Prohibited Items lists, in part "PCB liquids"

7c. Actual Condition:

mL.
50 ~~MLS~~. Of (PCB) liquid in pump at 25"
Fo 1-8-14

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Fred Oney (printed name) — signature — 1-8-14 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☒ NO ☐ INDETERMINATE

10. Trend Code: K

11. Responsible Manager: Andrew Stallings

12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):

13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaTrivia Harmon (printed name) — LaTrivia Harmon (signature) — 1/8/2014 (date)

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0230-14 Revision 0

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☒ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name _____ signature _____ date _____

16b. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name _____ signature _____ date _____

18. Interim Disposition Verified – QA Engineer:

printed name _____ signature _____ date _____

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0230-14 **Revision 0**

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☒ N/A for Reject, Rework, or Scrap]

☒ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

Return to host site for prohibited item ~~redmediation~~ fs 1-8-14 Remediation

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☒ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Andrew O. Stallings (printed name) _____ (signature) 1-8-14 (date)

21. QA Engineer or QA Designee:

LaRonda Harmon (printed name) _____ (signature) 1-8-14 (date)

Additional Approval:

_____ (printed name) _____ (signature) _____ (date)

Additional Approval:

_____ (printed name) _____ (signature) _____ (date)

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

_____ (printed name) _____ (signature) _____ (date)

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

_____ (printed name) _____ (signature) _____ (date)

DIVIDER

PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR-ORNL- 0152 - 09 Revision 0

1. Lot No./Heat No. or Serial No.: N/A	2. Process (NDA, HSG, NDE, VE, Other): NDE	3. Batch Data Report # (s): OR-RTR6-0219
4. Order/Work Order/Job Control Number (as applicable): N/A	5. PO #: N/A 6. Supplier: N/A	Container #(s): X10C9309161R

DESCRIPTION OF NONCONFORMANCE

7. (a) CCP HOLD TAGS SHALL BE APPLIED UNLESS JUSTIFIED AS FOLLOWS:

☐ < 100 nCi/g ☑ Prohibited Item ☐ >500 ppmv Flamm. VOCs

☐ E-Flag ☐ Receiving Inspection ☐ Transportation ☐ WWIS ☐ Other

(b) Description of Nonconformance
Required Condition (Implementing Procedure, Revision, Section & Text)

1. As per CCP-TP-053, Rev. 6, Table Section 4.4.3, NOTE ABOVE [H],...Internal containers (e.g., bottles, cans, etc.) shall be well drained and contain only residual liquids (i.e., contain as little residual liquid as is reasonably achievable by pouring, pumping, and/or aspirating), AND in all cases, it must be less than 1 inch or 2.5 centimeters of liquid in the bottom of the container, ..."

(c). Actual Condition

~100 mL non-residual liquid in plastic bag @ 18".
~100 mL non-residual liquid in plastic bag @ 20".

(d). Attachments: ~~N/A~~ 10/8/09

ATTACHMENT 1 - BASIS FOR CLOSURE (1 PAGE) 10/8/2009

8. NCR Originator (Print name, sign, and date)	9. CCP QA Engineer or Designee Validation (Print name, sign, and date)
Steve Binning Steve Binning 7-29-2009	Dean Mooney 7/30/2009

9a. Does this NCR have the potential to impact AK? ☐ YES ☑ NO ☐ INDETERMINATE
If YES or INDETERMINATE, then apply Trend Code L in Block 12.

10. Significant Condition? ☐ YES ☐ NO ☑ NA	11. Recurring Condition? ☐ YES ☑ NO (If YES, List NCRs/CARs)
12. Trend Code: K	13. Responsible Manager: Pat Tilmon

Attachment 1 – CCP Nonconformance Report (NCR)	
NCR No. NCR-ORNL-0152-09 Revision 0	
INTERIM DISPOSITION	
14. Interim Disposition (Check One) ☑ N/A (See final Disposition) ☐ Hold ☐ Conditional Accept ☐ Conditional Use ☐ Sort ☐ Reinspect/Retest ☐ Remediate (a) Instructions for Completion of the Interim Disposition:	
INTERIM DISPOSITION APPROVALS	
15 .Responsible Manager/Individual (Print, sign, and date)	16. CCP QA Engineer or Designee (Print, sign and date)
Additional Approvals: (Print, sign and date)	Additional Approvals: (Print, sign and date)
COMPLETION OF INTERIM DISPOSITION	
17. Interim Disposition Complete Responsible Manager/Individual: (Print, sign and date)	
18. Interim Disposition Verified CCP QA Engineer: (Print, sign and date)	

Attachment 1 – CCP Nonconformance Report (NCR)	
NCR No. NCR-ORNL-0152-09	Revision 0

FINAL DISPOSITION

19. Final Disposition (Check One)
☐ Use-As-Is ☑ Reject ☐ Repair ☐ Rework ☐ Scrap

(a) Technical Justification (Required for Use-As-is and Repair dispositions, N/A for Reject, Scrap, or Rework dispositions.)

(b) Disposition Instructions (Required for Reject and Scrap, N/A for Use-As-Is, Rework, and Repair)
Reject container in BDR# OR-RTR6-0219 and send container to TWPC for remediation of prohibited items.

(c) Instructions for Completion of the Final Disposition, including Inspection Criteria (Required for Repair and Rework, N/A for Use-As-Is, Reject and Scrap)
N/A

(d) Corrective Actions (Actions to Prevent Recurrence) - as required.
N/A

FINAL DISPOSITION APPROVALS

20. Responsible Manager/Individual: (Print, sign, and date)	21. CCP QA Engineer or Designee: (Print, sign, and date)
Shane Miles Shane Miles 08/04/09	Lou Wade Lou Wade 8/4/09
Additional Approvals: (Print, sign, and date) NA	Additional Approvals: (Print, sign, and date) NA

CLOSURE

22. Final Disposition Complete Responsible Manager/Individual: (Print, sign, and date)
Shane Miles Shane Miles 10/08/09

23. (a) HOLD TAG removal has been validated and reconciled for all nonconforming items on the NCR. ☒
(b) Check if not applicable (N/A) and provide an explanation here or on a continuation sheet. ☐
10/8/09

24. Final Disposition Verified – NCR Closed
Dean Mooney

CCP QA Engineer: (Print, sign, and date)
10/8/09

Attachment 2 – CCP Nonconformance Report (NCR) Continuation Sheet			
NCR No. NCR-ORNL-0152-09	Revision **0**	Attachment # **1**	Page **1** of **1**
Continuation from Section Number: **NA**			
BASIS FOR CLOSURE:			
CONTAINER WAS REPACKED INTO X10C9309161R1 AND NEW CONTAINER WAS ADDED TO AK			

DIVIDER PAGE ONLY

Not part of page count

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Laurel Richardson
Ship to:	CCP Records	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	S.M. Stoller
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	10/8/2009
Telephone Number:	505-234-7523		

Document Number	Title / Description	Record Date	Total Pages
NCR-ORNL-0152-09	CLOSED NCR WITH ATTACHMENT 1	10/8/09	4
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

NONE.

Acceptance/Rejection Signature and Date

Records Accepted [X] Cheryl Armijo (Signature) | CHERYL ARMIJO (Printed Name) | 10-12-09 (Date)

Records Rejected [ ] _____ (Signature) | _____ (Printed Name) | _____ (Date)

Reason for Rejection:

Re-submittal: _____ (Signature) | _____ (Printed Name) | _____ (Date)

```
**********************
***   TX REPORT   ***
**********************

TRANSMISSION OK

TX/RX NO                0177
DESTINATION TEL #       918652413117
DESTINATION ID          ORNL
ST. TIME                10/12 14:08
TIME USE                00'16
PAGES SENT                1
RESULT                  OK
```

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Laurel Richardson
Ship to:	CCP Records	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	S.M. Stoller
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	10/8/2009
Telephone Number:	505-234-7523		

Document Number	Title / Description	Record Date	Total Pages
NCR-ORNL-0152-09	CLOSED NCR WITH ATTACHMENT 1	10/8/09	4
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments:

NONE.

Acceptance/Rejection Signature and Date

Records Accepted [X] Cheryl Armijo (Signature) CHERYL ARMIJO (Printed Name) 10-12-09 (Date)

Records Rejected [ ] _____ _____ _____

DIVIDER PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR -ORNL- 0181 - 08 Revision 0

1. Lot No./Heat No. or Serial No.: N/A	2. Process (NDA, HSG, NDE, VE, Other): NDE	3. Batch Data Report # (s): OR-RTR6-0038
4. Order/Work Order/Job Control Number (as applicable): N/A	5. PO #: N/A 6. Supplier: NA	Container #(s): X10C9310043

DESCRIPTION OF NONCONFORMANCE

7. (a) CCP HOLD TAGS SHALL BE APPLIED UNLESS JUSTIFIED AS FOLLOWS:
HOLD Tag applied

☐ < 100 nCi/g ☑ Prohibited Item ☐ >500 ppmv Flamm. VOCs

☐ E-Flag ☐ Receiving Inspection ☐ Transportation ☐ WWIS ☐ Other

(b) Description of Nonconformance
Required Condition (Implementing Procedure, Revision, Section & Text)

CCP-TP-053, Rev. 6 Section 4.4.3 [H]:
"Using Table 1, Prohibited Items, as a reference, complete the checklist in Section 5: RTR Summary, of Attachment 2, to confirm there are NO prohibited items in the waste container."

(c). Actual Condition

Greater than 4 liter sealed plastic containers.

8. NCR Originator (Print name, sign, and date) Susan J. Smith Susan J. Smith 3-13-08	9. CCP QA Engineer or Designee Validation (Print name, sign, and date) Dean Mooney 3/13/2008
9a. Does this NCR have the potential to impact AK? ☐ YES ☑ NO ☐ INDETERMINATE If YES or INDETERMINATE, then apply Trend Code L in Block 12.	
10. Significant Condition? ☐ YES ☐ NO ☑ NA	11. Recurring Condition? ☐ YES ☑ NO (If YES, List NCRs/CARs)
12. Trend Code: K	13. Responsible Manager: Bob Billett

Attachment 1 – CCP Nonconformance Report (NCR)	
NCR No. NCR -ORNL- 0181 - 08	Revision 0

INTERIM DISPOSITION

14. Interim Disposition (Check One)

☑ N/A (See final Disposition) ☐ Hold ☐ Conditional Accept ☐ Conditional Use
☐ Sort ☐ Reinspect/Retest ☐ Remediate

(a) Instructions for Completion of the Interim Disposition:

N/A

INTERIM DISPOSITION APPROVALS

15 .Responsible Manager/Individual (Print, sign, and date)	16. CCP QA Engineer or Designee (Print, sign and date)
Additional Approvals: (Print, sign and date)	Additional Approvals: (Print, sign and date)

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete Responsible Manager/Individual: (Print, sign and date)

18. Interim Disposition Verified CCP QA Engineer: (Print, sign and date)

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No.NCR-ORNL-0181-08 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check One)
☐ Use-As-Is ☒ Reject ☐ Repair ☐ Rework ☐ Scrap

(a) Technical Justification (Required for "Use-As-is" and "Repair" dispositions, N/A for "Reject," "Scrap," or "Rework" dispositions.)
NA

(b) Disposition Instructions (Required for "Reject" and "Scrap", N/A for "Use-As-Is" and "Repair")

1. Reject container in BDR OR-RTR6-0038

2. Send container to NDA for characterization.

3. Hold container pending NDA results.

4. If NDA results are TRU, then send to TWPC for Remediation/Repackaging.

5. Once Remediated/Repackaged, send to RTR for re-scan in a new BDR.

(c) Instructions for Completion of the Final Disposition, including Inspection Criteria (Required for "Repair" and "Rework", N/A for "Use-As-Is, "Reject" and "Scrap")
NA

(d) Corrective Actions (Actions to Prevent Recurrence) - as required.
NA

FINAL DISPOSITION APPROVALS

20. Responsible Manager/Individual: (Print, sign, and date)	21. CCP QA Engineer or Designee: (Print, sign, and date)
BOB BILLETT 03/13/08	DEAN MOONEY 3/13/2008
Additional Approvals: (Print, sign, and date) NA	Additional Approvals: (Print, sign, and date) NA

CLOSURE

22. Final Disposition Complete Responsible Manager/Individual: (Print, sign, and date)

Ronald D. Reeves 4-15-09

23. Final Disposition Verified – NCR Closed — CCP QA Engineer: (Print, sign, and date)

DEAN Mooney 4/15/2009

Attachment 2 – CCP Nonconformance Report (NCR) Continuation Sheet			
NCR No. NCR-ORNL-0181-08 Revision **0**	Attachment # **1**	Page 1	of 1

Continuation from Section Number: **NA**

BASIS FOR CLOSURE:

1. CONTAINER WAS REJECTED IN NDE BDR OR-RTR6-0038
2. CONTAINER WAS CHARACTERIZED IN NDA BDR OR-DWAS-0040
3. CONTAINER WAS HELD PENDING EA EVALUATION AND THE EA EVALUATION WAS THAT THE CONTAINER WAS TRU
4. CONTAINER WAS SENT TO TWPC AND REPACKED INTO X10C9310043A
5. CONTAINER X10C9310043A WAS RESCANNED IN NDE BDR OR-RTR6-0165

DIVIDER PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR-ORNL- 0137 - 09 Revision 0

1. Lot No./Heat No. or Serial No.: N/A	2. Process (NDA, HSG, NDE, VE, Other): NDE	3. Batch Data Report # (s): OR-RTR6-0180
4. Order/Work Order/Job Control Number (as applicable): N/A	5. PO #: N/A 6. Supplier: N/A	Container #(s): X10C9309163G

DESCRIPTION OF NONCONFORMANCE

7. (a) CCP HOLD TAGS SHALL BE APPLIED UNLESS JUSTIFIED AS FOLLOWS:

☐ < 100 nCi/g ☐ Prohibited Item ☐ >500 ppmv Flamm. VOCs

☐ E-Flag ☐ Receiving Inspection ☐ Transportation ☐ WWIS ☑ Other

(b) Description of Nonconformance
Required Condition (Implementing Procedure, Revision, Section & Text)

CCP-TP-053, Rev. 6 Section 4.4.3 [B]:
IF a container is identified in the S5000 summary category group that CAN NOT be penetrated by the RTR method because of the presence of lead, or other shielding, THEN initiate a NCR in accordance with CCP-QP-005, CCP TRU Nonconforming Item Reporting and Control. e.

(c). Actual Condition

100% Scan not achievable due to impenetrable object.

(d). Attachments:

ATTACHMENT 1 - BASIS FOR CLOSURE (1 PAGE) 1/14/2010

8. NCR Originator (Print name, sign, and date) E. Lee Smith 4/6/09	9. CCP QA Engineer or Designee Validation (Print name, sign, and date) Dean Mooney 4/9/2009
9a. Does this NCR have the potential to impact AK? ☐ YES ☑ NO ☐ INDETERMINATE If YES or INDETERMINATE, then apply Trend Code L in Block 12.	
10. Significant Condition? ☐ YES ☐ NO ☑ NA	11. Recurring Condition? ☐ YES ☑ NO (If YES, List NCRs/CARs)
12. Trend Code: K	13. Responsible Manager: Pat Tilmon

Attachment 1 – CCP Nonconformance Report (NCR)	
NCR No.NCR-ORNL-0137-09 Revision **0**	
INTERIM DISPOSITION	
14. Interim Disposition (Check One) ☒ N/A (See final Disposition) ☐ Hold ☐ Conditional Accept ☐ Conditional Use ☐ Sort ☐Reinspect/Retest ☐ Remediate (a) Instructions for Completion of the Interim Disposition:	
INTERIM DISPOSITION APPROVALS	
15 .Responsible Manager/Individual (Print, sign, and date)	16. CCP QA Engineer or Designee (Print, sign and date)
Additional Approvals: (Print, sign and date) NA	Additional Approvals: (Print, sign and date) NA
COMPLETION OF INTERIM DISPOSITION	
17. Interim Disposition Complete Responsible Manager/Individual: (Print, sign and date)	
18. Interim Disposition Verified CCP QA Engineer: (Print, sign and date)	

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR-ORNL-0137-09 Revision **0**

FINAL DISPOSITION

19. Final Disposition (Check One)
☐ Use-As-Is ☒ Reject ☐ Repair ☐ Rework ☐ Scrap

(a) Technical Justification (Required for Use-As-is and Repair dispositions, N/A for Reject, Scrap, or Rework dispositions.)
NA

(b) Disposition Instructions (Required for Reject and Scrap, N/A for Use-As-Is, Rework, and Repair)

1. REJECT CONTAINER IN BDR OR-RTR6-0180

2. SEND CONTAINER TO VE FOR PROCESSING IN ACCORDANCE WITH CCP-TP-113

(c) Instructions for Completion of the Final Disposition, including Inspection Criteria (Required for Repair and Rework, N/A for Use-As-Is, Reject and Scrap)
NA

(d) Corrective Actions (Actions to Prevent Recurrence) - as required.
NA

FINAL DISPOSITION APPROVALS

20. Responsible Manager/Individual: (Print, sign, and date)	21. CCP QA Engineer or Designee: (Print, sign, and date)
PAT TILMON 4-9-09	DEAN MOONEY 4/28/09
Additional Approvals: (Print, sign, and date) NA	Additional Approvals: (Print, sign, and date) NA

CLOSURE

22. Final Disposition Complete Responsible Manager/Individual: (Print, sign, and date)
JOE STEPZINSKI Joseph B Stepzinski 1-19-10

23. (a) HOLD TAG removal has been validated and reconciled for all nonconforming items on the NCR. ☒
(b) Check if not applicable (N/A) and provide an explanation here or on a continuation sheet. ☐
1/19/2010

24. Final Disposition Verified – NCR Closed	CCP QA Engineer: (Print, sign, and date)
DEAN MOONEY	1/19/2010

Attachment 2 – CCP Nonconformance Report (NCR) Continuation Sheet

NCR No. NCR-ORNL-0137-09 Revision **0** Attachment # **1** Page **1** of **1**

Continuation from Section Number: **NA**

BASIS FOR CLOSURE:

1. **CONTAINER WAS REJECTED IN BDR OR-RTR6-0180**
2. **CONTAINER WAS REPACKED INTO X10C9309163G1 AND DOCUMENTED IN BDR ORVECH0006**

DIVIDER PAGE

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR-ORNL- 0163 - 09 Revision 0

1. Lot No./Heat No. or Serial No. (as applicable): N/A	2. Process (e.g., NDA, HSG, NDE, VE, Other): NDE	3. Batch Data Report # (s): OR-RTR6-0236-09 Container #(s): X10C0011102H 9/10/09
4. Order/Work Order/Job Control Number (as applicable): N/A	5. PO # (as applicable): N/A	
	6. Supplier (as applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7. (a) CCP HOLD TAGS SHALL BE APPLIED UNLESS JUSTIFIED AS FOLLOWS:

7. (b) NCR Description: ☐ < 100 nCi/g ☑ Prohibited Item ☐ >500 ppmv Flamm. VOCs
☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WMS ☐ Other

7. (c) Description of Nonconformance Required Condition (Implementing Procedure, Revision, Section, & Text):
1. As per CCP-TP-053, Rev. 6, Table 1. List of Prohibited Items, "Compressed Gases/Pressurized containers (e.g. aerosol cans)

7. (d) Actual Condition
Pressurized aerosol cans @ 30" & 32"

8. NCR Originator (Print name, sign, and date) Steve Binning Steve Binning 9-9-2009	9. CCP QA Engineer or Designee Validation (Print name, sign, and date) Dean Mooney 9/10/09
9a. Does this NCR have the potential to impact AK? ☐ YES ☑ NO ☐ INDETERMINATE If YES or INDETERMINATE, then apply Trend Code L in Block 12.	
9b. Have the CCP HOLD TAGS associated with the NCR been applied? ☑ YES ☐ NO ☐ N/A	
10. Significant Condition? ☐ YES ☐ NO ☑ N/A	11. Recurring Condition? ☐ YES ☑ NO (If YES, List NCRs/CARs)
12. Trend Code: K	13. Responsible Manager: Pat Tilmon

Attachment 1 – CCP Nonconformance Report (NCR)	
NCR No.NCR-ORNL-0163-09 Revision **0**	
INTERIM DISPOSITION	
14. Interim Disposition (Check One) ☒ N/A (See Final Disposition) ☐ Hold ☐ Conditional Accept ☐ Conditional Use ☐ Sort ☐Reinspect/Retest ☐ Remediate (a) Instructions for Completion of the Interim Disposition:	
INTERIM DISPOSITION APPROVALS	
15 .Responsible Manager/Individual (Print, sign, and date)	16. CCP QA Engineer or Designee (Print, sign and date)
Additional Approvals: (Print, sign and date)	Additional Approvals: (Print, sign and date)
COMPLETION OF INTERIM DISPOSITION	
17. Interim Disposition Complete Responsible Manager/Individual: (Print, sign and date)	
18. Interim Disposition Verified CCP QA Engineer: (Print, sign and date)	

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No.NCR-ORNL-0163-09 Revision **0**

FINAL DISPOSITION

19. Final Disposition (Check One)
☐ Use-As-Is ☒ Reject ☐ Repair ☐ Rework ☐ Scrap

(a) Technical Justification (Required for Use-As-Is and Repair dispositions, N/A for Reject, Scrap, or Rework dispositions.)
NA

(b) Disposition Instructions (Required for Reject and Scrap, N/A for Use-As-Is, Rework, and Repair)

1. REJECT CONTAINER IN BDR OR-RTR6-0236
2. SEND CONTAINER TO TWPC FOR REMEDIATION OF PROHIBITED ITEMS

(c) Instructions for Completion of the Final Disposition, including Inspection Criteria (Required for Repair and Rework, N/A for Use-As-Is, Reject and Scrap)
NA

(d) Corrective Actions (Actions to Prevent Recurrence) - as required, N/A if left blank.
NA

FINAL DISPOSITION APPROVALS

20. Responsible Manager/Individual: (Print, sign, and date)	21. CCP QA Engineer or Designee: (Print, sign, and date)
PAT TILMON 9-10-09	DEAN MOONEY 9/10/09
Additional Approvals: (Print, sign, and date)	Additional Approvals: (Print, sign, and date)
NA	NA

CLOSURE

22. Final Disposition Complete Responsible Manager/Individual: (Print, sign, and date)
JOE STEPZINSKI Joseph D Stepzinski 12/14/09

23. Attachments:
ATTACHMENT 1 – BASIS FOR CLOSURE (1 PAGE) 12/14/2009

24. (a) HOLD TAG removal has been validated and reconciled for all nonconforming items on the NCR. ☒
(b) Check if not applicable (N/A) and provide an explanation here or on a continuation sheet. ☐ 12/14/2009

25. Final Disposition Verified – NCR Closed Dean Mooney CCP QA Engineer: (Print, sign, and date) 12/14/2009

Attachment 2 – CCP Nonconformance Report (NCR) Continuation Sheet

NCR No. NCR-ORNL-0163-09 Revision **0** Attachment # **1** Page **1** of **1**

Continuation from Section Number: **NA**

BASIS FOR CLOSURE:

1. **CONTAINER WAS REJECTED IN BDR OR-RTR6-0236**

2. **CONTAINER WAS REPACKED INTO X10C0011102H1 AND NEW CONTAINER HAS BEEN ADDED TO AK**

Attachment 2 – Container Inspection/Weight Report

	Structural Integrity / Safe to Handle YES / NO		Container ID Number	Filters meet requirements YES / NO		Filter Information (Manufacturer, date of manufacture, lot number, unique serial number, as applicable)	Rad Survey Label (Circle)		Gross Container Weight (kg)	Initials	Date
NFS 501C *	(YES)	NO	X10C0506149E	(YES)	NO	NUCFIL019DS 8/07 HH-673	(SAT)	UNSAT	256.6	ST	11-12-13
NFS 501C *	(YES)	NO	X10C0506149B	(YES)	NO	NUCFIL-019DS 8/07 HH-683	(SAT)	UNSAT	276.4	ST	11-12-13
NFS-501C *	(YES)	NO	X10C0506150B	(YES)	NO	~~NUCFIL-019DS~~ ST 11-12-13 ~~NUCFIL-019DS~~ V08 A1-2254	(SAT)	UNSAT	259.2	ST	11-12-13
*	(YES)	NO	X10C0506151B	(YES)	NO	NUCFIL-019DS 1/08 A1-2264	(SAT)	UNSAT	264.8	ST	11-12-13
*	(YES)	NO	NFS0377B	(YES)	NO	UT9424X 00213 0094	(SAT)	UNSAT	170.8	ST	11-12-13
*	(YES)	NO	NFS0377A	(YES)	NO	UT9424X 00213 0277	(SAT)	UNSAT	191.2	ST	11-12-13
*	(YES)	NO	NFS0390A	(YES)	NO	UT9424X 00216 0047	(SAT)	UNSAT	201.4	ST	11-12-13
NFS-HDM A *	(YES)	NO	NFS0149 A	(YES)	NO	UT9424X 0023 0380	(SAT)	UNSAT	53.4	ST	11-12-13
	(YES)	NO	X10C0506153A	(YES)	NO	NUCFIL-019DS 6/07 FH-333 ~~UT9424X~~ ST 11-12-13	(SAT)	UNSAT	45.3	ST	11-12-13
	(YES)	NO	X10C9312705A1	(YES)	NO	NUCFIL-019DS V08 A1-2362	(SAT)	UNSAT	50.3	ST	11-12-13

Scale ID #	Location	Calibration Due Date	Scale Calibration Due Date Valid YES / NO	Scale Calibration Check SAT / UNSAT		Initials	Date
WIPP-151	ORNL/CH5A	1-2-14	Yes	(SAT)	UNSAT	ST	11-12-13

Comments: *These Drums previously entered into container management

Completed by: Shawn Treadway (Print Name) _____ (Signature) 11-12-2013 (Date)

VPM/Designee Verification: Andrew O. Stallings (Print Name) _____ (Signature) 11-12-13 (Date)

Attachment 2 – Container Inspection/Weight Report

	Structural Integrity / Safe to Handle YES / NO		Container ID Number	Filters meet requirements YES / NO		Filter Information (Manufacturer, date of manufacture, lot number, unique serial number, as applicable)	Rad Survey Label (Circle)		Gross Container Weight (kg)	Initials	Date
ISTP *	(YES)	NO	X10C94000031A	(YES)	NO	UT9424X 00213 0328	(SAT)	UNSAT	59.7	ST	11-11-13
ISTP *	(YES)	NO	X10C9311374A	(YES)	NO	UT9424X 00209 0341	(SAT)	UNSAT	56.2	ST	11-11-13
	(YES)	NO	X10CSATN02260I	(YES)	NO	UT9424X 00216 0052	(SAT)	UNSAT	42.5	ST	11-11-13
	(YES)	NO	X10CSATN02260J	(YES)	NO	UT9424X 00216 0043	(SAT)	UNSAT	49.2	ST	11-11-13
	(YES)	NO	X10CSATN02223I	(YES)	NO	UT9424X 00215 0067	(SAT)	UNSAT	47.1	ST	11-11-13
NFS Hamp *	(YES)	NO	NFS0479A1	(YES)	NO	UT9424X 00213 0348	(SAT)	UNSAT	51.8	ST	11-11-13
*	(YES)	NO	X10C9311191A	(YES)	NO	UT9424X 00213 0042	(SAT)	UNSAT	62.9	ST	11-11-13
	(YES)	NO	X10CSATN02474L	(YES)	NO	UT9424X 00210 0001	(SAT)	UNSAT	50.7	ST	11-11-13
*	(YES)	NO	NFS0478A	(YES)	NO	UT9424X 00213 0364	(SAT)	UNSAT	50.6	ST	11-11-13
*	(YES)	NO	X10C9311598A	(YES)	NO	UT9424X 00210 0390	(SAT)	UNSAT	65.6	ST	11-11-13

Scale ID #	Location	Calibration Due Date	Scale Calibration Due Date Valid YES / NO	Scale Calibration Check SAT / UNSAT N/A		Initials	Date
N/A	N/A	N/A	N/A	SAT	UNSAT	N/A	N/A

Comments: * These containers were previously entered into container managment

Completed by: Shawn Treadway (Print Name) _____ (Signature) 11-11-2013 (Date)

VPM/Designee Verification: Andrew O. Stallings (Print Name) _____ (Signature) 11-11-13 (Date)

Attachment 2 – Container Inspection/Weight Report

Structural Integrity / Safe to Handle YES / NO		Container ID Number	Filters meet requirements YES / NO		Filter Information (Manufacturer, date of manufacture, lot number, unique serial number, as applicable)	Rad Survey Label (Circle)		Gross Container Weight (kg)	Initials	Date
(YES)	NO	X10C94002184	(YES)	NO	NUCFIL-019DS 9/09 IJ-726	(SAT)	UNSAT	70.55	ST	11-6-13
(YES)	NO	X10CSATN02406K	(YES)	NO	UT9424X 00209 0212	(SAT)	UNSAT	48.1	ST	11-6-13
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO	N/A	SAT	UNSAT			
YES	NO		YES	NO	S.T. 11-6-2013	SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			

ISTP *
REOC

Scale ID #	Location	Calibration Due Date	Scale Calibration Due Date Valid YES / NO	Scale Calibration Check SAT / UNSAT N/A		Initials	Date
N/A	N/A	N/A	N/A	SAT	UNSAT	N/A	N/A

Comments: * this container was previously checked into container management

Completed by: Shawn Treadway (Print Name) _____ (Signature) 11-6-2013 (Date)

VPM/Designee Verification: Andrew O. Stallings (Print Name) _____ (Signature) 11.6.13 (Date)

NTPC RECORDS ORIGINAL
DATE REC'D 11-06-2013

Attachment 2 – Container Inspection/Weight Report

	Structural Integrity / Safe to Handle YES / NO		Container ID Number	Filters meet requirements YES / NO		Filter Information (Manufacturer, date of manufacture, lot number, unique serial number, as applicable)	Rad Survey Label (Circle)		Gross Container Weight (kg)	Initials	Date
NFS HETA *	(YES)	NO	NFS0783A	(YES)	NO	UT9424X 00216 0001	(SAT)	UNSAT	159.2	ST	11-6-13
	(YES)	NO	X10CSATN0226OH	(YES)	NO	UT9424X 00216 0041	(SAT)	UNSAT	50.6	ST	11-6-13
NFS-HOM-A	(YES)	NO	NFS0754A	(YES)	NO	UT9424X 00218 0359	(SAT)	UNSAT	48.4	ST	11-6-13
NFS-HETA *	(YES)	NO	NFS0422H	(YES)	NO	UT9424X 00210 0405	(SAT)	UNSAT	66.7	ST	11-6-13
✓ ✓ *	(YES)	NO	NFS0928B	(YES)	NO	UT9424X 00216 0073	(SAT)	UNSAT	111.8	ST	11-6-13
✓ ✓	(YES)	NO	NFS0928A	(YES)	NO	UT9424X 00216 0089	(SAT)	UNSAT	202.4	ST	11-6-13
✓ ✓ *	(YES)	NO	NFS0432B	(YES)	NO	UT9424X 00215 0133	(SAT)	UNSAT	166.8	ST	11-6-13
✓ ✓ *	(YES)	NO	NFS0432A	(YES)	NO	UT9424X 00215 0136	(SAT)	UNSAT	190.6	ST	11-6-13
	(YES)	NO	X10CSATN0224OE	(YES)	NO	UT9424X 00218 0167	(SAT)	UNSAT	41.3	ST	11-6-13
	(YES)	NO	X10CSATN0240GM	(YES)	NO	UT9424X 00209 0213	(SAT)	UNSAT	44.7	ST	11-6-13

Scale ID #	Location	Calibration Due Date	Scale Calibration Due Date Valid YES / NO	Scale Calibration Check SAT / UNSAT N/A		Initials	Date
N/A	N/A	N/A	N/A	SAT	UNSAT	N/A	N/A

Comments: * These Drums were previously checked into container management

Completed by: Shawn Treadway (Print Name) _____ (Signature) 11-6-2013 (Date)

VPM/Designee Verification: Andrew O. Stallings (Print Name) _____ (Signature) 11-6-13 (Date)

NTPC RECORDS ORIGINAL
DATE REC'D. 11-06-2013

Attachment 2 – Container Inspection/Weight Report

	Structural Integrity / Safe to Handle YES / NO		Container ID Number	Filters meet requirements YES / NO		Filter Information (Manufacturer, date of manufacture, lot number, unique serial number, as applicable)	Rad Survey Label (Circle)		Gross Container Weight (kg)	Initials	Date
REDC	YES	NO	X10CSATN02223H	YES	NO	UT9424X 00216 0042	SAT	UNSAT	44.8	ST	11-6-13
REDC	YES	NO	X10CSATN02446S	YES	NO	UT9424X 00213 0043	SAT	UNSAT	53.7	ST	11-6-13
	YES	NO	X10C0201075A	YES	NO	UT9424X 00200 0097	SAT	UNSAT	46.5	ST	11-6-13
	YES	NO	X10CSATN02609F	YES	NO	UT9424X 00216 0014	SAT	UNSAT	57.0	ST	11-6-13
	YES	NO	~~X10~~ X10CSATN02260A ST. 11-6-13	YES	NO	UT9424X 00215 0168	SAT	UNSAT	58.4	ST	11-6-13
	YES	NO	X10CSATN02260C	YES	NO	UT9424X 00215 0126	SAT	UNSAT	46.4	ST	11-6-13
*	YES	NO	X10C9312126A	YES	NO	NucFil-0190S 169 AJ-360	SAT	UNSAT	48.4	ST	11-6-13
*	YES	NO	X10C9313033A	YES	NO	UT9424X 00201 0234	SAT	UNSAT	42.4	ST	11-6-13
NFS-HET-A	YES	NO	NFS0417G	YES	NO	UT9424X 00213 0156	SAT	UNSAT	54.2	ST	11-6-13
	YES	NO	X10CSATN02223F	YES	NO	UT9424X 00215 0013	SAT	UNSAT	70.2	ST	11-6-13

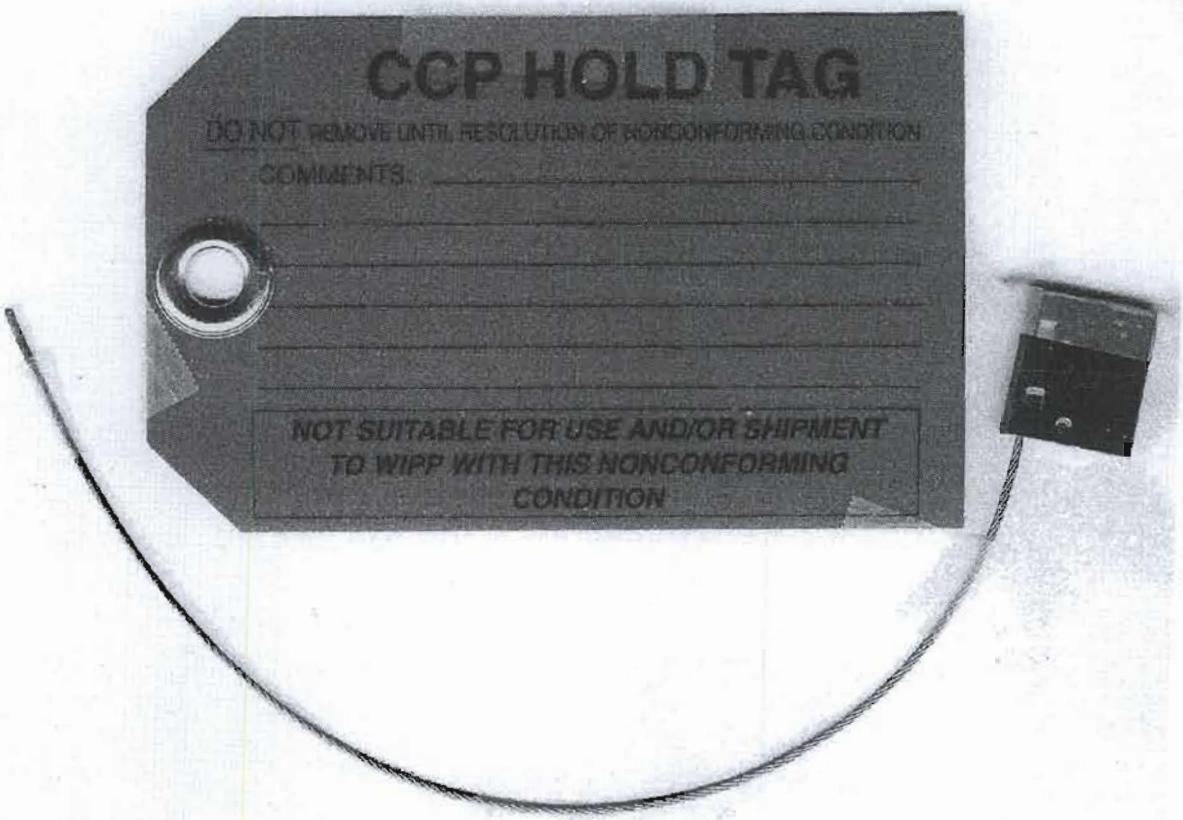
Scale ID #	Location	Calibration Due Date	Scale Calibration Due Date Valid YES / NO	Scale Calibration Check SAT / UNSAT		Initials	Date
WIPP-151	ORNL/CHSA	1-2-14	Yes	SAT	UNSAT	ST	11-6-13

Comments: * These containers were previously checked into container management

Completed by: Shawn Treadway (Print Name) _____ (Signature) 11-6-13 (Date)

VPM/Designee Verification: Andrew O. Stallings (Print Name) _____ (Signature) 11-6-13 (Date)

NTPC RECORDS ORIGINAL
DATE REC'D 11-06-2013


CCP HOLD TAG
DO NOT REMOVE UNTIL RESOLUTION OF NONCONFORMING CONDITION
COMMENTS:
NOT SUITABLE FOR USE AND/OR SHIPMENT TO WIPP WITH THIS NONCONFORMING CONDITION

NCR No.
CONTAINER/ITEM (s) No.
BOR No.
BRIEF DESCRIPTION OF NONCONFORMING CONDITION:
PRINT NAME
SIGNATURE
DATE

Nuclear Waste Partnership LLC

A URS-led partnership with B&W and AREVA

QA:13:00200
UFC:2300.00

INTER-OFFICE CORRESPONDENCE

DATE: October 17, 2013

FROM: J. E. Hoff J. E. Hoff LOCATION: Quality Assurance

TO: Distribution LOCATION: Various

SUBJECT: TRANSMITTAL AND CLOSURE OF NWP QUALITY ASSURANCE AUDIT I13-06, CENTRAL CHARACTERIZATION PROGRAM QUALITY ASSURANCE PROGRAM

Nuclear Waste Partnership, LLC (NWP), Quality Assurance (QA) internal audit I13-06, *Central Characterization Program Quality Assurance Program*, was performed in two segments (on July 15 through 18 and August 21 through 26, 2013, at the project office in Carlsbad and on August 13 through15, 2013, at Los Alamos National Laboratory), to evaluate the adequacy and effective implementation of the Central Characterization Program (CCP) QA Program for compliance with DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document;* WIPP Procedure (WP) 13-1, *NWP Quality Assurance Program Description,* and associated implementing procedure requirements as applicable.

This audit evaluated one half of the CCP QA Program as well as activities associated with Acceptable Knowledge (AK) which are assessed every year. On alternate years, opposite halves of the QA Program are evaluated. The program criteria evaluated during the project office portion of this audit included:

- Qualification and Training
- Document Control (follow up to previous audit, only)
- Identification and Control of Material, Parts, and Components
- Work Processes
- Inspection and Testing
- Control of Measuring and Test Equipment
- Handling, Storage, and Shipping
- Inspection, Test, and Operating Status
- Quality Improvement

Additionally, each year's audit includes a site visit to one of the waste generating sites at which CCP is active. This audit included an evaluation of the activities at Los Alamos National Laboratory (LANL). During this portion of the audit, all applicable criteria of the CCP QA Program were evaluated.

The results of this audit indicate that the required activities related to the CCP QA Program are adequately and effectively implemented to ensure that program requirements are met, with the exceptions documented in the audit findings. This audit resulted in two findings, two conditions corrected during the audit (CDA), and three observations. The findings will be documented on WIPP Form (WF) 13-299 and WF13-300 and resultant corrective actions will be tracked and closed through the WIPP Issues Management Process. The CDAs and observations require no response. Therefore, this audit is considered closed with the issuance of this report.

If you have any questions or require additional information concerning this audit, please contact Mr. D. Hood at (575) 234-8754.

TDH:ses

Attachment

A. J. Fisher	ED
D. E. Gulbransen	ED
M. W. Pearcy	ED
D. K. Ploetz	ED
T. R. Reynolds	ED
M. L. Sensibaugh	ED
C. E. Simmons	ED
M. R. Walentine	ED

cc:	W. W. Allen	ED
	V. K. Cannon	ED
	M. S. Hendrickson	ED
	L. E. Hernandez	ED
	F. M. Ito	ED
	S. A. Punchios	451-27
	T. L. Proctor	ED
	Quality Assurance Audit I13-06 File	

NUCLEAR WASTE PARTNERSHIP
QUALITY ASSURANCE AUDIT REPORT
Central Characterization Program Quality Assurance Program
I13-06

I. EXECUTIVE SUMMARY:

Nuclear Waste Partnership, LLC (NWP), Quality Assurance (QA) Audit I13-06, *Central Characterization Program Quality Assurance Program*, was performed in two segments (on July 15 through 18 and August 21 through 26, 2013 at the project office in Carlsbad and on August 13 through15, 2013 at Los Alamos National Laboratory), to evaluate the adequacy and effective implementation of the Central Characterization Program (CCP) QA Program for compliance with DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document;* WIPP Procedure (WP) 13-1, *NWP Quality Assurance Program Description*; and associated implementing procedure requirements as applicable.

The previous audit of the CCP QA Program resulted in one finding related to Document Control. A review for effectiveness of corrective actions was performed during this audit with satisfactory results.

The results of this audit indicate that the required activities related to the CCP QA Program are adequately and effectively implemented to ensure that program requirements are met, with the exceptions documented in the audit findings. This audit resulted in two findings, two conditions corrected during the audit (CDA), and three observations. The findings will be documented on WIPP Forms (WF) 13-299 and 13-300 and resultant corrective actions will be tracked and closed through the WIPP Issues Management Process. The CDAs and observations require no response. Therefore, this audit is considered closed with the issuance of this report.

II. AUDIT DETAILS:

Purpose and Scope:

The purpose of this audit was to evaluate the adequacy and effective implementation of one half of the CCP QA Program as well as activities associated with Acceptable Knowledge (AK) which are assessed every year. On alternate years, opposite halves of the QA Program are evaluated. The program criteria evaluated during the project office portion of this audit included:

- Qualification and Training
- Document Control (follow up to previous audit, only)
- Identification and Control of Material, Parts, and Components
- Work Processes
- Inspection and Testing
- Control of Measuring and Test Equipment
- Handling, Storage, and Shipping
- Inspection, Test, and Operating Status
- Quality Improvement

Additionally, each year's audit includes a site visit to one of the waste generating sites at which CCP is active. This audit included an evaluation of the activities at Los Alamos National Laboratory (LANL). During this portion of the audit, all applicable criteria of the CCP QA Program were evaluated.

The approach to this audit included observation of processes, documentation reviews, personnel interviews, and evaluations of associated procedures in order to determine the adequacy and effective implementation of the related program requirements. Where deemed appropriate, elements of the Integrated Safety Management System (ISMS) and Conduct of Operations were also evaluated.

A technical specialist was not required for the scope of this audit.

Criteria Used:

- DOE/CBFO-94-1012, Revision 11, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document*
- ASME/NQA-1-1989
- WIPP Procedure (WP) 13-1, Revision 33, *Washington TRU Solutions LLC Quality Assurance Program Description*
- WP 15-GM.03, Revision 6, *Integrated Safety Management System Description*
- WP 04-CO.01, Revision 2, *Conduct of Operations*

NWP Audit Team:

Lead Auditor:
Mr. T. D. Hood, QA, Oversight Programs

Auditors:
Ms. T. L. Proctor, QA, Assurance Programs

Auditor-in-Training:
Ms. L. E. Hernandez, QA, Assurance Programs

Inclusive Dates of Audit:

July 15 through 18 and August 21 through 26, 2013 (CCP offices in Carlsbad)
August 13 through 15, 2013 (LANL)

Location of Audit:

Skeen-Whitlock Building, Carlsbad, New Mexico
Los Alamos National Laboratory, Los Alamos, New Mexico

Safety and Security:

The audit in Carlsbad took place in an office environment, with no personal protection equipment being necessary. Audit activities at LANL involved the NWP Audit Team's presence in areas where steel-toed footwear and eye protection were required; team members complied with all safety requirements. Additionally, access to certain areas required use of a personal dosimeter and an escort; the NWP Audit Team complied with these requirements.

Access to all areas of LANL required badging; the NWP Audit Team maintained compliance.

During the audit, records storage locations were observed to be adequately designated and their access controlled via authorized-access signs and/or locked cabinets/areas.

Conclusions:

In addition to CCP activities assessed at the Carlsbad project office, the NWP Audit Team traveled to LANL to assess the CCP activities conducted at LANL. For the LANL portion of the assessment, the NWP Audit Team evaluated applicable facets of personnel qualification; instructions and procedures; document control; control of purchased product; material identification and control; work processes; inspection and testing; control of measuring and test equipment; handling, storage, and shipping; inspection and test status; nonconforming item control; corrective action; records; and assessments.

The NWP Audit Team concluded that the portions of the CCP QA Program subject to this audit are satisfactorily implemented, with the exceptions documented in the audit findings. The audit findings are not considered a significant hindrance to overall implementation of the QA Program. The NWP Audit Team

commends the professionalism, knowledge, competence, and courtesy displayed by all personnel contacted during the audit.

The NWP Audit Team confirmed that applicable higher-tier requirements from DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document* and WP 13-1, *Quality Assurance Program Description* are adequately addressed in implementing procedures.

The NWP Audit Team observed a number of personnel in the process of conducting activities requiring qualification and specialized training while at LANL. Additionally, documents reviewed during the audit revealed additional names of qualified personnel. A sample of the aforementioned personnel was selected and their qualification and training records were verified to be adequate for the applicable processes. The NWP Audit Team verified that a list of qualified individuals (LOQI) is maintained for personnel performing work at the mobile loading unit area and in the waste characterization processing areas at LANL. Additionally, training and qualification was confirmed for personnel responsible for tracking and controlling measuring and test equipment (M&TE).

The NWP Audit Team verified that activities observed in process at LANL were conducted using guidance from established instructions, procedures, standing orders, and/or drawings. Logbooks were verified to be used and completed properly at each inspection/examination station visited. One issue was found related to compliance with a nondestructive assay (NDA) procedure; this issue is identified in audit finding I13-06-F-01. The NWP Audit Team verified implementation of various requirements from the interface agreement between CCP and LANL. One issue was identified with regards to distribution of surveillance reports; this issue is identified in audit finding I13-06-F-02.

During the previous audit, the NWP Audit Team assessed the Document Control activities conducted by Document Services personnel at the Skeen Whitlock Building (SWB). It was noted that during the review process for proposed changes to controlled documents, the review and approval was not always conducted in accordance with procedural requirements (refer to Finding I12-12-F-01). During audit I13-06, corrective actions were evaluated and found to be effective in preventing similar occurrences.

While at LANL, the NWP Audit Team took note of the revision levels of documents (e.g., procedures, standing orders, work instructions, etc) in use. The NWP Audit Team also took note of the document/procedure revisions referenced/recorded in various documents reviewed during the audit (e.g., batch data reports [BDRs], etc). The listed revision levels were compared to the document revisions found on the sftp site (the on-line site set up for CCP personnel to access controlled documents) and in the Quality and Manufacturing Integrated System (Q&MIS) and were found to be the documents current at the time of use, with one exception. Three obsolete standing orders were observed to be posted at one location, these were promptly removed; refer to condition corrected during the audit I13-06-CDA-01.

The NWP Audit Team assessed the control of purchased material while at LANL. The NWP Audit Team witnessed receipt inspection of two different items (drums and filter vents) and verified that the procured items were received and inspected according to procedural requirements and that nonconforming items were placed on hold and a nonconformance report (NCR) was issued.

Identification and control of materials, parts, and components was verified by review of BDRs, observation of receipt inspection, and observation of various items (e.g., drums, spare parts, filter vents) in storage at LANL.

The NWP Audit Team verified that work processes are adequately controlled by CCP. Work processes such as NDA, headspace gas analysis, radiographic examination, visual examination (VE), mobile loading and leak testing of Type B Packaging, and waste certification / entry into WIPP Waste Information System (WWIS)/Waste Data System (WDS) were verified to be performed by qualified personnel, in accordance with established and current procedures, and when applicable, using proper equipment.

Inspection and testing activities witnessed by the NWP Audit Team while at LANL included real time radiography (RTR), NDA, and headspace gas (hydrogen/methane) analysis. No leak testing (TRUPACT-II/HalfPACT) or VE were in process during the audit. Personnel qualifications were verified for all personnel observed performing inspection/testing, as well as several persons whose names were selected from BDRs reviewed for all examination processes in use at LANL. Current procedures were verified to be on-site and in use at each station visited by the NWP Audit Team. Processes were being conducted in accordance with the procedures, with one exception. Refer to audit finding I13-06-F-01 for details.

Adequate control of measuring and test equipment (M&TE) was verified by the NWP Audit Team. One person responsible for tracking and ensuring calibration of M&TE in the project office in Carlsbad was interviewed and calibration data records and an M&TE log were reviewed. Several instruments observed at the mobile loading area at LANL were included in the instruments whose records were reviewed.

Controls related to handling, storage, and shipping were assessed for CCP activities. The NWP Audit Team verified that items in storage at LANL (e.g., drums, filter vents, spare parts for Type B Packaging, etc) were identified and controlled adequately. No items requiring special environments or controls were observed.

The NWP Audit Team verified via review of BDRs that inspection and test results are identified in the reports and the reports are traceable to applicable containers. Nonconforming items were observed to be marked with NCR tags. Suspect items were observed to be marked with administrative hold tags.

The NWP Audit Team verified through review of a sample of NCRs that nonconforming items are identified, their conditions evaluated, and remedial action is taken. While at LANL, the NWP Audit Team verified that containers related to the reviewed LANL NCRs that were "open" had NCR tags applied. Semi-annual trending reports were reviewed and their distribution to affected and interested parties was confirmed.

Programmatic conditions adverse to quality were verified to be identified via corrective action requests (CARs). The NWP Audit Team reviewed a sample of CARs and verified the CARs are processed in a manner to identify corrective actions, assign responsible parties, determine if adverse conditions are significant, assign root cause analyses when applicable, verify completion of corrective actions, and close the CARs. CARs were observed to be included in the semi-annual trending reports.

While at LANL, the NWP Audit Team verified that quality assurance records are adequately identified, classified, generated and completed, validated, collected, stored, maintained, protected, and transmitted as necessary. This includes hard copy records as well as electronic records. Corrections that were seen to have been made to all quality records reviewed during the audit were confirmed to have been made properly. Records requested for review during the project office portion of the audit were observed to be properly stored and were readily retrievable.

While at LANL, the NWP Audit Team verified that assessments, i.e., surveillances and management assessments, are scheduled; conducted by independent, qualified personnel; and reported to interested parties. The process was verified to produce identification of conditions adverse to quality and their resolution, when applicable. It was noted that audits are not conducted, other than an annual internal audit (which is this audit). It was verified that the combination of the surveillances, management assessments, and annual internal audits provide an adequate assessment of the QA Program's implementation.

The NWP Audit Team reviewed various documents related to AK processes to verify compliance with requirements from CCP-TP-005, Revision 25, *CCP Acceptable Knowledge Documentation* and the WIPP Hazardous Waste Facility Permit. One issue was noted regarding an AK related NCR that had one trend code annotated on the NCR whereas a different trend code was listed in the database; the error was corrected promptly – refer to condition corrected during the audit I13-06-CDA-02.

The audit also included evaluations for the appropriate application of the Integrated Safety Management System (ISMS). Evidence was observed during the course of the audit that supports the positive application of three ISMS Core Functions. Specifically, the NWP Audit Team was able to confirm the application of the following ISMS Core Functions:

- Core Function Number 1, *Define the Scope of Work* – Procedures are established for the CCP QA Program,
- Core Function Number 4, *Perform Work Within Controls* - Procedures are established to assure processes are conducted appropriately, and
- Core Function Number 5, *Provide Feedback and Continuous Improvement* – Periodic assessments of the CCP QA Program are conducted, and necessary corrective actions are taken when adverse conditions are identified.

This audit resulted in the identification of two findings, two CDAs, and three observations. The findings will be documented on WF 13-299 and 13-300 and resultant corrective actions will be tracked and closed through the WIPP Issues Management Process. The CDAs and observations require no response. Therefore, this audit is considered closed with the issuance of this report.

FINDING:

I13-06-F-01

Condition(s) Noted:

RTR was being conducted in accordance with CCP-TP-053, *Standard Real-Time Radiography (RTR) Inspection Procedure,* Revision 13, on several containers from a batch identified with BDR number LA-RTR2-13-0099. One of the containers (number 94122) failed due to the contents not matching the waste stream description. The RTR technician completed a VPM [Vendor Project Manager] Administrative Hold Tag and applied it to the container, but he did not complete an NCR.

Requirement(s) Not Met:

CCP-TP-053, *Standard Real-Time Radiography (RTR) Inspection Procedure,* Revision 13, Section 4.4.2.H.1 states, "IF any hazardous waste(s) NOT identified in the AK Summary Report(s) for the waste stream being characterized...are noted during the RTR examination, THEN perform the following: Initiate an NCR in accordance with CCP-QP-005."

I13-06-F-02

Condition(s) Noted:

Surveillance Reports SUR-LANL-0004-13 and SUR-LANL-0005-13 were not sent to the LANL TRU Program (LTP) Project Director (identified as Ms. Kathy Johns-Hughes), as required.

Requirement(s) Not Met:

CCP-PO-012, *CCP / Los Alamos National Laboratory (LANL) Interface Document,* Revision 13, Section 3.3.5 states, "NWP Assurance Programs Manager...ensures surveillances of waste characterization activities at LANL are performed on a periodic basis and surveillance reports are provided to the CCP SPM, the CCP LANL Project Manager/Designee, and the LANL TRU Program (LTP) Project Director."

CONDITIONS CORRECTED DURING THE AUDIT (CDAs):

I13-06-CDA-01

Condition(s) Noted:

Three obsolete standing orders were observed posted in the headspace gas analysis area at LANL:

- CCP-SO-072, cancelled July 25, 2013
- CCP-SO-088, cancelled July 25, 2013
- CCP-SO-089, cancelled April 30, 2013

Requirement(s) Not Met:

DOE/CBFO-94-1012, *Quality Assurance Program Document,* Revision 11, section 1.4.2 states, "The distribution and use of controlled documents and forms that document or prescribe work, including changes and editorial corrections to documents, shall be controlled to meet the following requirements:

C. The disposition of obsolete or superseded documents and forms shall be controlled to avoid their inadvertent use."

Action(s) Taken and Verification of Completion:

The standing orders were removed. Removal was verified by the site CCP QA representative.

I13-06-CDA-02

Condition(s) Noted:

NCR-LANL-1369-12, dated July 26, 2012, was annotated with trend code K, whereas the Integrated Data Center (IDC) database showed trend code H.

Requirement(s) Not Met:

WP 13-1, *Quality Assurance Program Description*, Revision 33, Section 1.4.1 states, "Documents that specify or prescribe work shall be reviewed for adequacy, **correctness**, and completeness prior to approval and issuance as controlled documents."

Action(s) Taken and Verification of Completion:

A Change Control Board (CCB) was requested to change the trend code for NCR-LANL1369-12 from H to K. An email from IDCADmin@wipp.ws was sent statusing the IDC CCB Request #DCR-2013-1198 from open to closed (meaning the action was complete). These actions were verified by the NWP Audit Team.

OBSERVATION(S):

I13-06-O-01

Condition(s) Noted:

At the time the condition annotated in finding I13-06-F-01 was discovered, the technician stated that CCP-TP-066 allows the failed scan to be designated a Fast Scan and for the condition to be documented on Attachment 2 to CCP-TP-066 and referred to the SPM [Site Project Manager] for resolution (without an NCR being initiated). However, CCP-TP-066, *CCP Radiography Screening Procedure for Prohibited items,* Section 4.6.10 addresses only prohibited items (there are no provisions in CCP-TP-066 for using a Fast Scan to reject a container with contents that do not match the designated waste steam).

I13-06-O-02

Condition(s) Noted:

Surveillance Reports SUR-LANL-0004-13 and SUR-LANL-0005-13 do not include the dates the surveillances were performed in the body of the report; however, the dates of performance are documented in each line item in the Checklist (Attachment 1) to the reports.

I13-06-O-03

Condition(s) Noted:

The following are not listed in CCP-PO-012, *CCP / Los Alamos National Laboratory (LANL) Interface Document,* Revision 13, Attachment 1, *Acronyms and Key Definitions*

- LTP (LANL TRU Program)
- SSS-PM (Shipping and Safe Storage Manager)
- VOCs (Volatile Organic Compound)
- EA (Expert Analyst)
- CPP (Central Procurement Program)

III. ATTACHMENTS:

Attachment 1, *Table of Personnel Contacted*
Attachment 2, *Table of Documents Reviewed*

IV. SIGNATURES:

Prepared by: _____ 10-16-13
T. D. Hood, Lead Auditor — Date
Oversight Programs

Approved by: _____ 10-17-13
V. K. Cannon, Manager — Date
Assurance Programs

Attachment 1, *Table of Personnel Contacted*

[A] Attended Audit Entrance Meeting **[B]** Contacted During the Audit **[C]** Attended Audit Exit Meeting

Name	A	B	C
Nuclear Waste Partnership			
Val Cannon	X	X	X
Antonio Chavarria	X*	X	
Jim Eastham		X	
Ed Gulbransen	X		
A.J. Fisher	X	X	
Laura Jones		X	
Creta Kirkes		X	
Tommy Mojica	X*	X	
Robbie Morrison		X	
Terry Mueller	X	X	
Leon Navarrete		X	
Jose Payanes		X	
Mark Pearcy			X
Mike Ramirez	X	X	
Nick Roberts		X	
Mike Rogers		X	
Mike Sensibaugh		X	
Chris Sexton		X	
Craig Simmons	X*	X	
Veronica Waldram		X	
Mak Walker	X	X	
Los Alamos National Laboratory			
Ed Anaya		X	
Sara Aragon		X	
Tim Barton		X	
Cathy Buffington		X	
Davis Christensen		X	
Aaron Elliott		X	
Maria Escarega		X	
Terri-Anne Groover		X	
Thad Hasselstrom		X	
Dave Hemsing		X	
Bob Houdashelt		X	
Erik Loechell		X	
Benito Maestas		X	
Kevin McTaggart		X	
Floyd Ortiz		X	
Mary Reed		X	
Eddie Rios		X	
Robert Rios		X	
David Sager		X	
Mike Simmons		X	
Nathan Wales		X	
S.M. Stoller Corporation			
Cheryl Armijo		X	
Ranada Baca		X	
Michele Billet		X	
Paulette Henry		X	
Leon Navarrete		X	
Sheila Pearcy		X	

X* - entrance meeting at LANL

Attachment 2, *Table of Documents Reviewed*

Document Identification	Document Title or Description
DOE/CBFO-94-1012, Revision 11	*U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document*
DOE/CBFO-94-1012, Revision 11	*U.S. Department of Energy Carlsbad Field Office Quality Assurance (QA) Program Document*
DOE/WIPP-02-3183, Revision 8	*CH [Contact-Handled] Packaging Program Guidance*
DOE/WIPP-02-3184, Revision 13	*CH Packaging Operations Manual*
DOE/WIPP-02-3185, Revision 2	*CH Packaging Maintenance Manual*
DOE/WIPP-02-3220, Revision 13	*CH Packaging Operations for High-Wattage Waste*
DOE/WIPP-06-3345, Revision 5	*Waste Isolation Pilot Plant Flammable Gas Analysis*
CCP-AK-LANL-010, Revision 6	*Central Characterization Program Acceptable Knowledge Summary Report for Los Alamos National Laboratory TA-21 DP West Facility*
CCP-AK-LANL-014, Revision 1	*Central Characterization Program Acceptable Knowledge Summary Report for Los Alamos National Laboratory TA-39 Two-Stage Gas Fun Facility*
CCP-CM-003, Revision 3	*Central Characterization Program High Efficiency Neutron Counter (HENC-01) (Equipment #NDA-HENC-01) Equipment Description*
CCP-CM-029, Revision 1	*Central Characterization Program High Energy Real-Time Radiography System HE-RTR*
CCP-PO-001, Revision 21	*Central Characterization Program TRU Waste Characterization Quality Assurance Project Plan*
CCP-PO-002, Revision 27	*Central Characterization Program Transuranic Waste Certification Plan*
CCP-PO-005, Revision 23	*Central Characterization Program Conduct of Operations*
CCP-PO-012, Revision 12 and 13	*Central Characterization Program/Los Alamos National Laboratory (LANL) Interface Document*
CCP-QP-002, Revision 35	*Central Characterization Program Training and Qualification Plan*
CCP-QP-005, Revision 23	*Central Characterization Program TRU Nonconforming Item Reporting and Control*
CCP-QP-008, Revision 21	*Central Characterization Program Records Management*
CCP-QP-010, Revision 24	*Central Characterization Program Document Preparation, Approval, and Control*
CCP-QP-014, Revision 5	*Central Characterization Program QA Trend Analysis and Reporting*
CCP-QP-015, Revision 12	*Central Characterization Program Procurement*
CCP-QP-016, Revision 18	*Central Characterization Program Control of Measuring and Testing Equipment*
CCP-QP-017, Revision 3	*Central Characterization Program Identification and Control of Items*
CCP-QP-018, Revision 10	*Central Characterization Program Management Assessment*
CCP-QP-019, Revision 7	*Central Characterization Program Quality Assurance Reporting to Management*
CCP-QP-021, Revision 8	*Central Characterization Program Surveillance Program*
CCP-QP-023, Revision 4	*Central Characterization Program Handling, Storage and Shipping*
CCP-QP-026, Revision 14	*Central Characterization Program Inspection Control*
CCP-QP-027, Revision 6	*Central Characterization Program Test Control*
CCP-QP-029, Revision 0	*Central Characterization Program Corrective Action Management*
CCP-QP-030, Revision 9	*Central Characterization Program Written Practice for the Qualification of CCP Helium Leak Detection Personnel*
CCP-TP-001, Revision 21	*Central Characterization Program Project Level Data Validation and Verification*
CCP-TP-002, Revision 26	*Central Characterization Program Reconciliation of DQOs and Reporting Characterization Data*
CCP-TP-005, Revision 24 and 25	*Central Characterization Program Acceptable Knowledge Documentation*
CCP-TP-011, Revision 17	*Central Characterization Program Radiography Inspection Operating Procedure*
CCP-TP-030, Revision 32	*Central Characterization Program CH TRU Waste Certification and WWIS/WDS Data Entry*
CCP-TP-033, Revision 20	*Central Characterization Program Shipping of CH TRU Waste*
CCP-TP-053, Revision 13	*Central Characterization Program Standard Real-Time Radiography (RTR) Inspection Procedure*
CCP-TP-054, Revision 3	*Central Characterization Program Adjustable Center of Gravity Lift Fixture*

Document Identification	Document Title or Description
	Preoperational Checks and Shutdown
CCP-TP-055, Revision 5	*Central Characterization Program Varian Porta-Test Leak Detector Operations*
CCP-TP-059, Revision 1	*Central Characterization Program Operating the Super High Efficiency Neutron Counter (SuperHENC) Using NDA 2000*
CCP-TP-063, Revision 14	*Central Characterization Program Operating the High Efficiency Neutron Counter Using NDA 2000*
CCP-TP-064, Revision 7	*Central Characterization Program Calibrating the High Efficiency Neutron Counter and the Super High Efficiency Neutron Counter Using NDA 2000*
CCP-TP-066, Revision 13	*Central Characterization Program Radiography Screening Procedure for Prohibited Items*
CCP-TP-069, Revision 6	*Central Characterization Program Sealed Source Visual Examination and Packaging*
CCP-TP-076, Revision 0	*Central Characterization Program Operating the Mobile ISOCS Large Container Counter Using NDA 2000*
CCP-TP-082, Revision 9	*Central Characterization Program Waste Container Filter Vent Operation*
CCP-TP-083, Revision 7 and 8	*Central Characterization Program Gas Generation Testing*
CCP-TP-086, Revision 18	*Central Characterization Program CH Packaging Payload Assembly*
CCP-TP-101, Revision 6	*Central Characterization Program Data Reviewing, Validating, and Reporting Procedure for the NDA Counters at LANL Using NDA 2000*
CCP-TP-103, Revision 11	*Central Characterization Program Operating the High Efficiency Neutron Counter Using NDA 2000*
CCP-TP-113, Revision 17	*Central Characterization Program Standard Contact-Handled Waste Visual Examination*
CCP-TP-120, Revision 16	*Central Characterization Program Container Management*
CCP-TP-121, Revision 4	*Central Characterization Program RTR #1 Operating Procedure*
CCP-TP-122, Revision 3	*Central Characterization Program RTR #2 Operating Procedure*
CCP-TP-198, Revision 7	*Central Characterization Program HE-RTR Operating Procedure*
CCP-TP-508, Revision 8	*Central Characterization Program Standard Real-Time Radiography Inspection Procedure*
CCP-TP-530, Revision 11	*Central Characterization Program RH TRU Waste Certification and WWIS/WDS Data Entry*
WP 04-CO.01-1 through -18	*Conduct of Operations Series*
WP 13-1, Revision 33	*Nuclear Waste Partnership LLC Quality Assurance Program Description*
WP 15-GM.03, Revision 6	*Integrated Safety Management System Description*
NM4890139088-TSDF	*WIPP Hazardous Waste Facility Permit*
CCP Standing Order (SO) CCP-SO-104, Revision 0	*Use of WIPP Form in concert with CCP CAR* [Corrective Action Report]
Audit Report I11-05	Washington TRU Solutions LLC, Quality Assurance Audit Report, *Central Characterization Project Quality Assurance Program*
Audit Report I12-12	Nuclear Waste Partnership LLC, Quality Assurance Audit Report, *Central Characterization Project Quality Assurance Program*
Surveillance Report S11-18	Washington TRU Solutions Quality Assurance *Acceptable Knowledge*
	Email from A. Chavarria, to T. Proctor, dated July 25, 2013, subject: NCR-LANL-1369-12
	Email from IDCAdmin@wipp.ws to A. Chavarria, dated July 25, 2013, subject: Status on your IDC CCB Request #DCR-2013-1198 Has Changed
Waste Stream LA-MSG04.001 files contained:	CCP-TP-005 Attachment 1, Attachment 3, Attachment 4, Attachment 5, Attachment 6, Attachment 7, Attachment 8, Attachment 10 and Attachment 11 Memorandum dated January 16, 2013 (did not contain number) and Memorandum P2010-3324 Source Documents: C002, C003, C022, C031, D009, D058, D060, DR001, DR002, DR003, DR005, DR007 and P012
Waste Stream LA-MHD04.001	CCP-TP-005 Attachment 1, Attachment 3, Attachment 4, Attachment 5, Attachment

Document Identification	Document Title or Description
files contained:	6, Attachment 7, Attachment 8, Attachment 10, Attachment 11, Attachment 13 and Attachment 14 Memorandum P2010-2316, Memorandum P2010-2555, Memorandum P2010-3316, Memorandum P2010-3285, Memorandum P2010-3279, Memorandum P2010-3278 and Memorandum CP:13:01260 Source Documents: C002, C003, C022, C031, D009, D058, D060, DR001, DR002, DR003, DR005, DR007 and P012
Waste Stream LA-MHD10.001 files contained.	CCP-TP-005 Attachment 1, Attachment 3, Attachment 4, Attachment 5, Attachment 6, Attachment 7, Attachment 8, Attachment 11, Attachment 13 and Attachment 14 Memorandum P2010-3293, Memorandum P2010-3323 and Memorandum CP:13:01269 Source Documents: C011, D003, D011, D012, DR001, M005 and P015
	CCP Mobile Loading Unit (MLU) Transportation Personnel List of Qualified Individuals (LOQI), August 6, 2013
	RH WDS Master Template.xls, Revision 4, Addendum #4, SCO #1066 Excel 2003/2007 Microsoft Windows XP printout
	CH WDS Master Template.xls, Revision 8, Addendum #8, SCO #1065, Excel 2003/2007 Microsoft Windows XP printout
	Interoffice Correspondence QA:13:01050, from V. K. Cannon to D. E. Gulbransen, dated June 27, 2013, subject: Information Copy of Completed Central Characterization Program Surveillance Report SUR-LANL-0005-13, Tagging and Segregation of Drums and Mover Verification at Los Alamos National Laboratory
	Interoffice Correspondence QA:13:01045, from V. K. Cannon to D. E. Gulbransen, dated June 5, 2013, subject: Information Copy of Completed Central Characterization Program Surveillance Report SUR-LANL-0004-13, Flammable Gas Analysis at Los Alamos National Laboratory
	Interoffice Correspondence QA:13:01003, from V. K. Cannon to M. L. Sensibaugh, dated January 21, 2013, subject: Central Characterization Program Surveillance/Assessment Schedule for Calendar Year 2013; with schedule
	Interoffice Correspondence QA:13:01046, from V. K. Cannon to D. E. Gulbransen, dated June 12, 2013, subject: Notification of Quality Assurance Surveillance SUR-LANL-0005-13, Tagging and Segregation of Drums and Mover Verification; with Surveillance Plan SUR-LANL-0005-13
	Interoffice Correspondence QA:13:01041, from V. K. Cannon to D. E. Gulbransen, dated May 15, 2013, subject: Notification of Quality Assurance Surveillance SUR-LANL-0004-13, Flammable Gas Analysis; with Surveillance Plan SUR-LANL-0004-13
	Letter Number CP:13:01034, from D. E. Gulbransen to C. G. Fesmire, dated January 22, 2013, subject: Semiannual Report on the National Waste Partnership (NWP) Quality Assurance Program Second Half of Calendar Year 2012 (July 1 through December 31, 2012)
	CCP 2013 Assessment Schedule Audits and Assessments Attachment, revised June 12, 2013
	Software Change Order Numbers 455, 1148, 1198 and 1141
CH-TRUCON, Revision 48, April 2013	Table 2B (Continued), *Summary of Approved Content Codes and Corresponding Shipping Categories for Close-Proximity Shipments (20-Day Shipping Period)*
	Email from L. Dominguez to Distribution, dated July 12, 2013, subject: NCR/CAR Request LANL AK6 LA-MHD01.001 Lot 389
	WWIS Data Entry Completed Record Documentation for CH LANL AK6 LA-MHD01.001, Lots 358, 359, 360, 361, 362, and 363 for Batch #3635-026, -028, -030, -032, -035, -037, and -039
	WWIS Data Entry Completed Record Documentation for RH INL ID-EFEF-S5400, Lots 16, 19, and 20 for Batch #RH081-005, -007, and -009
	LANL AK Tracking Spreadsheet, AKTSS-7/23/13
	PO Number 501578 Attachment 1 – CCP Receipt Inspection Verification Sheet

Document Identification	Document Title or Description
	Open CAR Status Report, dated 7/15/13
	CCP Corrective Action Reports (CARs): CAR-LANL0001110 CAR-LANL0002110 CAR-LANL0003110 CAR-LANL0004110 CAR-LANL0001120 CAR-LANL0002120 CAR-LANL0003120 CAR-LANL0004120 CAR-LANL0005120 CAR-LANL0006120 CAR-LANL0007120 CAR-LANL0001130 CAR-LANL0002130 CAR-LANL0003130
	CCP Nonconformance Reports (NCRs): NCR-LANL0050130 NCR-LANL0085120 NCR-LANL0187131 NCR-LANL0197130 NCR-LANL0199130 NCR-LANL0552130 NCR-LANL0561130 NCR-LANL0585130 NCR-LANL0586130 NCR-LANL0587130 NCR-LANL0588130 NCR-LANL0594130 NCR-LANL0608130 NCR-LANL0609130 NCR-LANL0660130 NCR-LANL0661130 NCR-LANL0704080 NCR-LANL0737130 NCR-LANL1005120 NCR-LANL1010120 NCR-LANL1019120 NCR-LANL1020120 NCR-LANL1025120 NCR-LANL1026120 NCR-LANL1369120 NCR-LANL1532120 NCR-LANL1546120 NCR-LANL1548120 NCR-LANL1624120 NCR-LANL1791120 NCR-LANL1970120 NCR-LANL1971120 NCR-LANL2051120 NCR-LANL3636110 NCR-LANL3637110 NCR-LANL3967110 NCR-SRS0541120
	Attachment 2 – CCP Records Transmittal/Receiving Form: Document Number: 2013-05517, Contamination Radiation Survey Report, August 9, 2013; Document Number: N/A, NDE Daily Pre-Operational Checklist, August 7, 2013
MA-CCP-0013-13	Management Assessment, signed June 11, 2013
	Certificate of Conformance for NucFil-072 Filter, dated July 29, 2013
	Certificate of Conformance for NucFil-013 Carbon Filters
	Document Action Request for Document Number: DOE/WIPP 06-3345, Revision 5, Title: *Waste Isolation Pilot Plant Flammable Gas Analysis*
	http://swoosh.lanl.gov/trucks website
	Certificate of Calibration File for the following: XC0052, XC0350, XC0365, XC0424, XC0425, XC0822, XC0882
	WIPP Records Inventory and Disposition Schedule (RIDS) for NWP/CCP/NTPC/CH for All Sites, dated August 1, 2013
	Back-up file reports for the following servers: Churchrock.PNG, Duran.PNG, Dixon. PNG, Garrison.PNG, Dunken.PNG, Whiterock.PNG
	CCP – *Los Alamos National Labs (LANL) List of Qualified Individuals*, July 12, 2013, 3:29pm
	CCP – *Los Alamos National Labs (LANL) List of Qualified Individuals*, August 8, 2013, 3:30pm
QCard-001	*WIPP Procurement Q-Card User Qualification Card,* (and it's supporting documentation of CON-008, *Graded Approach to the Application of QA Controls to Purchase Requisitions*; CON-010, *Credit Card Program*; and SCI-101, *Suspect/ Counterfeit Items*; examination results) for the following: Chris Sexton
VE-01	*Visual Examination (VE) Operator/Independent Technical Reviewer (ITR) for Contact-Handled (CH) Waste Qualification Card,* (and its supporting documentation of the WAP [Waste Analysis Plan]/QAPjP [QA Project Plan] Briefing and Test, and CCP VE Comprehensive Examination results) for the following: Levie Archuleta Duane Clemons Robert Geyer Anthony Harley Tommy Mojica Kenneth Salazar Joseph Stepzinski Michael Trujillo
RTR-02	*Real-Time Radiography (RTR) Operator/ITR Qualification Card, (*and its supporting documentation of the WAP/QAPjP and RTR Examination Results; Level II SNT-TC-1A Certification, and current Eye Examination) results for the following:

Document Identification	Document Title or Description
	Aaron Elliott Thaddeus Hasselstrom Benito Maestas Michael Simmons Kenneth Simpson
NDA-02	*Non-Destructive Assay (NDA) Operator/ITR for the High Efficiency Neutron Counter (HENC) 1 and 2 Systems Qualification Card,* for the following: NDA Dominic Archuleta Richard Baumann Maria Escarcega
	Blank Qualification Cards: • VE-01, Revision 4; • VE-OSRP-01, Revision 6, *Visual Examination (VE) Operator/Independent Technical Reviewer (ITR) for Los Alamos National Laboratory (LANL) – Off Site Source Recovery Program (OSRP)*; • RTR-02, Revision 4; • NDA-02, Revision 3; • NDA-13, Revision 2, *Non-Destructive Assay (NDA) Operator/ITR for the LANL Super High Efficiency Neutron Counter (HENC) System Qualification Card*; and • NDA-16, Revision 0, *Non-Destructive Assay (NDA) Operator/ITR for the Mobile ISOCS* [In-Situ Object Counting System] *Large Container Counter (MILCC) System Qualification Card*
	National TRU Program Certification for JA-101, Revision 1, *Analysis of Positions for Qualification*
	RCT [Retrieval, Characterization and Transportation]/CCP/CH Records Inventory and Disposition Schedule (RIDS), dated August 2, 2012
	Integrated Data Center CCP Nonconformance Report (NCR) Database
	WIPP Forms (WFs): WF13-101 and WF13-103
	Semi-annual Trend Reports for Calendar Year (CY) 2011 and CY2012: CP:12:01128 (January – June) CP:12:01115 (July – December) CP:12:01451 (January – June) CP:13:01034 (July – December)
	30 day list for LANL (shows M&TE due in next 30 days)
	60 day list for LANL (shows M&TE due in next 60 days)
	Print-out list of CCP controlled M&TE
	Integrated Data Center on-line database of M&TE information
	Certificates of Calibration for: • Mettler Toledo balance, file number 032799 • Torque wrench, file number 039953 • Torque wrench, file number 037909 • Torque wrench, file number 023342 • Torque wrench , file number 027332 • Electronic scale, identification number XC0987
	Shipping Authorization, dated 7/16/13 (for sending Barometer with identification number XC0903 out for calibration). Attached were *Quotation for Metrology Services* from Edison ESI, Attachment 1 – *Quality Credit Card Purchase Log* (WP 15-PC3044), *Q-Card Authorization*, *Inspection Plan*, and *Requirements for NWP/CCP M&TE Calibration*.
CCP-LANL- Standing Order (SO) -021, Revision 3	*CCP-TP-120 Rev 12, Section 4.1.7 [B.3] Clarification*
CCP- SO-036, Revision 1	*NCR/VPM Hold Tag Guidance*
CCP-SO-037, Revision none	*Additional Review and Approval of ICALs for Flammable Gas Analysis*
CCP-SO-052, Revision 0	*CCP Operations Work Schedules*
CCP-SO-072, Revision 0	*Guidance to Apply RTV-732 to Filter Vents*
CCP-SO-080, Revision 1	*Designation of Packaging Weights*
CCP-SO-088, Revision 0	*Drum Aspiration Time Requirements for Containers Sampled in the Flammable Gas Analysis (FGA) Process When Using Sampling Scenario 2*
CCP-SO-089, Revision 0	*Number of Filters Required on an SWB, TDOP, or SLB2 Before Headspace Gas*

Document Identification	Document Title or Description
	Sampling Can Be Performed
CCP-SO-104, Revision 0	*Use of WIPP Form in concert with CCP CAR*
CCP-SO-LANL-32, Revision 2	*Pipe Overpack Component (POC) Percent Fill and Weight Guidance*
CCP-SO-LANL-47, Revision 1	*CCP RTR2 Operational and Intermittent E11 and/or E12 Error Code Occurrences*
CCP-SO-LANL-49, Revision 4	*Controlling High FGE Containers*
CCP-SO-LANL-50, Revision 0	*Handling of High Americium (AM-241) Activity Debris Drums*
CCP-SO-LANL-51, Revision 0	*High Energy RTR Key Control*
CCP-SO-LANL-59, Revision 0	*Additional Filter Information for CIN-01 Containers Through FGA*
CCP-LANL-Operator Aid (OA)-2012-01, Revision 2	*LANL Standard Packaging Weights for RTR*
OA-NDA-002, Revision none	No title
OA-NDA-004, Revision 3	No title
OA-NDA-005, Revision 2	*Container Parameters*
LANL-NDE-RTR2-010	Logbook (for 2013)
LANL-NDE-HERTR02-003	Logbook (for 2013)
LANL-NDA-HENC-02-013	Logbook (for 2013)
LANL-NDA-HENC-014	Logbook (for 2013)
LANL-NDA-SHENC-004	Logbook (for 2013)
NTPC-MILCC-002	Logbook (for 2013)
LANL-HSG-TRANS-017	Logbook (for 2013)
LAVE500333	BDR for VE of container S835304
3LANDA0149	BDR for NDA of containers 93213, 93214, 93215, 93232, 93163
3LANDA0167	BDR for NDA of containers 93209, 93269, 93478, 93501, 93535
LA-RTR2-13-0086	BDR for real-time radiography (RTR) of containers 67198, 67182, 67181, 67178, 67179, 66986, 67304, 67180, 67187, 67185, 66945, 67183, 67186
LA-RTR2-13-0088	BDR for RTR of containers 93866, 93863, 93856, 93859, 93871, 93861, 93880, 93877
LA-HERTR-13-0078	BDR for RTR of containers S811731, 93081
LA-HERTR-13-0072	BDR for RTR of containers 53885, 54211, 52304, 53877, 93756, 93809, 93810, 93777, 93770, 93769, 93771
LAVE550115	BDR for VE of containers 67210, 67366
LAVE550116	BDR for VE of containers 67216, 67301
1LANDA1795	BDR for NDA of containers 93834, 93833, 93838, 93839, 93827, 93192, 93153, 92559, 92561, 62025
1LANDA1796	BDR for NDA of containers 93080, 67186, 66882, S800594, 66657, 67187, 67185
2LANDA1182	BDR for NDA of containers 93819, 93092, 93201, 93203, 93205, 91504, S850246, 93347, 93226
2LANDA1183	BDR for NDA of containers 67179, 67304, 67180, 67198, 67182, 67178, 67181, 67344
	Reviewed the following BDRs in-process (while observing examination being performed on the container[s] listed below) – not all related documents were completed at time of review: • LA-RTR2-13-0099, containers 94128, 94122, 94138 • LAHERTR-13-0092, container 94154 • 2LANDA1210, container 57333 • 1LANDA1827, container 94108
	Email from T. A. Groover, dated 5/1/13, delegating Dave Hemsing as Visual Examination Expert (VEE)
	Reviewed training/qualification/documentation files for the following personnel (persons involved with the CCP Mobile Loading Unit [MLU] area): • Ed Anaya

Document Identification	Document Title or Description
	○ CH Packaging Operator SME/OJT [Subject Matter Expert/On-the-Job-Trainer] ○ RH Packaging Operator SME/OJT ○ TRUPACT-III Packaging Operator SME/OJT ○ HLD [Helium Leak Detection] Level II ○ PCLT [Pressure Change Leak Detection] Level II ○ Eye examination • Bob Houdashelt ○ CH Packaging Operator SME/OJT ○ RH Packaging Operator SME/OJT ○ HLD Level II ○ Eye examination • Kevin McTaggart ○ CH Packaging Operator SME/OJT ○ HLD Level II ○ Eye examination • Wade Weyerman ○ HLD Level III (including TRUPACT-III)

URS

CP:12:01145
UFC:5900.00

Washington TRU Solutions LLC

INTER-OFFICE CORRESPONDENCE

DATE: March 22, 2012

FROM: B.S. Schrock BSSchrock LOCATION: Certification

TO: R.D. Reeves ED LOCATION: CCP Project Management

SUBJECT: ACCEPTABLE KNOWLEDGE ACCURACY REPORT: OAK RIDGE NATIONAL LABORATORY WASTE STREAM NUMBER OR-ISTP-CH-HET, HETEROGENEOUS DEBRIS WASTE, LOTS 1 THROUGH 3

Purpose

CCP-TP-005, revision 24, CCP Acceptable Knowledge Documentation, requires that Acceptable Knowledge (AK) accuracy be evaluated and documented, either on a lot or waste stream basis. The purpose of this memorandum is to document the results of the AK accuracy determination for waste containers in waste stream OR-ISTP-CH-HET, Lots 1 through 3.

Methodology

In accordance with CCP-TP-005, the Central Characterization Project (CCP) Waste Stream Characterization Checklists (Attachment 13) for each lot in waste stream OR-ISTP-CH-HET subject to this AK Accuracy review were evaluated. No AK Re-evaluation (AKR) Checklists (Attachment 10) were reviewed as part of the AK accuracy determination. The list of waste containers for Lots 1 through 3 (121 containers) is provided in the attachment that accompanies this AK Accuracy Report. The results of the AK accuracy determination for these waste containers are described in the Results section of this report and documented on the attached AK Accuracy Report form (Attachment 14).

One hundred and twenty-one containers were evaluated for AK accuracy. Containers that had the Waste Matrix Code (WMC) reassigned, Environmental Protection Agency (EPA) Hazardous Waste Numbers (HWNs) reassigned, or were found to have radiological data inconsistent with AK, are identified on the AK Accuracy Report form. The results of the AK accuracy determination for waste stream OR-ISTP-CH-HET are addressed in the following sections of this correspondence.

The results of the AK accuracy determination for containers in Lots 1 through 3 were combined with containers requiring special consideration, as applicable, to provide the overall AK accuracy in terms of accuracy percentage. The results of the AK accuracy evaluation for waste containers in waste stream OR-ISTP-CH-HET comprising lots 1 through 3 are addressed in the Summary section of this memorandum and documented in the attached AK Accuracy Report form (CCP-TP-005, Attachment 14).

CCP RECORDS ORIGINAL
DATE RECD 3.26.12

Results of Acceptable Knowledge Accuracy Determination

Acceptable Knowledge Re-Evaluation and Confirmation for Waste Stream OR-ISTP-CH-HET

A review of applicable CCP Waste Stream Characterization Checklists (CCP-TP-005, Attachment 13) and AKR Checklists (CCP- TP-005, Attachment 10) for waste stream OR-ISTP-CH-HET indicates the following:

- No containers were reassigned to a different WMC.
- There were no new EPA HWNs assigned. One analyte (methanol) exceeded PRQL. One TIC (2-methyl-1-propanol) was identified but was present in < 25% of the samples.
- The AK identifies Th-232 and U-238 as the two most predominant radionuclides by weight. The two most prevalent nuclides in each lot were not consistent with generator data and AK may require revision at a later date. No containers were eliminated due to isotopic content.

Containers Requiring Special Consideration

No AKRs occurred during this AK accuracy evaluation period.

Summary

There are 121 waste containers in lots 1 through 3 for waste stream OR-ISTP-CH-HET for which AK accuracy was determined. Following is the breakdown of results.

- Lots 1 through 3 include 121 containers. All of these containers were consistent with AK.

The percentage of waste containers found to be consistent with AK is therefore:

121/121 x 100 = 100%

If you have any questions, or if you would like more information about the contents of this AK Accuracy Report, please contact me at Extension 7444.

BSS:jmc

Attachments

cc: WTS:

(with attachments)

CCP Records Custodian	GSA-212

(without attachments)

V. K. Cannon	ED
R. P. Kantrowitz	ED
M. W. Pearcy	ED
W. P. Tilmon	ED

TechSpecs:

(with attachments)

J. Harrison	ED

Attachment 14 – CCP Acceptable Knowledge Accuracy Report – Example Form

CCP Acceptable Knowledge Accuracy Report

Site(s): OAK RIDGE NATIONAL LABORATORY

Waste Stream Number(s): OR-ISTP-CH-HET

Waste Stream Description: HETEROGENEOUS DEBRIS WASTE

Waste Containers:	Waste Matrix Code Reassigned? (Y/N)	EPA Hazardous Waste Number Reassigned? (Y/N)	Radiological Data Consistent with AK? (Y/N)
None	N	N	Y
	N/A		

Total containers in this report: 121
Total containers consistent with AK: 121
Percent containers consistent with AK: 100

Site Project Manager:

Beverly Schrock (Print) BSSchrock (Sign) Date: 3/22/12

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET

Lot # 1

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
X10C0501590	OR-IQ3-0110	OR-RTR6-0339	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C9311302A	OR-IQ3-0136	OR-RTR6-0355	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311511A	OR-IQ3-0135	OR-RTR6-0356	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311680B	OR-IQ3-0130	OR-RTR6-0349	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C9311915A	OR-IQ3-0136	OR-RTR6-0356	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312272A	OR-IQ3-0135	OR-RTR6-0356	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312553A	OR-IQ3-0135	OR-RTR6-0354	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312721A	OR-IQ3-0141	OR-RTR6-0356	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312822A	OR-IQ3-0130	OR-RTR6-0351	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312857A	OR-IQ3-0136	OR-RTR6-0355	N/A	N/A	N/A		N/A	N/A	N/A
**The eight containers below were randomly selected for headspace gas sampling and analysis and are included to resolve EPA hazardous waste number assignment only. NDE and NDA BDR numbers are included for information purposes only.									
X10C0501530A	OR-IQ3-0109	OR-RTR6-0338	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C0501536	OR-IQ3-0152	OR-RTR6-0342	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C0501541	OR-IQ3-0109	OR-RTR6-0339	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C0501599	OR-IQ3-0152	OR-RTR6-0353	N/A	N/A	N/A		ORHSGS100013	ECL10043M	ECL10043G
X10C0501741	OR-IQ3-0177	OR-RTR6-0360	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C9309168A	OR-IQ3-0138	OR-RTR6-0356	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C9312154A	OR-IQ3-0178	OR-RTR6-0360	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G
X10C9400066A	OR-IQ3-0119	OR-RTR6-0342	N/A	N/A	N/A		ORHSGS100012	ECL10036M	ECL10036G

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

7/14/2011
Date

CIAO3

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET

Lot # 2

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
X10C0501534	OR-IQ3-0119	OR-RTR6-0342	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311353A	OR-IQ3-0118	OR-RTR6-0348	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312003A	OR-IQ3-0131	OR-RTR6-0350	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312723A	OR-IQ3-0118	OR-RTR6-0352	N/A	N/A	N/A		N/A	N/A	N/A
X10C0501624	OR-IQ3-0120	OR-RTR6-0353	N/A	N/A	N/A		N/A	N/A	N/A
X10C0501650	OR-IQ3-0125	OR-RTR6-0353	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312805A	OR-IQ3-0132	OR-RTR6-0354	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311196A	OR-IQ3-0134	OR-RTR6-0355	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311252A	OR-IQ3-0141	OR-RTR6-0355	N/A	N/A	N/A		N/A	N/A	N/A
X10C0501810	OR-IQ3-0140	OR-RTR6-0359	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311396A	OR-IQ3-0196	OR-RTR6-0360	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312098A	OR-IQ3-0144	OR-RTR6-0362	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312789A	OR-IQ3-0150	OR-RTR6-0362	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311517A	OR-IQ3-0151	OR-RTR6-0362	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311660A	OR-IQ3-0151	OR-RTR6-0365	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313025A	OR-IQ3-0151	OR-RTR6-0365	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104L	OR-IQ3-0160	OR-RTR6-0368	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104K	OR-IQ3-0160	OR-RTR6-0368	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313671A	OR-IQ3-0162	OR-RTR6-0369	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104H	OR-IQ3-0161	OR-RTR6-0369	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104F	OR-IQ3-0156	OR-RTR6-0370	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312634A	OR-IQ3-0159	N/A	ORVECH0050	N/A	N/A		N/A	N/A	N/A
X10C9602104E	OR-IQ3-0168	OR-RTR6-0370	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104Q	OR-IQ3-0157	OR-RTR6-0371	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312473A	OR-IQ3-0158	OR-RTR6-0372	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313670A	OR-IQ3-0162	OR-RTR6-0372	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313119A	OR-IQ3-0176	OR-RTR6-0372	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312642B	OR-IQ3-0169	OR-RTR6-0373	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312642A	OR-IQ3-0176	OR-RTR6-0378	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312367C	OR-IQ3-0154	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400202A	OR-IQ3-0158	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311364A	OR-IQ3-0164	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312174A	OR-IQ3-0164	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104U	OR-IQ3-0160	OR-RTR6-0382	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312100A	OR-IQ3-0161	OR-RTR6-0391	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313063A	OR-IQ3-0190	OR-RTR6-0392	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313102A	OR-IQ3-0161	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A

ITS-003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET

Lot # 2

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
~~X10C9400691A~~	~~OR-IQ3-0161~~	~~OR-RTR6-0393~~	~~N/A~~	~~N/A~~	~~N/A~~		~~N/A~~	~~N/A~~	~~N/A~~ (1) RK 12/21/11
X10C9311558A	OR-IQ3-0162	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313065A	OR-IQ3-0162	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311999A	OR-IQ3-0163	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311757A	OR-IQ3-0163	OR-RTR6-0395	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313045B	OR-IQ3-0186	OR-RTR6-0396	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311285A	OR-IQ3-0187	OR-RTR6-0397	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312335A	OR-IQ3-0186	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312716A	OR-IQ3-0186	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C0401430A	OR-IQ3-0188	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400038A	OR-IQ3-0190	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313104A	OR-IQ3-0188	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312946A	OR-IQ3-0197	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A

Signature of Site Project Manager

Candice Weston
Printed Name

8/22/2011
Date

(1) per NCR-ORNL-3560-11 RK 12/21/11

CTS-004

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET

Lot # 3

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
X10C9312143A	OR-IQ3-0196	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312659A	OR-IQ3-0188	OR-RTR6-0399	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311553A	OR-IQ3-0198	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312653A	OR-IQ3-0203	OR-RTR6-0413	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312674A	OR-IQ3-0205	OR-RTR6-0414	N/A	N/A	N/A		N/A	N/A	N/A
X10C9309217J	OR-IQ3-0192	OR-RTR6-0402	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313106A	OR-IQ3-0197	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
~~X10C9312609A~~	~~OR-IQ3-0202~~	~~OR-RTR6-0408~~	~~N/A~~	~~N/A~~	~~N/A~~		~~N/A~~	~~N/A~~	~~N/A~~ RK 12/21/11
X10C9312569A	OR-IQ3-0215	OR-RTR6-0415	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312227A1	OR-IQ3-0202	N/A	ORVECH0059	N/A	N/A		N/A	N/A	N/A
X10C9312945A	OR-IQ3-0195	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9309217B	OR-IQ3-0193	OR-RTR6-0403	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312328A	OR-IQ3-0196	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311351A1	OR-IQ3-0213	N/A	ORVECH0088	N/A	N/A		N/A	N/A	N/A
X10C9312676A	OR-IQ3-0190	OR-RTR6-0399	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312223A	OR-IQ3-0117	N/A	ORVECH0043	N/A	N/A		N/A	N/A	N/A
X10C9312110A	OR-IQ3-0196	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312198A	OR-IQ3-0188	OR-RTR6-0399	N/A	N/A	N/A		N/A	N/A	N/A
~~X10C9312628A~~	~~OR-IQ3-0207~~	~~OR-RTR6-0411~~	~~N/A~~	~~N/A~~	~~N/A~~		~~N/A~~	~~N/A~~	~~N/A~~ (1) RK 10/12/11
X10C9311765A	OR-IQ3-0210	N/A	ORVECH0042	N/A	N/A		N/A	N/A	N/A
X10C9312337A	OR-IQ3-0213	OR-RTR6-0415	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311818A	OR-IQ3-0206	OR-RTR6-0414	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311476A	OR-IQ3-0215	N/A	ORVECH0082	N/A	N/A		N/A	N/A	N/A
X10C9311360A	OR-IQ3-0189	N/A	ORVECH0072	N/A	N/A		N/A	N/A	N/A
X10C9313672A	OR-IQ3-0190	OR-RTR6-0401	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312454A	OR-IQ3-0203	OR-RTR6-0411	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311193A	OR-IQ3-0190	OR-RTR6-0400	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312661A	OR-IQ3-0207	OR-RTR6-0413	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400258A	OR-IQ3-0213	OR-RTR6-0415	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312214A	OR-IQ3-0220	N/A	ORVECH0082	N/A	N/A		N/A	N/A	N/A
X10C9312832A	OR-IQ3-0176	N/A	ORVECH0043	N/A	N/A		N/A	N/A	N/A
X10C9312696A	OR-IQ3-0191	N/A	ORVECH0038	N/A	N/A		N/A	N/A	N/A
~~X10C9400178A~~	~~OR-IQ3-0212~~	~~OR-RTR6-0422~~	~~N/A~~	~~N/A~~	~~N/A~~		~~N/A~~	~~N/A~~	~~N/A~~ RK 12/21/11
X10C9312803A	OR-IQ3-0215	OR-RTR6-0416	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311726A	OR-IQ3-0144	OR-RTR6-0362	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312107A1	OR-IQ3-0169	N/A	ORVECH0059	N/A	N/A		N/A	N/A	N/A
X10C9400373A	OR-IQ3-0169	N/A	ORVECH0044	N/A	N/A		N/A	N/A	N/A

(1) per NCR-ORNL-3562-11 RK 10/12/11

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET

Lot # 3

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
X10C9801421A	OR-IQ3-0188	OR-RTR6-0400	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311812A	OR-IQ3-0198	N/A	ORVECH0051	N/A	N/A		N/A	N/A	N/A
X10C9311471A	OR-IQ3-0220	N/A	ORVECH0082	N/A	N/A		N/A	N/A	N/A
X10C9311206A	OR-IQ3-0213	OR-RTR6-0416	N/A	N/A	N/A		N/A	N/A	N/A
X10C94002028	OR-IQ3-0213	OR-RTR6-0415	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312348A	OR-IQ3-0189	OR-RTR6-0401	N/A	N/A	N/A		N/A	N/A	N/A
X10C9902206A	OR-IQ3-0188	OR-RTR6-0400	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311795A	OR-IQ3-0196	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311525A1	OR-IQ3-0180	N/A	ORVECH0068	N/A	N/A		N/A	N/A	N/A
X10C9311529A	OR-IQ3-0220	N/A	ORVECH0082	N/A	N/A		N/A	N/A	N/A
X10C9312020A	OR-IQ3-0129	N/A	ORVECH0042	N/A	N/A		N/A	N/A	N/A
X10C9312157A	OR-IQ3-0118	N/A	ORVECH0042	N/A	N/A		N/A	N/A	N/A
X10C9313089A	OR-IQ3-0215	OR-RTR6-0415	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311267A	OR-IQ3-0133	N/A	ORVECH0037	N/A	N/A		N/A	N/A	N/A
X10C9311454A	OR-IQ3-0201	OR-RTR6-0411	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311290A	OR-IQ3-0206	OR-RTR6-0414	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312474A	OR-IQ3-0203	OR-RTR6-0413	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312328B	OR-IQ3-0196	OR-RTR6-0406	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311561A	OR-IQ3-0203	OR-RTR6-0412	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311700A	OR-IQ3-0213	OR-RTR6-0416	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311452A	OR-IQ3-0207	N/A	ORVECH0069	N/A	N/A		N/A	N/A	N/A
X10C9308368A	OR-IQ3-0203	OR-RTR6-0413	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311886A	OR-IQ3-0194	OR-RTR6-0404	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311894A	OR-IQ3-0194	OR-RTR6-0404	N/A	N/A	N/A		N/A	N/A	N/A

Signature of Site Project Manager

Candice Weston
Printed Name

8/29/2011
Date

CTS-004

DIVIDER

PAGE

URS

CP:11:01103
UFC:5900.00

Washington TRU Solutions LLC

INTER-OFFICE CORRESPONDENCE

DATE: February 9, 2011

FROM: B. S. Schrock BSSchrock LOCATION: Certification

TO: W. P. Tilmon ED LOCATION: CCP Project Management
Oak Ridge National Laboratory

SUBJECT: ACCEPTABLE KNOWLEDGE ACCURACY REPORT: OAK RIDGE NATIONAL LABORATORY WASTE STREAM NUMBER OR-NFS-CH-SOIL, LOT 11, CUMMULATIVE FOR LOTS 1-11

REFERENCE WTS Memorandum CP:11:01018; UFC:5900.00 from B.S. Schrock to W.P. Tilmon, dated January 5, 2011, subject: Acceptable Knowledge Accuracy Report: Oak Ridge National Laboratory Waste Stream Number OR-NFS-CH-SOIL, Lot 11, Cumulative for Lots 1-11

The original memorandum was revised due to adding an explanation of drums being moved out and then back into waste stream. There was also a minor administrative correction.

Purpose

CCP-TP-005, Revision 21, CCP Acceptable Knowledge Documentation, requires that Acceptable Knowledge (AK) accuracy be evaluated and documented, either on a lot or waste stream basis. The purpose of this memorandum is twofold. First, it documents the results of the AK accuracy determination for waste containers in waste stream OR-NFS-CH-SOIL, Lot 11 that have previously not been evaluated. Second, it provides a summary of AK accuracy for waste containers in waste stream OR-NFS-CH-SOIL, Lots 1 - 11.

Methodology

In accordance with CCP-TP-005, the Central Characterization Project (CCP) Waste Stream Characterization Checklists (Attachment 13) for each lot in Waste Stream OR-NFS-CH-SOIL subject to this AK Accuracy review were evaluated. Two AK Re-evaluation Checklists (Attachment 10) were reviewed as part of the AK accuracy determination. The list of waste containers for Lot 11 (19 containers) is provided in the attachment that accompanies this AK Accuracy Report. The results of the AK accuracy determination for these waste containers are described in the Results section of this report and documented on the attached AK Accuracy Report form (Attachment 14).

ORIGINAL

Nineteen containers were evaluated for AK accuracy. Containers that had the Waste Matrix Code (WMC) reassigned, Environmental Protection Agency (EPA) Hazardous Waste Numbers (HWNs) reassigned, or were found to have radiological data inconsistent with AK, are identified on the AK Accuracy Report form. The results of the AK Accuracy determination for Waste Stream OR-NFS-CH-SOIL are addressed in the following sections of this memorandum.

The results of the AK accuracy determination for containers in Lot 11 was combined with the results from previous AK accuracy determinations for Lots 1 - 10 and containers requiring special consideration to provide the overall AK accuracy for, Lots 1 – 11 in terms of accuracy percentage. The results of the AK accuracy evaluation for waste containers in Waste Stream OR-NFS-CH-SOIL comprising Lots 1 - 11 are addressed in the Summary section of this memorandum and documented in the attached AK Accuracy Report form (CCP-TP-005, Attachment 14).

Results of Acceptable Knowledge Accuracy Determination

Acceptable Knowledge Re-Evaluation and Confirmation for Waste Stream OR-NFS-CH-SOIL

A review of applicable CCP Waste Stream Characterization Checklists (CCP-TP-005, Attachment 13) and Acceptable Knowledge Re-Evaluation Checklists (CCP- TP-005, Attachment 10) for Waste Stream OR-NFS-CH-SOIL indicates the following:

- There was one container (X10C0506069) for which the SCG was reassigned from S4000 to S5000 and is no longer part of this waste stream.
- There were two containers (X10C0506047 and NFS0815) that were moved from S4000 to S5000 and then subsequently moved back from S5000 to S4000 Summary Category Group.
- There were no new EPA HWNs assigned.
- The AK identifies U-238 and Pu-239 as the most predominant radionuclides by mass.

Based on the criteria for calculating accuracy, the accuracy for the waste steam is 94.9 percent, as calculated below.

Containers Requiring Special Consideration

Two AK re-evaluations occurred during this AK accuracy evaluation period resulting in the reassignment of container to a different waste matrix code. Container X10C0506069 was reassigned from Waste Matrix Code S4000 to S5000.

Summary

There are a total of 531 waste containers in Lots 1 - 11 for Waste Stream OR-NFS-CH-SOIL for which AK accuracy was determined. The breakdown of results is listed below.

- Lots 1 - 10 (reference Inter-office Correspondence CP:09:01518, issued 12/18/2009) include 512 containers. Of these, 505 were determined to be consistent with AK. Subsequent to this Accuracy Report, two AK re-evaluations were conducted resulting in one additional container reassignment from S4000 to S5000. The two drums that were moved from S4000 to S5000 and then back from S5000 to S4000 did not change the number of containers. Therefore, 504 containers were consistent with AK.

- Lot 11 includes 19 containers. All of these containers were consistent with AK.

The percentage of waste containers found to be consistent with AK is therefore:

504/531 x 100% = 94.9%

If you have any questions, or if you would like more information about the contents of this AK Accuracy Report, please contact me at Extension 7444.

BSS:yhs

Attachments

cc: WTS:

(with attachments)
CCP Records Custodian GSA-212

(without attachments)
V. K. Cannon ED
R. P. Kantrowitz ED
M. W. Pearcy ED
C.M. Weston ED

Tech Specs:

(with attachments)
J. L. Harrison ED

ORNL
(with attachments)
F. Hecker ED

Attachment 14 – CCP Acceptable Knowledge Accuracy Report – Example Form

CCP Acceptable Knowledge Accuracy Report

Site(s) Oak Ridge National Laboratory

Waste Stream Number(s) OR-NFS-CH-SOIL

Waste Stream Description SOILS

Waste Containers	Waste Matrix Code Reassigned? (Y/N)	EPA Hazardous Waste Number Reassigned? (Y/N)	Radiological Data Consistent with AK? (Y/N)
X10C0506069	Y	N	Y
	N/A		

Total containers in this report: 531
Total containers consistent with AK: 504
Percent containers consistent with AK: 94.9

Site Project Manager:
Beverly S. Schrock / BSSchrock
Print Sign

Date: January 5, 2011

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: OR-NFS-CH-SOIL Lot # 11

Container ID Number	NDA BDR	NDE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes	Transportation Headspace Gas BDR*
NFS0644	OR-DWAS-0098	OR-RTR6-0080	N/A	N/A		OR06FG4056
NFS0668	OR-DWAS-0129	OR-RTR6-0094	N/A	N/A		OR06FG4047
NFS0691	OR-DWAS-0106	OR-RTR6-0091	N/A	N/A		OR09FG4034
NFS0624	OR-DWAS-0092	OR-RTR6-0077	N/A	N/A		OR09FG4036
NFS0647	OR-IQ3-0076	OR-RTR6-0104	N/A	N/A		OR09FG4011
X10C0508047	OR-DWAS-0120	OR-RTR6-0305	N/A	N/A		OR09FG4043
X10C0508148A	OR-DWAS-0130	OR-RTR6-0110	N/A	N/A		OR06FG4051
X10C0508148C	OR-DWAS-0131	OR-RTR6-0110	N/A	N/A		OR06FG4039
X10C0508149B	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR06FG4051
X10C0508149D	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR06FG4048
X10C0508149E	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR06FG4051
X10C0508150A	OR-IQ3-0085	OR-RTR6-0317	N/A	N/A		OR06FG4051
X10C0508150B	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR09FG4023
X10C0508150C	OR-DWAS-0130	OR-RTR6-0110	N/A	N/A		OR06FG4051
X10C0508151B	OR-DWAS-0131	OR-RTR6-0111	N/A	N/A		OR09FG4023
X10C0508151C	OR-DWAS-0130	OR-RTR6-0110	N/A	N/A		OR09FG4023
X10C0508151E	OR-DWAS-0131	OR-RTR6-0110	N/A	N/A		OR06FG4039
X10C0508162A	OR-DWAS-0131	OR-RTR6-0111	N/A	N/A		OR09FG4023
X10C0508152B	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR06FG4051

*Containers in waste stream OR-NFS-CH-SOIL are not expected to exceed a total flammable volatile organic compound concentration of greater than or equal to 500 ppm.

Signature of Site Project Manager

Julius Lyons
Printed Name

12/13/2010
Date

DIVIDER

PAGE

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CP:12:01135
UFC:5900.00

Washington TRU Solutions LLC

INTER-OFFICE CORRESPONDENCE

DATE: March 22, 2012

FROM: B. S. Schrock BSSchrock LOCATION: Certification

TO: R. D. Reeves ED LOCATION: CCP Project Management

SUBJECT: ACCEPTABLE KNOWLEDGE ACCURACY REPORT: OAK RIDGE NATIONAL LABORATORY WASTE STREAM NUMBER OR-NFS-CH-SOIL, SOILS, LOT 12, CUMMULATIVE FOR LOTS 1 THROUGH 12

Purpose

CCP-TP-005, revision 24, CCP Acceptable Knowledge Documentation, requires that Acceptable Knowledge (AK) accuracy be evaluated and documented, either on a lot or waste stream basis. The purpose of this memorandum is twofold. First, it documents the results of the AK accuracy determination for waste containers in waste stream OR-NFS-CH-SOIL, lot 12 that have previously not been evaluated. Second, it provides a summary of AK accuracy for waste containers in waste stream OR-NFS-CH-SOIL, lots 1 through 12.

Methodology

In accordance with CCP-TP-005, the Central Characterization Project (CCP) Waste Stream Characterization Checklists (Attachment 13) for each lot in waste stream OR-NFS-CH-SOIL subject to this AK Accuracy review were evaluated. No AK Re-evaluation Checklists (Attachment 10) were reviewed as part of the AK accuracy determination. The list of waste containers for lot 12 (1 container) is provided in the attachment that accompanies this AK Accuracy Report. The results of the AK accuracy determination for these waste containers are described in the Results section of this report and documented on the attached AK Accuracy Report form (Attachment 14).

One container was evaluated for AK accuracy. Containers that had the Waste Matrix Code (WMC) reassigned, Environmental Protection Agency (EPA) Hazardous Waste Numbers (HWNs) reassigned, or were found to have radiological data inconsistent with AK, are identified on the AK Accuracy Report form. The results of the AK Accuracy determination for waste stream OR-NFS-CH-SOIL are addressed in the following sections of this correspondence.

The results of the AK accuracy determination for containers in lot 12 was combined with the results from previous AK accuracy determinations for lots 1 through 11 and containers requiring special

CCP RECORDS ORIGINAL
DATE REC'D 3/23/12

consideration to provide the overall AK accuracy for lots 1 through 12 in terms of accuracy percentage. The results of the AK accuracy evaluation for waste containers in waste stream OR-NFS-CH-SOIL comprising lots 1 through 12 are addressed in the Summary section of this memorandum and documented in the attached AK Accuracy Report form (CCP-TP-005, Attachment 14).

Results of Acceptable Knowledge Accuracy Determination

Acceptable Knowledge Re-Evaluation and Confirmation for Waste Stream OR-NFS-CH-SOIL

A review of applicable CCP Waste Stream Characterization Checklists (CCP-TP-005, Attachment 13) and Acceptable Knowledge Re-Evaluation Checklists (CCP- TP-005, Attachment 10) for waste stream OR-NFS-CH-SOIL indicates the following:

- No containers were reassigned to a different WMC.
- There were no new EPA HWNs assigned.
- The AK identifies U-238 and Pu-239 as the most predominant radionuclides by mass. For this lot Pu-239 and Pu-240 were the most prevalent isotopes. Although the two most prevalent nuclides in this lot were not consistent with AK, this was not considered significant because the isotopes identified were anticipated in the waste. No containers were eliminated due to isotopic content.

Containers Requiring Special Consideration

No AKRs occurred during this AK accuracy evaluation period.

Summary

There are 532 waste containers in lots 1 - 12 for waste stream OR-NFS-CH-SOIL. Following is the breakdown of results.

- Lots 1 - 10 (reference Inter-office Correspondence CP:09:01518, issued 12/18/2009) include 512 containers. Of these, 505 were determined to be consistent with AK. Subsequent to this Accuracy Report, two AK re-evaluations were conducted resulting in one container reassignment from S4000 to S5000. Therefore, 504 containers were consistent with AK.
- Lot 11 (reference Inter-office Correspondence CP:11:01018, issued 1/05/2011 and CP:11:01103, issued 2/09/2011) includes 19 containers. All of these containers were consistent with AK.
- Lot 12 includes 1 container. This container was consistent with AK.

The percentage of waste containers found to be consistent with AK is therefore:

524/532 x 100% = 98.5

If you have any questions, or if you would like more information about the contents of this AK Accuracy Report, please contact me at Extension 7444.

BSS:jmc

Attachments

cc: WTS:

(with attachments)

CCP Records Custodian	GSA-212

(without attachments)

V. K. Cannon	ED
R. P. Kantrowitz	ED
M. W. Pearcy	ED
W. P. Tilmon	ED

Techspecs:

(with attachments)

J. Harrison	ED

Attachment 14 – CCP Acceptable Knowledge Accuracy Report – Example Form

CCP Acceptable Knowledge Accuracy Report

Site(s): OAK RIDGE NATIONAL LABORATORY

Waste Stream Number(s): OR-NFS-CH-SOIL

Waste Stream Description: SOILS

Waste Containers:	Waste Matrix Code Reassigned? (Y/N)	EPA Hazardous Waste Number Reassigned? (Y/N)	Radiological Data Consistent with AK? (Y/N)
None	N	N	Y
	N		
	A		

Total containers in this report: 524
Total containers consistent with AK: 532
Percent containers consistent with AK: 98.5

Site Project Manager:

Beverly Schrock / BSSchrock Date: 3/22/12
Print Sign

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: OR-NFS-CH-SOIL Lot # 12

Container ID Number	NDA BDR	NDE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes	Transportation Headspace Gas BDR*
X10C0508047	OR-DWAS-0120	OR-RTR6-0305	N/A	N/A		OR09FG4043

*Containers in waste stream OR-NFS-CH-SOIL are not expected to exceed a total flammable volatile organic compound concentration of greater than or equal to 500 ppm.

Signature of Site Project Manager

Candice Weston
Printed Name

9/2/2011
Date

CIS-004

DIVIDER PAGE

URS

CP:12:01007
UFC:5900.00

Washington TRU Solutions LLC

INTER-OFFICE CORRESPONDENCE

DATE: January 11, 2012

FROM: L. M. Nelson — LOCATION: Certification

TO: CCP Records Custodian GSA-212 — LOCATION: Retrieval, Characterization and Transportation

SUBJECT: ACCEPTABLE KNOWLEDGE ACCURACY REPORT: OAK RIDGE NATIONAL LABORATORY WASTE STREAM NUMBER OR-REDC-RH-HET, LOTS 1-28

Purpose

CCP-TP-005, Revision 22, *CCP Acceptable Knowledge Documentation*, requires that Acceptable Knowledge (AK) accuracy be evaluated and documented, either on a lot or waste stream basis. The purpose of this correspondence is to document the results of the AK accuracy evaluation for containers in Waste Stream OR-REDC-RH-HET, Heterogeneous Debris Waste, Lots 1-28.

Methodology

In accordance with CCP-TP-005, the CCP AK Confirmation Checklist (Attachment 13) for Lots 1-28 in Waste Stream OR-REDC-RH-HET subject to this AK accuracy review were evaluated. No Acceptable Knowledge Re-Evaluation Checklist (Attachment 10) was generated for the review of this report.

The results of the AK accuracy evaluation for Waste Stream OR-REDC-RH-HET, Lots 1-28, are documented on the attached AK Accuracy Report form (Attachment 14). A total of 220 containers have been evaluated for AK accuracy and none had the Waste Matrix Codes (WMCs) reassigned, Environmental Protection Agency (EPA) Hazardous Waste Numbers (HWNs) reassigned, or were found to have radiological data inconsistent with AK. The results of the AK accuracy determination for Waste Stream OR-REDC-RH-HET, Lots 1-28, are addressed in the following sections of this correspondence.

Results of Acceptable Knowledge Accuracy Determination

Acceptable Knowledge Re-Evaluation and Confirmation for Waste Stream OR-REDC-RH-HET

No AK re-evaluation checklist was generated for this waste stream.

The following parameters were described in AK Summary Report CCP-AK-ORNL-500:

CCP RECORDS ORIGINAL
DATE REC'D 1-17-12

- The AK identifies the waste as heterogeneous debris.
- The waste stream was determined to contain Resource Conservation and Recovery Act-regulated constituents and is assigned the following EPA HWNs: F002, F005, D004, D005, D006, D007, D008, D009, D010, D011, D019.

No EPA HWNs were reassigned to this waste stream.

The waste material parameters, EPA HWNs and radionuclides are, within reasonable error, as predicted in AK Summary Report OR-REDC-RH-HET. No additional AK re-evaluations are required at this time.

Other Considerations

No Attachment 10 was generated for this waste stream.

No drums were eliminated from Waste Stream OR-REDC-RH-HET due to the radioisotopic content.

Based on the criteria for calculating accuracy, the accuracy for the waste stream is 100 percent, as calculated below.

Summary

There are a total of 220 waste containers in Lot 1-28 for Waste Stream OR-REDC-RH-HET; 220 containers were consistent with AK.

[(220/220)*100]=100%

This AK Accuracy Report has been prepared in accordance with CCP-TP-005. The original Attachment 14 of CCP-TP-005 contains the listing of the waste containers evaluated in this waste stream AK Accuracy evaluation.

If you have any questions, or if you would like more information about the contents of this AK Accuracy Report, please contact me at (575) 234-7529

LMN:yhs

Attachments (2)

cc: (without attachments)
I. S. Quintana ED

Attachment 14 – CCP Acceptable Knowledge Accuracy Report – Example Form

CCP Acceptable Knowledge Accuracy Report

Site(s): Oak Ridge National Laboratory

Waste Stream Number(s): OR-REDC-RH-HET

Waste Stream Description: Remote-Handled Transuranic Heterogeneous Debris Waste from Oak Ridge National Laboratories

Waste Containers:	Waste Matrix Code Reassigned? (Y/N)	EPA Hazardous Waste Number Reassigned? (Y/N)	Radiological Data Consistent with AK? (Y/N)
See attachment 2 for listing of containers	N	N	Y
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Total containers in this report: 220
Total containers consistent with AK: 220
Percent containers consistent with AK: 100%

Site Project Manager:
Laura Nelson
Print

Laura Nelson JN 1-17-12
Sign

Date: 1/17/2012 1/10/2012 JN 1-17-12

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Sub-Lot # 1

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			
								Sample	Analysis		
ORRH00001	NA	NA	NA	RHORVE080005	NA	NA		ORHSGS08005	ECL08012M	ECL08012G	NA
ORRH00002	NA	NA	NA	RHORVE080005	NA	NA		ORHSGS08005	ECL08012M	ECL08012G	NA
ORRH00003	NA	NA	NA	RHORVE080005	NA	NA		ORHSGS08005	ECL08012M	ECL08012G	NA
ORRH00004	NA	NA	NA	RHORVE080002	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00005*	NA	NA	NA	NA	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00006	NA	NA	NA	RHORVE080002	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00007*	NA	NA	NA	NA	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00008*	NA	NA	NA	NA	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00009*	NA	NA	NA	NA	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00010*	NA	NA	NA	NA	NA	NA		ORHSGS08003	ECL08010M	ECL08010G	NA
ORRH00011	NA	NA	NA	RHORVE080004	NA	NA		NA	NA	NA	NA
ORRH00012	NA	NA	NA	RHORVE080004	NA	NA		NA	NA	NA	NA
ORRH00013	NA	NA	NA	RHORVE080005	NA	NA		ORHSGS08005	ECL08012M	ECL08012G	NA
ORRH00014	NA	NA	NA	RHORVE080006	NA	NA		NA	NA	NA	NA
ORRH00015	NA	NA	NA	RHORVE080006	NA	NA		NA	NA	NA	NA
ORRH00016	NA	NA	NA	RHORVE080006	NA	NA		NA	NA	NA	NA
ORRH00017	NA	NA	NA	RHORVE080006	NA	NA		NA	NA	NA	NA

* Container is included for the HSG Characterization Module for WWIS but are not certifiable

for Hillari J. Neely
Signature of Site Project Manager

Hillari J. Neely
Printed Name

2/19/2009
Date

Page 1 of 1

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET Sub-Lot # 2

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			
								Sample	Analysis		
ORRH00020	NA	NA	NA	RHORVE090011	NA	NA		NA	NA	NA	NA
ORRH00024	NA	NA	NA	RHORVE090011	NA	NA		NA	NA	NA	NA
ORRH00027	NA	NA	NA	RHORVE090012	NA	NA		NA	NA	NA	NA
ORRH00028	NA	NA	NA	RHORVE090012	NA	NA		NA	NA	NA	NA
ORRH00030	NA	NA	NA	RHORVE090012	NA	NA		NA	NA	NA	NA
ORRH00033	NA	NA	NA	RHORVE090015	NA	NA		NA	NA	NA	NA
ORRH00034	NA	NA	NA	RHORVE090013	NA	NA		NA	NA	NA	NA
ORRH00035	NA	NA	NA	RHORVE090015	NA	NA		NA	NA	NA	NA
ORRH00036	NA	NA	NA	RHORVE090015	NA	NA		NA	NA	NA	NA
ORRH00037	NA	NA	NA	RHORVE090014	NA	NA		NA	NA	NA	NA
ORRH00038	NA	NA	NA	RHORVE090014	NA	NA		NA	NA	NA	NA
ORRH00039	NA	NA	NA	RHORVE090014	NA	NA		NA	NA	NA	NA

Signature of Site Project Manager

Hillari J. Neely
Printed Name

7/27/2009
Date

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 3

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			
								Sample	Analysis		
ORRH00040	NA	NA	NA	RHORVE090016	NA	NA		NA	NA	NA	NA
ORRH00041	NA	NA	NA	RHORVE090016	NA	NA		NA	NA	NA	NA
ORRH00043	NA	NA	NA	RHORVE090016	NA	NA		NA	NA	NA	NA
ORRH00044	NA	NA	NA	RHORVE090017	NA	NA		NA	NA	NA	NA
ORRH00045	NA	NA	NA	RHORVE090017	NA	NA		NA	NA	NA	NA
ORRH00046	NA	NA	NA	RHORVE090017	NA	NA		NA	NA	NA	NA

Signature of Site Project Manager

Hillari J. Neely
Printed Name

9/16/2009
Date

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 4

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			
								Sample	Analysis		
ORRH00042	NA	NA	NA	RHORVE090017	NA	NA		NA	NA	NA	NA
ORRH00047	NA	NA	NA	RHORVE090017	NA	NA		NA	NA	NA	NA
ORRH00048	NA	NA	NA	RHORVE090017	NA	NA		NA	NA	NA	NA

Signature of Site Project Manager

Hillari J. Neely
Printed Name

10/8/2009
Date

C15
603

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET Lot # 5

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00049	NA	NA	NA	RHORVE090018	NA	NA		NA	NA	NA	NA
ORRH00050	NA	NA	NA	RHORVE090018	NA	NA		NA	NA	NA	NA
ORRH00051	NA	NA	NA	RHORVE090018	NA	NA		NA	NA	NA	NA
ORRH00052	NA	NA	NA	RHORVE090019	NA	NA		NA	NA	NA	OR09FG4099
ORRH00053	NA	NA	NA	RHORVE090019	NA	NA		NA	NA	NA	NA
ORRH00054	NA	NA	NA	RHORVE090019	NA	NA		NA	NA	NA	NA
ORRH00055	NA	NA	NA	RHORVE090020	NA	NA		NA	NA	NA	NA
ORRH00056	NA	NA	NA	RHORVE090020	NA	NA		NA	NA	NA	NA
ORRH00057	NA	NA	NA	RHORVE090020	NA	NA		NA	NA	NA	OR09FG4099
ORRH00058	NA	NA	NA	RHORVE090021	NA	NA		NA	NA	NA	NA
ORRH00059	NA	NA	NA	RHORVE090021	NA	NA		NA	NA	NA	OR09FG4099
ORRH00060	NA	NA	NA	RHORVE090021	NA	NA		NA	NA	NA	NA
ORRH00061	NA	NA	NA	RHORVE090022	NA	NA		NA	NA	NA	NA
ORRH00062	NA	NA	NA	RHORVE090022	NA	NA		NA	NA	NA	NA
ORRH00063	NA	NA	NA	RHORVE090022	NA	NA		NA	NA	NA	NA

Signature of Site Project Manager

Hillari J. Neely
Printed Name

10/22/2009
Date

015
003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET Lot # 6

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00064	NA	NA	NA	RHORVE090023	NA	NA		NA	NA	NA	OR09FG4110
ORRH00065	NA	NA	NA	RHORVE090023	NA	NA		NA	NA	NA	NA
ORRH00066	NA	NA	NA	RHORVE090023	NA	NA		NA	NA	NA	NA
ORRH00067	NA	NA	NA	RHORVE090024	NA	NA		NA	NA	NA	OR09FG4114
ORRH00068	NA	NA	NA	RHORVE090024	NA	NA		NA	NA	NA	NA
ORRH00069	NA	NA	NA	RHORVE090024	NA	NA		NA	NA	NA	NA
ORRH00070	NA	NA	NA	RHORVE090025	NA	NA		NA	NA	NA	NA
ORRH00071	NA	NA	NA	RHORVE090025	NA	NA		NA	NA	NA	NA
ORRH00072	NA	NA	NA	RHORVE090025	NA	NA		NA	NA	NA	NA
ORRH00073	NA	NA	NA	RHORVE090026	NA	NA		NA	NA	NA	NA
ORRH00074	NA	NA	NA	RHORVE090026	NA	NA		NA	NA	NA	NA
ORRH00075	NA	NA	NA	RHORVE090026	NA	NA		NA	NA	NA	NA
ORRH00076	NA	NA	NA	RHORVE090027	NA	NA		NA	NA	NA	NA
ORRH00077	NA	NA	NA	RHORVE090027	NA	NA		NA	NA	NA	NA
ORRH00078	NA	NA	NA	RHORVE090027	NA	NA		NA	NA	NA	NA

Signature of Site Project Manager

Hillari J. Neely
Printed Name

1/12/2010
Date

C15
003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Lot # 7

Waste Stream: # OR-REDC-RH-HET

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00080	NA	NA	NA	RHORVE090028	NA	NA		NA	NA	NA	NA
ORRH00082	NA	NA	NA	RHORVE100029	NA	NA		NA	NA	NA	NA
ORRH00083	NA	NA	NA	RHORVE100029	NA	NA		NA	NA	NA	NA

Signature of Site Project Manager

Craig Simmons
Printed Name

2/5/2010
Date

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 8

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00079	NA	NA	NA	RHORVE090028	NA	NA		NA	NA	NA	OR10FG4007
ORRH00085	NA	NA	NA	RHORVE100030	NA	NA		NA	NA	NA	NA
ORRH00089	NA	NA	NA	RHORVE100031	NA	NA		NA	NA	NA	NA
ORRH00092	NA	NA	NA	RHORVE100032	NA	NA		NA	NA	NA	NA
ORRH00095	NA	NA	NA	RHORVE100032	NA	NA		NA	NA	NA	NA
ORRH00097	NA	NA	NA	RHORVE100033	NA	NA		NA	NA	NA	NA
ORRH00099	NA	NA	NA	RHORVE100034	NA	NA		NA	NA	NA	NA
ORRH00100	NA	NA	NA	RHORVE100034	NA	NA		NA	NA	NA	NA
ORRH00101	NA	NA	NA	RHORVE100034	NA	NA		NA	NA	NA	NA
ORRH00102	NA	NA	NA	RHORVE100034	NA	NA		NA	NA	NA	NA
ORRH00103	NA	NA	NA	RHORVE100035	NA	NA		NA	NA	NA	NA
ORRH00104	NA	NA	NA	RHORVE100035	NA	NA		NA	NA	NA	NA

Signature of Site Project Manager

Hillari J. Neely
Printed Name

2/17/2010
Date

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 9

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00091	NA	ORRHDTC10019	NA	RHORVE100031	NA	NA		NA	NA	NA	OR10FG4007
ORRH00096	NA	ORRHDTC10020	NA	RHORVE100033	NA	NA		NA	NA	NA	NA
ORRH00130	NA	ORRHDTC10022	NA	RHORVE100036	NA	NA		NA	NA	NA	NA

Signature of Site Project Manager

Hillari J. Neely
Printed Name

2/25/2010
Date

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 10

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00090	NA	NA	NA	RHORVE100031	NA	NA		ORHSGS100001	ECL10003M	ECL10003G	NA
ORRH00105	NA	NA	NA	RHORVE100036	NA	NA		NA	NA	NA	OR10FG4014
ORRH00131	NA	NA	NA	RHORVE100040	NA	NA		NA	NA	NA	OR10FG4019
ORRH00118	NA	NA	NA	RHORVE100040	NA	NA		NA	NA	NA	OR10FG4019
ORRH00119	NA	NA	NA	RHORVE100040	NA	NA		NA	NA	NA	OR10FG4019
ORRH00120	NA	NA	NA	RHORVE100041	NA	NA		NA	NA	NA	OR10FG4019

Signature of Site Project Manager

Hillari J. Neely
Printed Name

3/12/2010
Date

C15
003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 11

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00121	NA	NA	NA	RHORVE100045	NA	NA		NA	NA	NA	OR10FG4028
ORRH00123	NA	NA	NA	RHORVE100045	NA	NA		NA	NA	NA	OR10FG4028
ORRH00125	NA	NA	NA	RHORVE100046	NA	NA		NA	NA	NA	OR10FG4028
ORRH00135	NA	NA	NA	RHORVE100042	NA	NA		NA	NA	NA	OR10FG4024
ORRH00139	NA	NA	NA	RHORVE100043	NA	NA		NA	NA	NA	OR10FG4026
ORRH00142	NA	NA	NA	RHORVE100047	NA	NA		NA	NA	NA	OR10FG4030

Signature of Site Project Manager

Hillari J. Neely
Printed Name

3/25/2010
Date

C15
003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 12

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00129	NA	NA	NA	RHORVE100053	NA	NA		NA	NA	NA	OR10FG4036
ORRH00149	NA	NA	NA	RHORVE100049	NA	NA		NA	NA	NA	OR10FG4032
ORRH00171	NA	NA	NA	RHORVE100054	NA	NA		NA	NA	NA	OR10FG4038
ORRH00173	NA	NA	NA	RHORVE100055	NA	NA		NA	NA	NA	OR10FG4039
ORRH00175	NA	NA	NA	RHORVE100056	NA	NA		NA	NA	NA	OR10FG4039
ORRH00178	NA	NA	NA	RHORVE100056	NA	NA		NA	NA	NA	OR10FG4039

Signature of Site Project Manager

Hillari J. Neely
Printed Name

4/8/2010
Date

C15
003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 13

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00180	NA	NA	NA	RHORVE100057	NA	NA		NA	NA	NA	OR10FG4040
ORRH00182	NA	NA	NA	RHORVE100057	NA	NA		NA	NA	NA	OR10FG4040
ORRH00188	NA	NA	NA	RHORVE100059	NA	NA		NA	NA	NA	OR10FG4042

Signature of Site Project Manager

Hillari J. Neely
Printed Name

4/19/2010
Date

C15
803

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 14

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00094	NA	NA	NA	RHORVE100032	NA	NA		NA	NA	NA	NA
ORRH00177	NA	NA	NA	RHORVE100056	NA	NA		NA	NA	NA	OR10FG4039
ORRH00183	NA	NA	NA	RHORVE100058	NA	NA		NA	NA	NA	OR10FG4042

Signature of Site Project Manager

Hillari J. Neely
Printed Name

4/21/2010
Date

C15
003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET Lot # 15

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00018	NA	NA	NA	RHORVE080009	NA	NA		NA	NA	NA	OR09FG4079
ORRH00021	NA	NA	NA	RHORVE090010	NA	NA		NA	NA	NA	OR09FG4079
ORRH00022	NA	NA	NA	RHORVE090010	NA	NA		NA	NA	NA	OR09FG4080
ORRH00023	NA	NA	NA	RHORVE090010	NA	NA		NA	NA	NA	OR09FG4080
ORRH00025	NA	NA	NA	RHORVE080007	NA	NA		NA	NA	NA	OR09FG4080
ORRH00026	NA	NA	NA	RHORVE080008	NA	NA		NA	NA	NA	OR09FG4080

Signature of Site Project Manager

Hillari J. Neely
Printed Name

4/27/2010
Date

C15
003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 16

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00216	NA	NA	NA	RHORVE100066	NA	NA		NA	NA	NA	OR10FG4045
ORRH00220	NA	NA	NA	RHORVE100068	NA	NA		NA	NA	NA	OR10FG4047
ORRH00226	NA	NA	NA	RHORVE100069	NA	NA		NA	NA	NA	OR10FG4048

Signature of Site Project Manager

Hillari J. Neely
Printed Name

4/29/2010
Date

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 17

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00215	NA	NA	NA	RHORVE100066	NA	NA		NA	NA	NA	OR10FG4045
ORRH00236	NA	NA	NA	RHORVE100071	NA	NA		NA	NA	NA	OR10FG4052
ORRH00242	NA	NA	NA	RHORVE100073	NA	NA		NA	NA	NA	OR10FG4053
ORRH00248	NA	NA	NA	RHORVE100074	NA	NA		NA	NA	NA	OR10FG4054
ORRH00250	NA	NA	NA	RHORVE100074	NA	NA		NA	NA	NA	OR10FG4054
ORRH00252	NA	NA	NA	RHORVE100074	NA	NA		NA	NA	NA	OR10FG4054

Signature of Site Project Manager

Hillari J. Neely
Printed Name

5/7/2010
Date

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET Lot # 18

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00255	NA	NA	NA	RHORVE100075	NA	NA		NA	NA	NA	OR10FG4055
ORRH00256	NA	NA	NA	RHORVE100076	NA	NA		NA	NA	NA	OR10FG4056
ORRH00257	NA	NA	NA	RHORVE100076	NA	NA		NA	NA	NA	OR10FG4056

Signature of Site Project Manager

Hillari J. Neely
Printed Name

5/13/2010
Date

C15
003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET Lot # 19

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00254	NA	NA	NA	RHORVE100075	NA	NA		NA	NA	NA	OR10FG4055
ORRH00258	NA	NA	NA	RHORVE100076	NA	NA		NA	NA	NA	OR10FG4056
ORRH00267	NA	NA	NA	RHORVE100078	NA	NA		NA	NA	NA	OR10FG4058

Signature of Site Project Manager

Hillari J. Neely
Printed Name

5/19/2010
Date

C15
003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET Lot # 20

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00269	NA	NA	NA	RHORVE100078	NA	NA		NA	NA	NA	OR10FG4068
ORRH00271	NA	NA	NA	RHORVE1000791	NA	NA		NA	NA	NA	OR10FG4066
ORRH00273	NA	NA	NA	RHORVE100080	NA	NA		NA	NA	NA	OR10FG4066
ORRH00309	NA	NA	NA	RHORVE100087	NA	NA		NA	NA	NA	OR10FG4072
ORRH00311	NA	NA	NA	RHORVE100087	NA	NA		NA	NA	NA	OR10FG4073
ORRH00313	NA	NA	NA	RHORVE100087	NA	NA		NA	NA	NA	OR10FG4073
ORRH00277	NA	NA	NA	RHORVE100080	NA	NA		NA	NA	NA	OR10FG4067
ORRH00278	NA	NA	NA	RHORVE100080	NA	NA		NA	NA	NA	OR10FG4067
ORRH00285	NA	NA	NA	RHORVE100080	NA	NA		NA	NA	NA	OR10FG4068
ORRH00291	NA	NA	NA	RHORVE100081	NA	NA		NA	NA	NA	OR10FG4072
ORRH00297	NA	NA	NA	RHORVE100085	NA	NA		NA	NA	NA	OR10FG4069
ORRH00308	NA	NA	NA	RHORVE100086	NA	NA		NA	NA	NA	OR10FG4072
ORRH00314	NA	NA	NA	RHORVE100087	NA	NA		NA	NA	NA	OR10FG4074
ORRH00315	NA	NA	NA	RHORVE100087	NA	NA		NA	NA	NA	OR10FG4074
ORRH00328	NA	NA	NA	RHORVE100088	NA	NA		NA	NA	NA	OR10FG4075
ORRH00319	NA	NA	NA	RHORVE100087	NA	NA		NA	NA	NA	OR10FG4077
ORRH00322	NA	NA	NA	RHORVE100088	NA	NA		NA	NA	NA	OR10FG4075
ORRH00324	NA	NA	NA	RHORVE100089	NA	NA		NA	NA	NA	OR10FG4075
ORRH00329	NA	NA	NA	RHORVE100089	NA	NA		NA	NA	NA	OR10FG4079
ORRH00330	NA	NA	NA	RHORVE100090	NA	NA		NA	NA	NA	OR10FG4077
ORRH00331	NA	NA	NA	RHORVE100090	NA	NA		NA	NA	NA	OR10FG4077
ORRH00332	NA	NA	NA	RHORVE100090	NA	NA		NA	NA	NA	OR10FG4077
ORRH00334	NA	NA	NA	RHORVE100091	NA	NA		NA	NA	NA	OR10FG4077
ORRH00335	NA	NA	NA	RHORVE100091	NA	NA		NA	NA	NA	OR10FG4077
ORRH00337	NA	NA	NA	RHORVE100092	NA	NA		NA	NA	NA	OR10FG4082
ORRH00338	NA	NA	NA	RHORVE100093	NA	NA		NA	NA	NA	OR10FG4085
ORRH00339	NA	NA	NA	RHORVE100093	NA	NA		NA	NA	NA	OR10FG4086
ORRH00340	NA	NA	NA	RHORVE100093	NA	NA		NA	NA	NA	OR10FG4086
ORRH00341	NA	NA	NA	RHORVE100093	NA	NA		NA	NA	NA	OR10FG4086
ORRH00342	NA	NA	NA	RHORVE100093	NA	NA		NA	NA	NA	OR10FG4086

Signature of Site Project Manager

Laura M. Nelson
Printed Name

6/24/2010
Date

CIS 003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 21

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00343	N/A	NA	N/A	RHORVE100094	N/A	N/A		N/A	N/A	N/A	OR10FG4091
ORRH00344	N/A	NA	N/A	RHORVE100094	N/A	N/A		N/A	N/A	N/A	OR10FG4091
ORRH00345	N/A	NA	N/A	RHORVE100094	N/A	N/A		N/A	N/A	N/A	OR10FG4091
ORRH00350	N/A	NA	N/A	RHORVE100094	N/A	N/A		N/A	N/A	N/A	OR10FG4091
ORRH00351	N/A	NA	N/A	RHORVE100095	N/A	N/A		N/A	N/A	N/A	OR10FG4093
ORRH00352	N/A	NA	N/A	RHORVE100095	N/A	N/A		N/A	N/A	N/A	OR10FG4093
ORRH00353	N/A	NA	N/A	RHORVE100096	N/A	N/A		N/A	N/A	N/A	OR10FG4096
ORRH00355	N/A	NA	N/A	RHORVE100096	N/A	N/A		N/A	N/A	N/A	OR10FG4096
ORRH00356	N/A	NA	N/A	RHORVE100096	N/A	N/A		N/A	N/A	N/A	OR10FG4096

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

7/20/2010
Date

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 22

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00323	N/A	NA	N/A	RHORVE100088	N/A	N/A		ORHSGS100008	ECL10015M	ECL10015G	NA
ORRH00369	N/A	NA	N/A	RHORVE100099	N/A	N/A		N/A	N/A	N/A	OR10FG4101
ORRH00370	N/A	NA	N/A	RHORVE100099	N/A	N/A		N/A	N/A	N/A	OR10FG4101
ORRH00345	N/A	NA	N/A	RHORVE100101	N/A	N/A		N/A	N/A	N/A	OR10FG4103
ORRH00367	N/A	NA	N/A	RHORVE100102	N/A	N/A		N/A	N/A	N/A	OR10FG4104
ORRH00377	N/A	NA	N/A	RHORVE100103	N/A	N/A		N/A	N/A	N/A	OR10FG4106

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

8/13/2010
Date

C15-103

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 23

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00363	N/A	N/A	N/A	RHORVE100098	N/A	N/A		N/A	N/A	N/A	OR10FG4110_R1
ORRH00379	N/A	N/A	N/A	RHORVE100104	N/A	N/A		N/A	N/A	N/A	OR10FG4107
ORRH00387	N/A	N/A	N/A	RHORVE100108	N/A	N/A		N/A	N/A	N/A	OR10FG4110_R1
ORRH00389	N/A	N/A	N/A	RHORVE100105	N/A	N/A		N/A	N/A	N/A	OR10FG4107
ORRH00393	N/A	N/A	N/A	RHORVE100105	N/A	N/A		N/A	N/A	N/A	OR10FG4110_R1
ORRH00395	N/A	N/A	N/A	RHORVE100105	N/A	N/A		N/A	N/A	N/A	OR10FG4110_R1

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

8/19/2010
Date

C15-003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 24

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00399	N/A	N/A	N/A	RHORVE100107	N/A	N/A		N/A	N/A	N/A	OR10FG4114
ORRH00408	N/A	N/A	N/A	RHORVE100109	N/A	N/A		N/A	N/A	N/A	OR10FG4113
ORRH00409	N/A	N/A	N/A	RHORVE100110	N/A	N/A		N/A	N/A	N/A	OR10FG4114
ORRH00414	N/A	N/A	N/A	RHORVE100110	N/A	N/A		N/A	N/A	N/A	NA
ORRH00415	N/A	N/A	N/A	RHORVE100110	N/A	N/A		N/A	N/A	N/A	OR10FG4114
ORRH00425	N/A	N/A	N/A	RHORVE100114	N/A	N/A		N/A	N/A	N/A	OR10FG4117
ORRH00424	N/A	N/A	N/A	RHORVE100112	N/A	N/A		N/A	N/A	N/A	OR10FG4116
ORRH00426	N/A	N/A	N/A	RHORVE100114	N/A	N/A		N/A	N/A	N/A	OR10FG4117
ORRH00427	N/A	N/A	N/A	RHORVE100114	N/A	N/A		N/A	N/A	N/A	OR10FG4117

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

9/8/2010
Date

CIS-003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream # OR-REDC-RH-HET

Lot # 25

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00417	N/A	ORRHDTC10065	N/A	RHORVE100113	N/A	N/A		N/A	N/A	N/A	OR10FG4116
ORRH00430	N/A	ORRHDTC10066	N/A	RHORVE100115	N/A	N/A		N/A	N/A	N/A	OR10FG4118
ORRH00431	N/A	ORRHDTC10066	N/A	RHORVE100116	N/A	N/A		N/A	N/A	N/A	OR10FG4118
ORRH00437	N/A	ORRHDTC10066	N/A	RHORVE100116	N/A	N/A		N/A	N/A	N/A	OR10FG4118
ORRH00439	N/A	ORRHDTC10066	N/A	RHORVE100117	N/A	N/A		N/A	N/A	N/A	OR10FG4118
ORRH00440	N/A	ORRHDTC10066	N/A	RHORVE100117	N/A	N/A		N/A	N/A	N/A	OR10FG4118
ORRH00418	N/A	ORRHDTC10065	N/A	RHORVE100113	N/A	N/A		N/A	N/A	N/A	OR10FG4118
ORRH00438	N/A	ORRHDTC10066	N/A	RHORVE100116	N/A	N/A		N/A	N/A	N/A	OR10FG4118
ORRH00456	N/A	ORRHDTC10068	N/A	RHORVE100119	N/A	N/A		N/A	N/A	N/A	OR10FG4123
ORRH00428	N/A	ORRHDTC10066	N/A	RHORVE100115	N/A	N/A		N/A	N/A	N/A	OR10FG4118
ORRH00454	N/A	ORRHDTC10067	N/A	RHORVE100119	N/A	N/A		N/A	N/A	N/A	OR10FG4121
ORRH00458	N/A	ORRHDTC10068	N/A	RHORVE100120	N/A	N/A		N/A	N/A	N/A	OR10FG4122
ORRH00435	N/A	ORRHDTC10074	N/A	RHORVE100118	N/A	N/A		N/A	N/A	N/A	OR10FG4121
ORRH00483	N/A	ORRHDTC10071	N/A	RHORVE100124	N/A	N/A		N/A	N/A	N/A	OR10FG4126
ORRH00507	N/A	ORRHDTC10074	N/A	RHORVE100132	N/A	N/A		N/A	N/A	N/A	OR10FG4134
ORRH00521	N/A	ORRHDTC10074	N/A	RHORVE100133	N/A	N/A		N/A	N/A	N/A	OR10FG4139
ORRH00529	N/A	ORRHDTC10074	N/A	RHORVE100133	N/A	N/A		N/A	N/A	N/A	OR10FG4136
ORRH00530	N/A	ORRHDTC10074	N/A	RHORVE100133	N/A	N/A		N/A	N/A	N/A	OR10FG4139
ORRH00005	N/A	ORRHDTC08002	N/A	RHORVE080002	N/A	N/A		ORHSGS080003	ECL08010M	ECL08010G	NA
ORRH00008	N/A	ORRHDTC08003	N/A	RHORVE080003	N/A	N/A		ORHSGS080003	ECL08010M	ECL08010G	NA
ORRH00009	N/A	ORRHDTC08003	N/A	RHORVE080003	N/A	N/A		ORHSGS080003	ECL08010M	ECL08010G	NA

Laura M. Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

10/7/2010
Date

CIS-003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 26

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00432	N/A	NA	N/A	RHORVE100116	N/A	N/A		N/A	N/A	N/A	OR10FG4118
ORRH00533	N/A	NA	N/A	RHORVE100134	N/A	N/A		ORHSGS100011	ECL10035M	ECL10035	OR10FG11015
ORRH00536	N/A	NA	N/A	RHORVE100134	N/A	N/A		N/A	N/A	N/A	OR10FG11014
ORRH00531	N/A	NA	N/A	RHORVE100133	N/A	N/A		N/A	N/A	N/A	OR10FG11014
ORRH00563	N/A	NA	N/A	RHORVE100140	N/A	N/A		N/A	N/A	N/A	OR10FG4144
ORRH00577	N/A	NA	N/A	RHORVE100143	N/A	N/A		N/A	N/A	N/A	OR10FG11018

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

1/25/2011
Date

CLS-003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 27

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00629	N/A	ORRH00629	N/A	RHORVE100151	N/A	N/A		N/A	N/A	N/A	OR10FG4118

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

5/5/2011
Date

CIS-004

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET Lot # 28

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR			Transportation BDR
								Sample	Analysis		
ORRH00646	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00647	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00648	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00649	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00650	N/A	ORRHDTC11004	N/A	RHORVE110004	N/A	N/A		N/A	N/A	N/A	OR11FG4007
ORRH00019	N/A	ORRHDTC09007	N/A	RHORVE090011	N/A	N/A		N/A	N/A	N/A	OR11FG4008

Laura Nelson
Signature of Site Project Manager

Laura M. Nelson
Printed Name

9/19/2011
Date

CIS-004

DIVIDER

PAGE

Nuclear Waste Partnership LLC

A URS-led partnership with B&W and AREVA

CP:
UFC:5900.00

INTER-OFFICE CORRESPONDENCE

DATE: January 9, 2014

FROM: L. Nelson LOCATION: Certification

TO: CCP Records Custodian GSA-212 LOCATION: Retrieval, Characterization and Transportation

SUBJECT: ACCEPTABLE KNOWLEDGE ACCURACY REPORT: OAK RIDGE NATIONAL LABORATORY REMOTE-HANDLED TRANSURANIC (RH TRU) WASTE STREAM OR-REDC-RH-HET, LOTS 1 THORUGH 29

Purpose

CCP-TP-005, Revision 26, *CCP Acceptable Knowledge Documentation*, requires that Acceptable Knowledge (AK) accuracy be evaluated and documented, either on a lot or waste stream basis. The purpose of this correspondence is to document the results of the AK accuracy evaluation for containers in waste stream OR-REDC-RH-HET, Heterogeneous Debris Waste, lots 1 through 29.

Methodology

In accordance with CCP-TP-005, the CCP Waste Stream Characterization Checklist (Attachment 13) was used to perform the AK accuracy review for lots 1 through 29 in waste stream OR-REDC-RH-HET. An Acceptable Knowledge Re-Evaluation Checklist (Attachment 10) was not generated for the review of this report.

The results of the AK accuracy evaluation for Waste Stream OR-REDC-RH-HET, lots 1 through 29, are documented on the attached Acceptable Knowledge Accuracy Report form (Attachment 14). A total of 227 RH TRU waste containers have been evaluated for AK accuracy and none had the Waste Matrix Codes (WMCs) reassigned, Environmental Protection Agency (EPA) Hazardous Waste Numbers (HWNs) reassigned, or were found to have radiological data inconsistent with AK. The results of the AK accuracy determination for waste stream OR-REDC-RH-HET, lots 1 through 29, are addressed in the following sections of this correspondence.

Results of Acceptable Knowledge Accuracy Determination

Acceptable Knowledge Re-Evaluation and Confirmation for Waste Stream OR-REDC-RH-HET

An AK re-evaluation checklist was not generated for this waste stream.

The following parameters were described in AK Summary Report CCP-AK-ORNL-500.

- The AK identifies the waste as heterogeneous debris.
- The waste stream was determined to contain Resource Conservation and Recovery Act-regulated constituents and is assigned the following EPA HWNs: F002, F005, D004, D005, D006, D007, D008, D009, D010, D011, D019.

No EPA HWNs were reassigned to this waste stream.

The waste material parameters, EPA HWNs and radionuclides are, within reasonable error, as predicted in AK Summary Report OR-REDC-RH-HET. No additional AK re-evaluations are required at this time.

Other Considerations

An CCP-TP-005 Attachment 10 was not generated for this waste stream.

No drums were eliminated from Waste Stream OR-REDC-RH-HET due to the radioisotopic content.

Based on the criteria for calculating accuracy, the accuracy for the waste stream is 100 percent, as calculated below.

Summary

There are a total of 227 RH TRU waste containers in lot 1 through 29 for Waste Stream OR-REDC-RH-HET; 227
containers were consistent with AK.

[(227/227)*100]=100%

This AK Accuracy Report has been prepared in accordance with CCP-TP-005. The included Attachment 14 contains the listing of the waste containers evaluated in this waste stream for AK accuracy evaluation.

If you have any questions, or if you would like more information about the contents of this AK Accuracy Report, please contact me at (303) 843-2269

LMN:jmc

Attachments
1 – CCP-TP-005 Attachment 14, CCP Acceptable Knowledge Accuracy Report
2 – CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

cc:
(without attachments)
I. S. Joo ED

CCP Waste Stream Characterization Checklist

Site(s): ORNL

Waste Stream Number: OR-NFS-CH-SOIL Lot # (if applicable) 5

Waste Stream Description: Soils

Acceptable Knowledge Information or other data points[a]	Characterization Method(s)	Acceptable Knowledge Re-evaluation Required? Yes/No[b]?	Comments[c]
Physical waste form/description	RTR	No	RTR Data Sheets indicate consistency with Attachment 6 of CCP-TP-005.
Waste material parameters weights	RTR	No	RTR Data Sheets indicate consistency with CCP-AK-ORNL-001, Table 6-1. See additional attached sheets.
Waste percent volume consistent with nondestructive examination or visual examination data and audio/video tapes or equivalent media	RTR	No	RTR Data sheets indicate consistency with CCP-AK-ORNL-001. See additional attached sheets.
Summary category group assignment	RTR	No	Summary Category group S4000 is consistent with RTR Data sheets.
Waste matrix code assignment	RTR	No	The waste in this lot is comprised of greater than 50% soil by volume and weight. All individual containers in this lot meet this criteria. This is consistent with the S4100 Waste Matrix Code assignment based on AK.
Absence of prohibited items	RTR	No	RTR did not identify any prohibited items.
Tentatively identified compounds[d]	Solids Analysis	No	No TICs in this waste stream have exceeded 25% of the samples for the entire waste stream.
EPA Hazardous Waste Number assignment [e]	Solids Analysis	No	Characterization results consistent with CCP-AK-ORNL-001 and Section 6.4.3 of CCP-AK-ORNL-001.

ORIGINAL

CCP Waste Stream Characterization Checklist

Site(s): ORNL

Waste Stream Number: OR-NFS-CH-SOIL Lot # (if applicable) 5

Waste Stream Description: Soils

Acceptable Knowledge Information or other data points[a]	Characterization Method(s)	Acceptable Knowledge Re-evaluation Required? Yes/No[b]?	Comments[c]
Toxicity characteristic code assignment	Solids Analysis	No	Consistent with CCP Solids Analysis UCL_{90} Evaluation forms.
UCL_{90} > PRQL?	Solids Analysis	No	Verified using CCP Solids Analysis UCL_{90} evaluation forms.
VOCs from packaging materials or radiolysis present	Solids Analysis	No	CCP-TP-005 Attachment 5 does not identify any VOCs associated with packaging or radiolysis.
State Hazardous Waste Number assignment	Solids Analysis	No	No additional State Hazardous Waste codes are identified in CCP-TP-005 attachment 5.
Radionuclides present	NDA	No	See Additional Comments section and additional sheets attached.
Other radiological parameters: (specify)	NDA	No	No additional radiological parameters identified.

CCP Waste Stream Characterization Checklist

Site(s): ORNL

Waste Stream Number: OR-NFS-CH-SOIL Lot # (if applicable) 5

Waste Stream Description: Soils

Additional Comments:

- AK identifies U-238 and Pu-239 as the two most prevalent isotopes, by weight, in the waste stream at 73.42% and 19.17%, respectively. For the NDA data associated with this Lot, Pu-239 and Pu-240 are the two most prevalent isotopes at 90.83% and 8.27%, respectively. For the NDA data associated with this waste stream, Pu-239 and Pu-240 are the two most prevalent isotopes at 90.81% and 8.26%, respectively. The U-238 isotope was not identified in any container. This data does not compare favorably with AK. However, CCP-AK-ORNL-001 (Sections 5.4.2.2 and 6.4.2.2) states that the two most prevalent radionuclides by mass may turn out to be Pu-239 and Pu-240 because of the issues with NDA detecting U-238. U-238 has an extremely long half-life and as a result has a low specific activity. The gamma ray emission rate is therefore very low, resulting in high detection limits and uncertainties for this isotope. At gram levels for U-238, the self-attenuation of gamma rays can be significant. The U-238 has such a low gamma emission rate that the detection limits and uncertainties of hundreds of grams is not unexpected. Since this condition was anticipated based on AK, an AK re-evaluation is not required.
-
  a. Identified in the AK Summary Report or included in the in-process record documentation (e.g., BDR's).
  b. If "yes," AK Expert completes an *Acceptable Knowledge Re-evaluation Checklist.*
  c. Identify the source of the waste characterization information (e.g., batch data report).
  d. Tentatively Identified Compounds identified in the Headspace Gas Summary Report were identified on the Hazardous Constituent List, Attachment 5.
  e. Ensure that, if a toxicity characteristic contaminant is identified, it is not included as a listed waste, and if analytical data regarding the concentration are not available, the corresponding EPA Hazardous Waste Code is applied.

Site Project Manager:

Candice Weston — Candice Weston — 12/17/09

Print — Sign — Date:

Acceptable Knowledge Expert:

JEFF HARRISON — [signature] — 12/17/2009

Print — Sign — Date:

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Bromoform	No	0	5	0.09	0.09	0.00	0.09	10	N/A		
Carbon Disulfide	No	0	5	0.27	0.26	0.01	0.27	10	N/A		
Carbon Tetrachloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Chlorobenzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Chloroform	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,2-Dichloroethane	Log	0	5	-1.71	-1.75	0.03	-1.72	10	2.30		
1,1-Dichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
trans-1,2-Dichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Ethyl benzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Methylene chloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2,2-Tetrachloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Tetrachloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Toluene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,1-Trichloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2-Trichloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Trichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Trichlorofluoromethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Vinyl chloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
m,p-Xylene[d]	No	0	5	0.27	0.26	0.01	0.27	10	N/A		
o-Xylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Acetone	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Butanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Ethyl ether	No	0	2	1.05	1.05	0.00	1.05	100	N/A		
Isobutanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		

SUPPORTING DOCUMENTATION

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL

Waste Stream Lot Number 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Methanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Methyl ethyl ketone	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Pyradine	No	0	2	1.05	1.05	0.00	1.05	100	N/A		
1,2-Dichlorobenzene[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Formaldehyde[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Hydrazine[b]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

[a] Required only for homogenous solids and soil/gravel waste from the Savannah River Site.

[b] Required only for homogenous solids and soil/gravel waste generated at Oak Ridge National Laboratory and Savannah River Site. OR-NFS-CH-SOIL was generated at the NFS site, located in Erwin Tennessee, and only stored and characterized at ORNL.

[c] Can also be analyzed as an SVOC. If analyzed as an SVOC, the QAO's of CCP-TP-001, Table B3-6 apply.

[d] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Candice Weston
Printed Name

12/16/2009
Date

SUPPORTING DOCUMENTATION

CCP Solids Analysis SVOC UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
2-Methylphenol (cresols)	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
3&4 -Methylphenol (cresols)	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
1,4-Dichlorobenzene [a]	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
1,2-Dichlorobenzene [a]	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
2,4-Dinitrophenol	No	0	5	0.20	0.12	0.04	0.15	40	N/A		
2,4-Dinitrotoluene	No	0	5	0.30	0.18	0.07	0.23	2.6	N/A		
Hexachlorobenzene	No	0	5	0.30	0.18	0.07	0.23	2.6	N/A		
Hexachloroethane	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
Nitrobenzene	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
Pentachlorophenol	No	0	5	0.40	0.24	0.09	0.30	40	N/A		

[a] Can also be analyzed as a VOC. If analyzed as a VOC, the QAO's of CCP-TP-001, Table B3-4 apply.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Candice Weston
Printed Name

12/16/2009
Date

SUPPORTING DOCUMENTATION

CCP Solids Analysis Metals UCL_{90} Evaluation Form

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Antimony	No	2	5	1.40	0.86	0.49	1.20	100	N/A		
Arsenic	SQRT	5	5	2.17	1.75	0.32	1.97	100	10.00		
Barium	No	5	5	170.00	132.00	31.14	153.36	2000	N/A		
Beryllium	No	5	5	0.76	0.69	0.09	0.76	100	N/A		
Cadmium	Log	2	5	-1.02	-2.38	0.90	-1.77	20	3.00		
Chromium	No	5	5	39.00	37.20	2.39	38.84	100	N/A		
Lead	Log	5	5	2.83	2.42	0.27	2.61	100	4.61		
Mercury	Log	5	5	-2.30	-2.48	0.12	-2.40	4	1.39		
Nickel	No	5	5	19.00	17.40	1.67	18.55	100	N/A		
Selenium	No	0	5	0.35	0.35	0.00	0.35	20	N/A		
Silver	No	0	5	0.30	0.30	0.00	N/A[2]	100	N/A		
Thallium	No	3	5	1.10	0.70	0.35	0.93	100	N/A		
Vanadium	No	5	5	60.00	53.40	6.27	57.70	100	N/A		
Zinc	Log	5	5	4.23	3.91	0.20	4.05	100	4.61		

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) Due to all five sample results being the same numeric value, the statistic package is unable to calculate a UCL_{90}.

Signature of Site Project Manager	Candice Weston Printed Name	12/16/2009 Date

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CCP Solid VOCs Summary Data

Waste Stream Number OR-NFS-CH-SOIL Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	NA	NA	NA
Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐			
If no, describe the basis for assigning the EPA Hazardous Waste Codes:			

SPM Signature _____ Date 12/16/2009

SUPPORTING DOCUMENTATION

CCP Solid SVOCs Summary Data

Waste Stream Number OR-NFS-CH-SOIL Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	NA	NA	NA

Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature _____ Date 12/16/2009

SUPPORTING DOCUMENTATION

NDE Data
OR-NFS-CH-SOIL
Lot 5

Batch Data Report No.	Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Aluminum-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/gravel (kg)
OR-RTR6-0103	NFS0146		1.0								252.9
OR-RTR6-0103	NFS0154		1.0								239.9
OR-RTR6-0103	NFS0198		1.0								208.3
OR-RTR6-0103	NFS0438		1.0								237.5
OR-RTR6-0103	NFS0537		1.0								230.3
OR-RTR6-0076	NFS0716		1.0								227.7
OR-RTR6-0098	NFS0717		1.0								237.6
OR-RTR6-0092	NFS0718		1.0								220.5
OR-RTR6-0094	NFS0719		1.0								222.7
OR-RTR6-0094	NFS0720		1.0								218.9
OR-RTR6-0100	NFS0721		1.0								208.7
OR-RTR6-0092	NFS0722	0.5	1.0								229.4
OR-RTR6-0101	NFS0723		1.0								222.1
OR-RTR6-0096	NFS0726		1.0								195.5
OR-RTR6-0099	NFS0729		1.0								184.6
OR-RTR6-0104	NFS0730		1.0								202.3
OR-RTR6-0099	NFS0731		1.0								229.1
OR-RTR6-0094	NFS0735		1.0								202.3
OR-RTR6-0100	NFS0736		1.0								214.2
OR-RTR6-0103	NFS0738		1.0								194.7
OR-RTR6-0077	NFS0742		1.0								214.9
OR-RTR6-0090	NFS0743		1.0								212.5
OR-RTR6-0092	NFS0744		1.0								207.1
OR-RTR6-0093	NFS0745		1.0								189.1
OR-RTR6-0077	NFS0748		1.0								204.1
OR-RTR6-0080	NFS0750		1.0								206.5
OR-RTR6-0100	NFS0751		1.0								209.9
OR-RTR6-0104	NFS0760		1.0							1.0	258.5
OR-RTR6-0081	NFS0761		1.0								235.1
OR-RTR6-0078	NFS0762		1.0								260.5
OR-RTR6-0099	NFS0764		1.0								237.6
OR-RTR6-0101	NFS0768		1.0								206.9
OR-RTR6-0100	NFS0769		1.0								219.1
OR-RTR6-0100	NFS0770		1.0								231.5
OR-RTR6-0096	NFS0771		1.0								230.1

SUPPORTING DOCUMENTATION

NDE Data
OR-NFS-CH-SOIL
Lot 5

Batch Data Report No.	Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Aluminum-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/gravel (kg)
OR-RTR6-0092	NFS0773		1.0								231.5
OR-RTR6-0073	NFS0774		1.0								238.3
OR-RTR6-0099	NFS0778		1.0								213.6
OR-RTR6-0093	NFS0780		1.0								214.9
OR-RTR6-0080	NFS0781		1.0								222.1
OR-RTR6-0071	NFS0791		1.0								218.1
OR-RTR6-0100	NFS0795		1.0								217.3
OR-RTR6-0093	NFS0797		1.0								216.5
OR-RTR6-0099	NFS0801		1.0								220.6
OR-RTR6-0077	NFS0803		1.0								174.7
OR-RTR6-0101	NFS0810						0.1				168.2
OR-RTR6-0101	NFS0812						0.2				219.1
OR-RTR6-0071	NFS0815						0.2			72.3	72.2
OR-RTR6-0104	NFS0818						1.0				173.5
OR-RTR6-0075	NFS0820		1.0								186.5
OR-RTR6-0100	NFS0825						0.6			18.0	186.5
OR-RTR6-0093	NFS0828		1.0								185.8
OR-RTR6-0092	NFS0829		1.0								197.9
OR-RTR6-0092	NFS0836		1.0								238.1
OR-RTR6-0092	NFS0837		1.0								257.7
OR-RTR6-0078	NFS0841		1.0								210.1
OR-RTR6-0071	NFS0842		1.0								219.7
OR-RTR6-0080	NFS0846		1.0								247.1
OR-RTR6-0105	NFS0848		1.0								206.7
OR-RTR6-0104	NFS0851		1.0								257.1
OR-RTR6-0093	NFS0852		1.0								213.9
OR-RTR6-0074	NFS0867		1.0								201.5
OR-RTR6-0071	NFS0923		1.0								230.3
OR-RTR6-0098	NFS0924		1.0								250.3
OR-RTR6-0103	NFS0925		1.0								220.3
OR-RTR6-0076	NFS0930		1.0								227.3
OR-RTR6-0111	X10C0506042		1.0								208.5
OR-RTR6-0111	X10C0506044		1.0								93.7
OR-RTR6-0111	X10C0506057		1.0								232.9
OR-RTR6-0111	X10C0506064		1.0				0.1				225.2

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NDE Data
OR-NFS-CH-SOIL
Lot 5

Batch Data Report No.	Container	Cellulosics (kg)	Plastics (kg)	Rubber (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Iron-based Metals (kg)	Aluminum-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Soils/gravel (kg)
OR-RTR6-0111	X10C0506066		1.0								192.7
OR-RTR6-0103	X10C0506069		1.0								95.1
OR-RTR6-0103	X10C0506070		1.0							15.0	189.5

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NDE Data
OR-NFS-CH-SOIL
Lot 5

Batch Data Report No.	Container	Cellulosics Weight %	Plastics Weight %	Rubber Weight %	Organic Matrix Weight %	Inorganic Matrix Weight %	Iron-based Metals Weight %	Aluminum-based Metals Weight %	Other Metals Weight %	Other Inorganics Weight %	Soils/gravel Weight %
OR-RTR6-0103	NFS0146		0.39%								99.61%
OR-RTR6-0103	NFS0154		0.42%								99.58%
OR-RTR6-0103	NFS0198		0.48%								99.52%
OR-RTR6-0103	NFS0438		0.42%								99.58%
OR-RTR6-0103	NFS0537		0.43%								99.57%
OR-RTR6-0076	NFS0716		0.44%								99.56%
OR-RTR6-0098	NFS0717		0.42%								99.58%
OR-RTR6-0092	NFS0718		0.45%								99.55%
OR-RTR6-0094	NFS0719		0.45%								99.55%
OR-RTR6-0094	NFS0720		0.45%								99.55%
OR-RTR6-0100	NFS0721		0.48%								99.52%
OR-RTR6-0092	NFS0722	0.22%	0.43%								99.35%
OR-RTR6-0101	NFS0723		0.45%								99.55%
OR-RTR6-0096	NFS0726		0.51%								99.49%
OR-RTR6-0099	NFS0729		0.54%								99.46%
OR-RTR6-0104	NFS0730		0.49%								99.51%
OR-RTR6-0099	NFS0731		0.43%								99.57%
OR-RTR6-0094	NFS0735		0.49%								99.51%
OR-RTR6-0100	NFS0736		0.46%								99.54%
OR-RTR6-0103	NFS0738		0.51%								99.49%
OR-RTR6-0077	NFS0742		0.46%								99.54%
OR-RTR6-0090	NFS0743		0.47%								99.53%
OR-RTR6-0092	NFS0744		0.48%								99.52%
OR-RTR6-0093	NFS0745		0.53%								99.47%
OR-RTR6-0077	NFS0748		0.49%								99.51%
OR-RTR6-0080	NFS0750		0.48%								99.52%
OR-RTR6-0100	NFS0751		0.47%								99.53%
OR-RTR6-0104	NFS0760		0.38%							0.38%	99.23%
OR-RTR6-0081	NFS0761		0.42%								99.58%
OR-RTR6-0078	NFS0762		0.38%								99.62%
OR-RTR6-0099	NFS0764		0.42%								99.58%
OR-RTR6-0101	NFS0768		0.48%								99.52%
OR-RTR6-0100	NFS0769		0.45%								99.55%
OR-RTR6-0100	NFS0770		0.43%								99.57%
OR-RTR6-0096	NFS0771		0.43%								99.57%

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NDE Data
OR-NFS-CH-SOIL
Lot 5

Batch Data Report No.	Container	Cellulosics Weight %	Plastics Weight %	Rubber Weight %	Organic Matrix Weight %	Inorganic Matrix Weight %	Iron-based Metals Weight %	Aluminum-based Metals Weight %	Other Metals Weight %	Other Inorganics Weight %	Soils/gravel Weight %
OR-RTR6-0092	NFS0773		0.43%								99.57%
OR-RTR6-0073	NFS0774		0.42%								99.58%
OR-RTR6-0099	NFS0778		0.47%								99.53%
OR-RTR6-0093	NFS0780		0.46%								99.54%
OR-RTR6-0080	NFS0781		0.45%								99.55%
OR-RTR6-0071	NFS0791		0.46%								99.54%
OR-RTR6-0100	NFS0795		0.46%								99.54%
OR-RTR6-0093	NFS0797		0.46%								99.54%
OR-RTR6-0099	NFS0801		0.45%								99.55%
OR-RTR6-0077	NFS0803		0.57%								99.43%
OR-RTR6-0101	NFS0810						0.06%				99.94%
OR-RTR6-0101	NFS0812						0.09%				99.91%
OR-RTR6-0071	NFS0815						0.14%			49.97%	49.90%
OR-RTR6-0104	NFS0818						0.57%				99.43%
OR-RTR6-0075	NFS0820		0.53%								99.47%
OR-RTR6-0100	NFS0825						0.29%			8.78%	90.93%
OR-RTR6-0093	NFS0828		0.54%								99.46%
OR-RTR6-0092	NFS0829		0.50%								99.50%
OR-RTR6-0092	NFS0836		0.42%								99.58%
OR-RTR6-0092	NFS0837		0.39%								99.61%
OR-RTR6-0078	NFS0841		0.47%								99.53%
OR-RTR6-0071	NFS0842		0.45%								99.55%
OR-RTR6-0080	NFS0846		0.40%								99.60%
OR-RTR6-0105	NFS0848		0.48%								99.52%
OR-RTR6-0104	NFS0851		0.39%								99.61%
OR-RTR6-0093	NFS0852		0.47%								99.53%
OR-RTR6-0074	NFS0867		0.49%								99.51%
OR-RTR6-0071	NFS0923		0.43%								99.57%
OR-RTR6-0098	NFS0924		0.40%								99.60%
OR-RTR6-0103	NFS0925		0.45%								99.55%
OR-RTR6-0076	NFS0930		0.44%								99.56%
OR-RTR6-0111	X10C0506042		0.48%								99.52%
OR-RTR6-0111	X10C0506044		1.06%								98.94%
OR-RTR6-0111	X10C0506057		0.43%								99.57%
OR-RTR6-0111	X10C0506064		0.44%				0.04%				99.51%

NDE Data
OR-NFS-CH-SOIL
Lot 5

Batch Data Report No.	Container	Cellulosics Weight %	Plastics Weight %	Rubber Weight %	Organic Matrix Weight %	Inorganic Matrix Weight %	Iron-based Metals Weight %	Aluminum-based Metals Weight %	Other Metals Weight %	Other Inorganics Weight %	Soils/gravel Weight %
OR-RTR6-0111	X10C0506066		0.52%								99.48%
OR-RTR6-0103	X10C0506069		1.04%								98.96%
OR-RTR6-0103	X10C0506070		0.49%							7.30%	92.21%

Lot	5	Waste Stream Waste Material Parameter Weight Percent Lot Total							
Cellulosics	Plastics	Rubber	Organic Matrix	Inorganic Matrix	Iron-based Metals	Aluminum-based Metals	Other Metals	Other Inorganics	Soils/gravel
0.00%	0.43%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.68%	98.87%

NDE Density Rollup Data Through Lot: 5
OR-NFS-CH-SOIL

Waste Stream Waste Material Parameter Weight Percent

Cellulosics	Plastics	Rubber	Organic Matrix	Inorganic Matrix	Iron-based Metals	Aluminum-based Metals	Other Metals	Other Inorganics (Absorbent)	Soils/gravel (kg)
0.00%	0.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	99.41%

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NDA Isotopic Weight Percent
OR-NFS-CH-SOIL
Lot 5

CONTAINERID	NDAEDR	Sr-90	Cs-137	U-232	U-233	U-234	U-235	U-238	Np-237	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	Am-241
NFS0146	OR-DWAS-0121	3.54E-09	5.57E-09						2.03E-03	9.42E-04	4.82E+00	4.09E-01	8.91E-03	2.43E-03	4.11E-02
NFS0154	OR-DWAS-0121	3.35E-09	5.27E-09						2.95E-03	1.62E-03	8.33E+00	5.46E-01	8.10E-03	3.20E-03	5.35E-02
NFS0198	OR-DWAS-0126	1.25E-08	1.98E-08						6.54E-03	4.41E-03	2.12E+01	1.87E+00	2.89E-02	1.00E-02	1.62E-01
NFS0438	OR-DWAS-0126	2.65E-09	4.16E-09							2.79E-04	1.12E+00	1.25E-01	1.39E-03	6.40E-04	7.32E-03
NFS0537	OR-DWAS-0121	6.19E-09	9.74E-09							2.39E-04	2.27E+00	1.54E-01	2.62E-03	6.84E-04	1.80E-02
NFS0716	OR-DWAS-0099	1.14E-08	1.79E-08						6.34E-03	2.44E-03	1.35E+01	1.33E+00	2.01E-02	7.89E-03	1.25E-01
NFS0717	OR-DWAS-0120	1.35E-08	2.12E-08						7.88E-03	3.63E-03	2.24E+01	1.99E+00	2.89E-02	1.11E-02	1.89E-01
NFS0718	OR-DWAS-0109	1.30E-08	2.14E-08						1.09E-02	5.01E-03	2.42E+01	2.12E+00	3.13E-02	1.15E-02	1.83E-01
NFS0719	OR-DWAS-0128	7.12E-09	1.12E-08						1.88E-03	1.19E-03	5.04E+00	4.41E-01	8.72E-03	2.46E-03	3.85E-02
NFS0720	OR-DWAS-0128	1.23E-08	1.93E-08						2.83E-03	1.30E-03	7.88E+00	7.17E-01	1.05E-02	4.12E-03	6.53E-02
NFS0721	OR-DWAS-0126	1.38E-08	2.16E-08						7.88E-03	3.30E-03	1.79E+01	1.53E+00	2.39E-02	8.55E-03	1.31E-01
NFS0722	OR-DWAS-0110	7.41E-09	1.17E-08							3.95E-04	2.48E+00	2.44E-01	2.97E-03	1.46E-03	2.36E-02
NFS0723	OR-DWAS-0119	9.08E-09	1.42E-08	2.66E-08					1.79E-03	1.11E-03	3.32E+00	3.08E-01	3.85E-03	1.73E-03	2.86E-02
NFS0729	OR-DWAS-0114	1.17E-08	1.84E-08						2.99E-03	1.44E-03	6.28E+00	5.07E-01	8.70E-03	2.00E-03	9.15E-02
NFS0728	OR-DWAS-0126	7.01E-09	1.10E-08						1.68E-03	8.25E-04	4.59E+00	4.37E-01	5.79E-03	2.40E-03	3.67E-02
NFS0729	OR-DWAS-0115	6.84E-09	1.39E-08							6.94E-04	3.88E+00	3.47E-01	4.80E-03	1.99E-03	3.09E-02
NFS0730	OR-DWAS-0128	1.13E-08	1.78E-08						3.04E-03	7.97E-04	6.88E+00	9.22E-01	9.23E-03	3.99E-03	6.57E-02
NFS0731	OR-DWAS-0115	5.88E-09	9.29E-09							3.11E-04	2.62E+00	2.39E-01	3.14E-03	1.41E-03	2.42E-02
NFS0735	OR-DWAS-0111	1.16E-08	1.86E-08						5.01E-03	2.28E-03	1.32E+01	1.17E+00	1.55E-02	6.91E-03	1.05E-01
NFS0736	OR-DWAS-0118	8.37E-09	1.32E-08							7.59E-04	6.18E+00	5.60E-01	7.95E-03	3.14E-03	4.70E-02
NFS0742	OR-DWAS-0129	1.45E-08	2.28E-08						6.48E-03	3.15E-03	1.74E+01	1.56E+00	2.32E-02	8.09E-03	1.44E-01
NFS0743	OR-DWAS-0105	7.88E-09	1.21E-08							6.05E-04	2.00E+00	3.30E-01	4.17E-03	2.92E-03	2.25E-02
NFS0744	OR-DWAS-0111	1.00E-08	1.63E-08						2.10E-03	1.52E-03	7.03E+00	6.59E-01	1.04E-02	3.89E-03	5.41E-02
NFS0748	OR-DWAS-0111	8.41E-09	1.32E-08						1.84E-03	7.51E-04	5.30E+00	5.20E-01	6.79E-03	3.01E-03	4.71E-02
NFS0748	OR-DWAS-0129	9.46E-09	1.49E-08						3.38E-03	1.10E-03	7.37E+00	6.83E-01	1.03E-02	3.89E-03	6.95E-02
NFS0750	OR-DWAS-0099	9.97E-09	1.57E-08						6.74E-03	2.74E-03	1.52E+01	1.41E+00	2.01E-02	7.89E-03	1.16E-01
NFS0751	OR-DWAS-0120	7.09E-09	1.11E-08						1.81E-03	7.03E-04	4.81E+00	4.31E-01	5.14E-03	2.46E-03	3.87E-02
NFS0760	OR-DWAS-0126	7.09E-09	1.11E-08						2.82E-03	1.61E-03	6.88E+00	4.72E-01	7.92E-03	2.91E-03	6.26E-02
NFS0761	OR-DWAS-0129									2.53E-04	5.25E-01	9.14E-02	5.75E-04	7.09E-04	6.47E-03
NFS0762	OR-DWAS-0129	7.41E-09	1.17E-08						2.57E-03	2.17E-03	9.22E+00	9.91E-01	1.19E-02	4.98E-03	6.90E-02
NFS0764	OR-DWAS-0115	9.19E-09	1.44E-08							2.08E-03	6.34E+00	7.54E-01	1.13E-02	4.39E-03	7.03E-02
NFS0766	OR-DWAS-0117	1.14E-08	1.80E-08						3.90E-03	1.84E-03	9.22E+00	9.91E-01	1.29E-02	4.93E-03	7.47E-02
NFS0769	OR-DWAS-0118	9.40E-09	1.48E-08						7.00E-03	1.99E-03	1.24E+01	1.19E+00	1.61E-02	6.89E-03	1.01E-01
NFS0770	OR-DWAS-0118	8.19E-09	1.29E-08						4.11E-03	1.37E-03	8.36E+00	8.18E-01	1.17E-02	4.73E-03	7.82E-02
NFS0771	OR-DWAS-0129	9.05E-09	1.42E-08						5.89E-03	1.99E-03	1.05E+01	9.70E-01	1.43E-02	5.84E-03	8.89E-02
NFS0773	OR-DWAS-0110	8.10E-09	1.27E-08						3.32E-03	2.32E-03	9.36E+00	8.50E-01	1.24E-02	4.98E-03	8.10E-02
NFS0774	OR-DWAS-0099	8.83E-09	1.39E-08						4.11E-03	1.74E-03	9.36E+00	8.73E-01	1.05E-02	4.90E-03	7.57E-02
NFS0778	OR-DWAS-0116	1.43E-08	2.25E-08						9.01E-03	2.59E-03	1.95E+01	1.74E+00	2.44E-02	9.79E-03	1.51E-01
NFS0780	OR-DWAS-0111	1.89E-08	2.98E-08						1.19E-02	4.90E-03	2.44E+01	2.20E+00	3.23E-02	1.23E-02	1.88E-01
NFS0781	OR-DWAS-0098	9.98E-09	1.58E-08						4.84E-03	2.62E-03	1.49E+01	1.37E+00	2.04E-02	7.99E-03	1.25E-01
NFS0791	OR-DWAS-0082	2.21E-08	3.48E-08						1.03E-02	4.95E-03	3.46E+01	3.16E+00	4.61E-02	1.73E-02	2.53E-01
NFS0795	OR-DWAS-0118	1.41E-08	2.22E-08						6.31E-03	3.12E-03	1.71E+01	1.59E+00	2.29E-02	8.77E-03	1.28E-01
NFS0797	OR-DWAS-0128	1.84E-08	2.89E-08						9.05E-03	4.72E-03	3.10E+01	2.80E+00	3.90E-02	1.54E-02	2.28E-01
NFS0801	OR-DWAS-0116	1.10E-08	1.72E-08							2.88E-03	1.95E+01	1.41E+00	2.09E-02	7.74E-03	1.12E-01
NFS0803	OR-DWAS-0129	2.92E-08	4.59E-08						1.20E-02	3.88E-03	2.85E+01	2.82E+00	3.82E-02	1.44E-02	2.14E-01
NFS0810	OR-DWAS-0118	7.72E-09	1.21E-08							5.78E-04	1.19E+00	1.17E-01	1.37E-03	1.80E-03	1.47E-02
NFS0812	OR-DWAS-0126			2.53E-08						5.98E-04	1.18E+00	1.16E-01	1.29E-03	1.59E-03	1.45E-02
NFS0815	OR-DWAS-0083									1.56E-04	3.22E-01	3.18E-02	3.80E-04	4.33E-04	3.98E-03
NFS0816	OR-DWAS-0126			2.97E-08						3.09E-04	6.43E-01	6.29E-02	7.03E-04	8.83E-04	7.91E-03
NFS0820	OR-DWAS-0090									4.34E-04	9.01E-01	8.82E-02	9.93E-04	1.21E-03	1.11E-02
NFS0825	OR-DWAS-0119			1.50E-08						3.59E-04	7.46E-01	7.30E-02	8.17E-04	1.00E-03	9.18E-03
NFS0828	OR-DWAS-0111	1.80E-08	2.84E-08						8.93E-03	3.94E-03	2.89E+01	2.41E+00	3.50E-02	1.36E-02	2.09E-01
NFS0829	OR-DWAS-0110	1.98E-08	3.11E-08						9.17E-03	4.54E-03	2.66E+01	2.43E+00	3.50E-02	1.34E-02	1.99E-01
NFS0836	OR-DWAS-0110									1.02E-03	7.78E-01	1.15E-01	2.39E-03	1.99E-03	9.22E-03
NFS0837	OR-DWAS-0109	7.84E-09	1.25E-08						4.15E-03	2.86E-03	1.85E+01	1.62E+00	2.42E-02	8.93E-03	1.33E-01
NFS0841	OR-DWAS-0129	2.07E-08	3.26E-08						9.98E-03	5.21E-03	3.30E+01	2.98E+00	3.98E-02	1.58E-02	2.22E-01
NFS0843	OR-DWAS-0083	1.09E-08	1.72E-08						9.73E-03	7.01E-03	3.18E+01	2.86E+00	4.21E-02	1.82E-02	2.05E-01
NFS0846	OR-DWAS-0098	1.30E-08	2.05E-08						1.03E-02	5.91E-03	4.38E+01	3.92E+00	5.31E-02	2.15E-02	3.20E-01
NFS0848	OR-DWAS-0128	1.29E-08	2.04E-08	6.58E-08					5.92E-03	2.92E-03	1.97E+01	1.44E+00	2.20E-02	7.79E-03	1.06E-01
NFS0851	OR-DWAS-0126	1.05E-08	1.65E-08	7.73E-08					4.95E-03	3.27E-03	1.65E+01	1.50E+00	2.05E-02	8.19E-03	1.19E-01
NFS0852	OR-DWAS-0112	1.37E-08	2.16E-08						9.05E-03	3.09E-03	2.25E+01	2.08E+00	2.89E-02	1.14E-02	1.86E-01
NFS0867	OR-DWAS-0099	1.40E-08	2.21E-08						4.00E-03	2.05E-03	1.02E+01	9.61E-01	1.31E-02	5.28E-03	7.82E-02
NFS0923	OR-DWAS-0083	5.79E-09	9.11E-09							2.15E-04	4.66E+00	3.86E-01	5.75E-03	2.16E-03	3.31E-02
NFS0924	OR-DWAS-0119	6.37E-09	1.00E-08						6.57E-03	2.33E-03	1.66E+01	1.63E+00	2.25E-02	9.08E-03	1.31E-01
NFS0925	OR-DWAS-0121	7.15E-09	1.12E-08						5.60E-03	2.15E-03	1.66E+01	1.54E+00	1.99E-02	8.50E-03	1.25E-01
NFS0930	OR-DWAS-0099	1.65E-08	2.59E-08						1.13E-02	5.60E-03	3.46E+01	3.17E+00	4.37E-02	1.74E-02	2.56E-01
X10CC0506042	OR-DWAS-0130	6.27E-09	9.86E-09	4.00E-08						3.70E-04	7.70E-01	7.54E-02	8.43E-04	1.03E-03	2.04E-03
X10CC0506044	OR-DWAS-0130	1.08E-08	1.68E-08								2.00E-01	2.59E-02	3.99E-04		2.06E-03
X10CC0506057	OR-DWAS-0130	6.26E-09	9.86E-09	7.79E-08						2.39E-04	4.97E-01	4.86E-02	5.43E-04	6.87E-04	1.89E-03
X10CC0506084	OR-DWAS-0131	8.28E-09	1.30E-08							1.82E-04	3.37E-01	3.30E-02	3.69E-04	4.53E-04	4.15E-03
X10CC0506086	OR-DWAS-0130	9.25E-09	1.46E-08							1.47E-04	7.53E-01	1.29E-01	4.84E-04	1.09E-03	3.39E-03
X10CC0506089	OR-DWAS-0120	6.19E-09	9.74E-09							1.47E-05	6.79E-01	8.80E-02	8.70E-04	3.28E-04	6.03E-03
X10CC0506070	OR-DWAS-0126	6.84E-09	1.09E-08	6.97E-08					1.18E-03	1.01E-04	2.86E+00	2.26E-01	2.87E-03	1.12E-03	1.04E-02
		7.59E-07	1.10E-06	7.36E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E-01	1.46E-01	8.37E+02	7.80E+01	1.08E+00	4.29E-01	6.37E+00
	9.22E+02	9.22E+02	9.22E+02	9.22E+02	9.22E+02	9.22E+02	9.22E+02	9.22E+02	9.22E+02	9.22E+02	9.22E+02	9.22E+02	9.22E+02	9.22E+02	9.22E+02
	WT%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.02%	90.86%	8.24%	0.12%	0.05%	0.69%

SUPPORTING DOCUMENTATION

NDA Isotopic Weight Percent Rollup
OR-NFS-CH-SOIL
Lots 1 Thru 5

Sr-90	Cs-137	U-232	U-233	U-234	U-235	U-238	Np-237	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	Am-241
3.02E-06	3.54E-06	8.12E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.35E-01	4.63E-01	2.66E+03	2.42E+02	3.43E+00	1.39E+00	2.02E+01
2.93E+03	2.93E+03	2.93E+03	2.93E+03	2.93E+03	2.93E+03	2.93E+03	2.93E+03	2.93E+03	2.93E+03	2.93E+03	2.93E+03	2.93E+03	2.93E+03
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.02%	90.83%	8.27%	0.12%	0.05%	0.69%

DIVIDER

PAGE

Washington
TRU Solutions LLC

CP:10:01048
UFC:5900.00

INTER-OFFICE CORRESPONDENCE

DATE: January 25, 2010

FROM: R. P. Kantrowitz R.P.K. LOCATION: Certification

TO: CCP Records Custodian GSA-212 LOCATION: Retrieval, Characterization and Transportation

SUBJECT: TRANSMITTAL OF OAK RIDGE NATIONAL LABORATORY CHARACTERIZATION INFORMATION SUMMARIES FOR WASTE STREAM #OR-NFS-CH-SOIL, LOT 2, LOT 3, LOT 4, LOT 5, LOT 6, LOT 7, LOT 8, LOT 9, AND LOT 10

Please accept the attached Oak Ridge National Laboratory Characterization Information Summaries to be placed in records for Waste Stream #OR-REDC-CH-HET, Lot 2, Lot 3, Lot 4, Lot 5, Lot 6, Lot 7, Lot 8, Lot 9, and Lot 10.

RPK:jmc

Attachment

cc: (without attachment)
M. Pearcy ED
W. Weyerman ED

ORIGINAL

CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-NFS-CH-SOIL

Lot 5

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CCP Characterization Information Summary Cover Page

Waste Stream # OR-NFS-CH-SOIL Lot #: 5

AK Expert Review: N/A Date: N/A

SPM Review: Candice Weston Date: 12/16/2009

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Radiography (RTR/NDE):

CCP-TP-053	Rev. 7	10/21/09	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 6	03/04/08	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 5	11/16/06	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Non Destructive Assay (NDA):

CCP-TP-166	Rev. 2	12/05/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 1	06/19/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 0	10/12/07	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-168	Rev. 3	11/17/09	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 2	12/02/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 1	11/17/08	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-168	Rev. 0	10/18/07	CCP DWAS IPAN/SGS Data Generation Level Validation
CCP-TP-169	Rev. 2	11/18/09	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-169	Rev. 1	06/19/08	CCP Operating the Mobile Segmented Gamma Scanner
CCP-TP-169	Rev. 0	10/12/07	CCP Operating the Mobile Segmented Gamma Scanner

Solids Sampling:

INST-OI-73	Rev. 4	04/07/09	Manual Drum Coring Operations
INST-OI-73	Rev. 3	07/24/08	Manual Drum Coring Operations
INST-OI-16	Rev. 30	04/07/09	Drum Coring Operations
INST-OI-16	Rev. 29	07/03/08	Drum Coring Operations

Solids Analysis:

CCP-TP-180	Rev. 1	06/24/09	CCP Analytical Sample Management
CCP-TP-180	Rev. 0	05/02/07	CCP Analytical Sample Management
CCP-TP-181	Rev. 0	05/02/07	CCP Determination of Mercury by CVAA for TRU Waste Characterization
CCP-TP-182	Rev. 1	01/26/09	CCP Determination of Metals by ICP-AES for TRU Waste Characterization
CCP-TP-182	Rev. 0	05/02/07	CCP Determination of Metals by ICP-AES for TRU Waste Characterization
CCP-TP-183	Rev. 0	05/02/07	CCP Microwave Assisted Digestion of Homogeneous Solids and Soil/Gravel
CCP-TP-184	Rev. 0	05/02/07	CCP Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-185	Rev. 1	11/18/08	CCP Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-186	Rev. 1	08/22/07	CCP Determination of Nonhalogenated Volatile Organic Compunds by Gas Chromatography
CCP-TP-187	Rev. 1	11/18/08	CCP Sample Preparation for Semivolatile Organic Compounds
CCP-TP-188	Rev. 1	06/19/09	CCP Analytical Data Recording, Review, and Reporting
CCP-TP-188	Rev. 0	05/02/07	CCP Analytical Data Recording, Review, and Reporting

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 21	08/24/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 20	06/18/08	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 19	12/22/06	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 16	10/02/07	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 26	05/27/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 25	01/22/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 24	08/20/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/07	CCP CH TRU Waste Certification and WWIS Data Entry

CIS-002

CCP Characterization Information Summary Cover Page

WAP Certification:

CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 20	11/02/07	CCP Transuranic Waste Certification Plan
CCP-PO-027	Rev. 0	10/02/07	CCP/TWPC/ORNL Interface Document

CIS-003

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-NFS-CH-SOIL Lot # 5

Container ID Number	NDA BDR	NDE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes	Transportation Headspace Gas BDR*	
NFS0146	OR-DWAS-0121	OR-RTR6-0103	N/A	N/A		OR08FG4028	
~~NFS0154~~	~~OR-DWAS-0121~~	~~OR-RTR6-0103~~	~~N/A~~	~~N/A~~		~~OR08FG4028~~	RK 1/6/10
NFS0198	OR-DWAS-0126	OR-RTR6-0103	N/A	N/A		OR08FG4044	
NFS0438	OR-DWAS-0126	OR-RTR6-0103	N/A	N/A		OR08FG4044	
NFS0537	OR-DWAS-0121	OR-RTR6-0103	N/A	N/A		OR08FG4028	
NFS0716	OR-DWAS-0099	OR-RTR6-0076	N/A	N/A		OR08FG4055	
NFS0717	OR-DWAS-0120	OR-RTR6-0098	N/A	N/A		OR08FG4042	
NFS0718	OR-DWAS-0109	OR-RTR6-0092	N/A	N/A		OR08FG4057	
NFS0719	OR-DWAS-0128	OR-RTR6-0094	N/A	N/A		OR08FG4047	
NFS0720	OR-DWAS-0128	OR-RTR6-0094	N/A	N/A		OR08FG4044	
NFS0721	OR-DWAS-0126	OR-RTR6-0100	N/A	N/A		OR08FG4050	
NFS0722	OR-DWAS-0110	OR-RTR6-0092	N/A	N/A		OR08FG4030	
NFS0723	OR-DWAS-0119	OR-RTR6-0101	N/A	N/A		OR08FG4041	
NFS0726	OR-DWAS-0114	OR-RTR6-0096	N/A	N/A		OR08FG4057	
NFS0728	OR-DWAS-0126	OR-RTR6-0103	N/A	N/A		OR08FG4044	
NFS0729	OR-DWAS-0115	OR-RTR6-0099	N/A	N/A		OR08FG4059	
NFS0730	OR-DWAS-0128	OR-RTR6-0104	N/A	N/A		OR08FG4044	
NFS0731	OR-DWAS-0115	OR-RTR6-0099	N/A	N/A		OR08FG4058	
NFS0735	OR-DWAS-0111	OR-RTR6-0094	N/A	N/A		OR08FG4056	
NFS0736	OR-DWAS-0116	OR-RTR6-0100	N/A	N/A		OR08FG4059	
NFS0742	OR-DWAS-0129	OR-RTR6-0077	N/A	N/A		OR08FG4051	
NFS0743	OR-DWAS-0105	OR-RTR6-0090	N/A	N/A		OR08FG4057	
NFS0744	OR-DWAS-0111	OR-RTR6-0092	N/A	N/A		OR08FG4028	
NFS0745	OR-DWAS-0111	OR-RTR6-0093	N/A	N/A		OR08FG4028	
NFS0748	OR-DWAS-0129	OR-RTR6-0077	N/A	N/A		OR08FG4051	
NFS0750	OR-DWAS-0099	OR-RTR6-0080	N/A	N/A		OR08FG4055	
NFS0751	OR-DWAS-0120	OR-RTR6-0100	N/A	N/A		OR08FG4047	
NFS0760	OR-DWAS-0126	OR-RTR6-0104	N/A	N/A		OR08FG4047	
NFS0761	OR-DWAS-0129	OR-RTR6-0081	N/A	N/A		OR08FG4048	
NFS0762	OR-DWAS-0129	OR-RTR6-0078	N/A	N/A		OR08FG4051	
NFS0764	OR-DWAS-0115	OR-RTR6-0099	N/A	N/A		OR08FG4058	
NFS0768	OR-DWAS-0117	OR-RTR6-0101	N/A	N/A		OR08FG4059	
NFS0769	OR-DWAS-0116	OR-RTR6-0100	N/A	N/A		OR08FG4059	
NFS0770	OR-DWAS-0116	OR-RTR6-0100	N/A	N/A		OR08FG4059	
NFS0771	OR-DWAS-0128	OR-RTR6-0096	N/A	N/A		OR08FG4051	
NFS0773	OR-DWAS-0110	OR-RTR6-0092	N/A	N/A		OR08FG4030	
NFS0774	OR-DWAS-0088	OR-RTR6-0073	N/A	N/A		OR08FG4053	
NFS0778	OR-DWAS-0116	OR-RTR6-0099	N/A	N/A		OR08FG4059	
NFS0780	OR-DWAS-0111	OR-RTR6-0093	N/A	N/A		OR08FG4028	
NFS0781	OR-DWAS-0098	OR-RTR6-0080	N/A	N/A		OR08FG4056	
NFS0791	OR-DWAS-0082	OR-RTR6-0071	N/A	N/A		OR08FG4024	
NFS0795	OR-DWAS-0116	OR-RTR6-0100	N/A	N/A		OR08FG4059	
NFS0797	OR-DWAS-0128	OR-RTR6-0093	N/A	N/A		OR08FG4047	
NFS0801	OR-DWAS-0116	OR-RTR6-0099	N/A	N/A		OR08FG4059	
NFS0803	OR-DWAS-0129	OR-RTR6-0077	N/A	N/A		OR08FG4051	
NFS0810	OR-DWAS-0118	OR-RTR6-0101	N/A	N/A		OR08FG4028	
NFS0812	OR-DWAS-0126	OR-RTR6-0101	N/A	N/A		OR08FG4047	
~~NFS0815~~	~~OR-DWAS-0083~~	~~OR-RTR6-0071~~	~~N/A~~	~~N/A~~		~~OR08FG4026~~	(1) RK 3/22/10
NFS0818	OR-DWAS-0126	OR-RTR6-0104	N/A	N/A		OR08FG4047	
NFS0820	OR-DWAS-0090	OR-RTR6-0075	N/A	N/A		OR08FG4054	
NFS0825	OR-DWAS-0119	OR-RTR6-0100	N/A	N/A		OR08FG4041	
NFS0828	OR-DWAS-0111	OR-RTR6-0093	N/A	N/A		OR08FG4028	
NFS0829	OR-DWAS-0110	OR-RTR6-0092	N/A	N/A		OR08FG4030	
NFS0836	OR-DWAS-0110	OR-RTR6-0092	N/A	N/A		OR08FG4030	
NFS0837	OR-DWAS-0109	OR-RTR6-0092	N/A	N/A		OR08FG4057	

(1) per NCR-ORNL-0509-10 RK 3/22/10

CIS-004

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-NFS-CH-SOIL Lot # 5

Container ID Number	NDA BDR	NDE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes	Transportation Headspace Gas BDR*
NFS0841	OR-DWAS-0129	OR-RTR6-0078	N/A	N/A		OR08FG4053
NFS0842	OR-DWAS-0083	OR-RTR6-0071	N/A	N/A		OR08FG4026
NFS0846	OR-DWAS-0098	OR-RTR6-0080	N/A	N/A		OR08FG4056
NFS0848	OR-DWAS-0126	OR-RTR6-0105	N/A	N/A		OR08FG4044
NFS0851	OR-DWAS-0126	OR-RTR6-0104	N/A	N/A		OR08FG4057
NFS0852	OR-DWAS-0112	OR-RTR6-0093	N/A	N/A		OR08FG4057
NFS0867	OR-DWAS-0089	OR-RTR6-0074	N/A	N/A		OR08FG4053
NFS0923	OR-DWAS-0083	OR-RTR6-0071	N/A	N/A		OR08FG4024
NFS0924	OR-DWAS-0119	OR-RTR6-0098	N/A	N/A		OR08FG4041
NFS0925	OR-DWAS-0121	OR-RTR6-0103	N/A	N/A		OR08FG4028
NFS0930	OR-DWAS-0099	OR-RTR6-0076	N/A	N/A		OR08FG4055
X10C0506042	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4048
X10C0506044	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4048
X10C0506057	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4039
X10C0506064	OR-DWAS-0131	OR-RTR6-0111	N/A	N/A		OR08FG4039
X10C0506066	OR-DWAS-0130	OR-RTR6-0111	N/A	N/A		OR08FG4051
~~X10C0506069~~	~~OR-DWAS-0120~~	~~OR-RTR6-0103~~	~~N/A~~	~~N/A~~		~~OR08FG4041~~ (1) RL 3/22/10
X10C0506070	OR-DWAS-0126	OR-RTR6-0103	N/A	N/A		OR08FG4044

*Containers in waste stream OR-NFS-CH-SOIL are not expected to exceed a total flammable volatile organic compound concentration of greater than or equal to 500 ppm.

Signature of Site Project Manager

Candice Weston
Printed Name

12/16/2009
Date

(1) per NCR-ORNL-0509-10 RK 3/22/10

CIS-005

CCP Solids Analysis VOC UCL_{90} Evaluation Form

CES-006

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Bromoform	No	0	5	0.09	0.09	0.00	0.09	10	N/A		
Carbon Disulfide	No	0	5	0.27	0.26	0.01	0.27	10	N/A		
Carbon Tetrachloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Chlorobenzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Chloroform	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,2-Dichloroethane	Log	0	5	-1.71	-1.75	0.03	-1.72	10	2.30		
1,1-Dichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
trans-1,2-Dichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Ethyl benzene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Methylene chloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2,2-Tetrachloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Tetrachloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Toluene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,1-Trichloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2-Trichloroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Trichloroethylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Trichlorofluoromethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Vinyl chloride	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
m,p-Xylene[d]	No	0	5	0.27	0.26	0.01	0.27	10	N/A		
o-Xylene	No	0	5	0.18	0.17	0.01	0.18	10	N/A		
Acetone	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Butanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Ethyl ether	No	0	2	1.05	1.05	0.00	1.05	100	N/A		
Isobutanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		

CCP Solids Analysis VOC UCL_{90} Evaluation Form

CIS-007

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Methanol	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Methyl ethyl ketone	No	0	2	0.55	0.55	0.00	0.55	100	N/A		
Pyradine	No	0	2	1.05	1.05	0.00	1.05	100	N/A		
1,2-Dichlorobenzene[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Formaldehyde[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Hydrazine[b]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

[a] Required only for homogenous solids and soil/gravel waste from the Savannah River Site.

[b] Required only for homogenous solids and soil/gravel waste generated at Oak Ridge National Laboratory and Savannah River Site. OR-NFS-CH-SOIL was generated at the NFS site, located in Erwin Tennessee, and only stored and characterized at ORNL.

[c] Can also be analyzed as an SVOC. If analyzed as an SVOC, the QAO's of CCP-TP-001, Table B3-6 apply.

[d] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Candice Weston
Printed Name

12/16/2009
Date

CCP Solids Analysis SVOC UCL_{90} Evaluation Form

CTS-008

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
2-Methylphenol (cresols)	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
3&4 -Methylphenol (cresols)	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
1,4-Dichlorobenzene [a]	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
1,2-Dichlorobenzene [a]	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
2,4-Dinitrophenol	No	0	5	0.20	0.12	0.04	0.15	40	N/A		
2,4-Dinitrotoluene	No	0	5	0.30	0.18	0.07	0.23	2.6	N/A		
Hexachlorobenzene	No	0	5	0.30	0.18	0.07	0.23	2.6	N/A		
Hexachloroethane	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
Nitrobenzene	No	0	5	0.40	0.24	0.09	0.30	40	N/A		
Pentachlorophenol	No	0	5	0.40	0.24	0.09	0.30	40	N/A		

[a] Can also be analyzed as a VOC. If analyzed as a VOC, the QAO's of CCP-TP-001, Table B3-4 apply.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Candice Weston
Printed Name

12/16/2009
Date

CCP Solids Analysis Metals UCL_{90} Evaluation Form

CTS-009

WSPF #: OR-NFS-CH-SOIL **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Antimony	No	2	5	1.40	0.86	0.49	1.20	100	N/A		
Arsenic	SQRT	5	5	2.17	1.75	0.32	1.97	100	10.00		
Barium	No	5	5	170.00	132.00	31.14	153.36	2000	N/A		
Beryllium	No	5	5	0.76	0.69	0.09	0.76	100	N/A		
Cadmium	Log	2	5	-1.02	-2.38	0.90	-1.77	20	3.00		
Chromium	No	5	5	39.00	37.20	2.39	38.84	100	N/A		
Lead	Log	5	5	2.83	2.42	0.27	2.61	100	4.61		
Mercury	Log	5	5	-2.30	-2.48	0.12	-2.40	4	1.39		
Nickel	No	5	5	19.00	17.40	1.67	18.55	100	N/A		
Selenium	No	0	5	0.35	0.35	0.00	0.35	20	N/A		
Silver	No	0	5	0.30	0.30	0.00	N/A[2]	100	N/A		
Thallium	No	3	5	1.10	0.70	0.35	0.93	100	N/A		
Vanadium	No	5	5	60.00	53.40	6.27	57.70	100	N/A		
Zinc	Log	5	5	4.23	3.91	0.20	4.05	100	4.61		

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) Due to all five sample results being the same numeric value, the statistic package is unable to calculate a UCL_{90}.

Signature of Site Project Manager

Candice Weston
Printed Name

12/16/2009
Date

CCP Solid VOCs Summary Data

Waste Stream Number OR-NFS-CH-SOIL Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	NA	NA	NA

Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature Tamara Wentz Date 12/16/2009

CIS-010

CCP Solid SVOCs Summary Data

Waste Stream Number OR-NFS-CH-SOIL Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	NA	NA	NA

Data Supports EPA Hazardous Waste Numbers Assigned by AK? Yes ☑ No ☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature [signature] Date 12/16/2009

CIS-011

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-NFS-CH-SOIL Lot #: 5

Container Number	RTR Prohibited Items [a]	Visual Examination Prohibited Items [a]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	None of the containers in this lot had prohibited items identified during RTR.	None of the containers in this lot were processed using Visual Examination technique.

a. See Batch Data Reports

Candice Weston
Site Project Manager Signature

Candice Weston
Printed Name

12/16/2009
Date

CIS-012

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 5

Sampling Completeness

RTR:
Number of Valid Samples: 73 Number of Total Samples Analyzed: 73
Percent Complete: 100 (QAO is 100%)

NDA
Number of Valid Samples: 73 Number of Total Samples Analyzed: 73
Percent Complete: 100 (QAO is 100%)

HSG
Number of Valid Samples: NA Number of Total Samples Collected: NA
Percent Complete: NA (QAO is ≥90%)
Number of Valid Samples: NA Number of Total Samples Analyzed: NA
Percent Complete: NA (QAO is ≥90%)

Total VOC
Number of Valid Samples: 5 Number of Total Samples Collected: 5
Percent Complete: 100 (QAO is ≥90%)
Number of Valid Samples: 5 Number of Total Samples Analyzed: 5
Percent Complete: 100 (QAO is ≥90%)

Total SVOC
Number of Valid Samples: 5 Number of Total Samples Collected: 5
Percent Complete: 100 (QAO is ≥90%)
Number of Valid Samples: 5 Number of Total Samples Analyzed: 5
Percent Complete: 100 (QAO is ≥90%)

Total Metals
Number of Valid Samples: 5 Number of Total Samples Collected: 5
Percent Complete: 100 (QAO is ≥90%)
Number of Valid Samples: 5 Number of Total Samples Analyzed: 5
Percent Complete: 100 (QAO is ≥90%)

CIS-013

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 5

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	NA	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP-TP003 Attachment 3, and additional U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	Y	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 4, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7b	Y	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 5, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7c	Y	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 6, and additional EPA HWNs were assigned as required. Samples were randomly collected.

CIS-014

CCP Reconciliation with Data Quality Objectives

WSPF# OR-NFS-CH-SOIL Lot # 5

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	NA	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the QAPjP.
13	NA	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	NA	NA	NA
Headspace Gas Analysis	NA	NA	NA
Solids Sampling	Y	Y	Y
Solids VOCs	Y	Y	Y
Solids SVOCs	Y	Y	Y
Solids Metals	Y	Y	Y

Comments:
None

Signature of Site Project Manager | Candice Weston (Printed Name) | 12/16/2009 (Date)

CIS-015

DIVIDER PAGE

CCP Waste Stream Characterization Checklist

Site(s): ORNL

Waste Stream Number: OR-ISTP-CH-HET Lot # (if applicable) 2

Waste Stream Description: Heterogeneous Debris

Acceptable Knowledge Information or other data points[a]	Characterization Method(s)	Acceptable Knowledge Re-evaluation Required? Yes/No[b]?	Comments[c]
Physical waste form/description	NDE/VE	No	RTR/VE Data Sheets indicate consistency with Attachment 6 of CCP-TP-005.
Waste material parameters weights	NDE/VE	No	RTR/VE Data Sheets indicate consistency with CCP-AK-ORNL-008, Table 5-1. See additional attached sheets.
Waste percent volume consistent with nondestructive examination or visual examination data and audio/video tapes or equivalent media	NDE/VE	No	RTR/VE Data sheets indicate consistency with CCP-AK-ORNL-008. See additional attached sheets.
Summary category group assignment	NDE/VE	No	Summary Category group S5000 is consistent with RTR/VE Data sheets.
Waste matrix code assignment	NDE/VE	No	The waste in this lot is comprised of greater than 50% heterogeneous inorganic and organic debris by volume and weight. All individual containers in this lot meet this criteria. This is consistent with the S5400 Waste Matrix Code assignment based on AK.
Absence of prohibited items	NDE/VE	No	RTR/VE did not identify any prohibited items.
Tentatively identified compounds[d]	HSG Analysis	No	No TICs in this waste stream have exceeded 25% of the samples for the entire waste stream.
EPA Hazardous Waste Number assignment [e]	HSG Analysis	No [f]	Characterization results consistent with Section 5 of CCP-AK-ORNL-008.

CCP RECORDS ORIGINAL
DATE REC'D 10/10/11

CCP Waste Stream Characterization Checklist

Site(s): ORNL

Waste Stream Number: OR-ISTP-CH-HET Lot # (if applicable) 2

Waste Stream Description: Heterogeneous Debris

Acceptable Knowledge Information or other data points[a]	Characterization Method(s)	Acceptable Knowledge Re-evaluation Required? Yes/No[b]?	Comments[c]
Toxicity characteristic code assignment	HSG Analysis	No	Consistent with CCP Headspace Gas UCL_{90} Evaluation form.
UCL_{90} > PRQL?	HSG Analysis	No [f]	Verified using CCP Headspace Gas UCL_{90} evaluation form. The UCL_{90} for methanol exceeded the PRQL. However, no re-evalaution will be required (see footnote "f" for details). None of the other listed analytes have UCL_{90} values > PRQL values, using transformed and Non-Transformed values for comparison where applicable.
VOCs from packaging materials or radiolysis present	HSG Analysis	No	CCP-TP-005 Attachment 5 does not identify any VOCs associated with packaging or radiolysis.
State Hazardous Waste Number assignment	HSG Analysis	No	No additional State Hazardous Waste codes are identified in CCP-TP-005 attachment 5.
Radionuclides present	NDA	No	See Additional Comments section and additional sheets attached.
Other radiological parameters: (specify)	NDA	No	No additional radiological parameters identified.

CCP Waste Stream Characterization Checklist

Site(s): ORNL

Waste Stream Number: OR-ISTP-CH-HET Lot # (if applicable) 2

Waste Stream Description: Heterogeneous Debris

Additional Comments:

- AK identifies Th-232 and U-238 as the two most prevalent isotopes, by weight, in the waste stream at 40.9% and 25.5% respectively. For the NDA data associated with this Lot, U-238 and Pu-239 are the two most prevalent isotopes at 76.47% and 14.30%, respectively, while Th-232 was not identified in any container. The two most prevalent isotopes in this waste stream are U-238 and Pu-239 at 73.23% and 14.27%.
- This data does not compare favorably with AK. Th-232 is reported in only four drums (0.7% of the drum population). At this time, there is not enough data to request an AK re-evaluation.

a. Identified in the AK Summary Report or included in the in-process record documentation (e.g., BDR's).
b. If "yes," AK Expert completes an *Acceptable Knowledge Re-evaluation Checklist.*
c. Identify the source of the waste characterization information (e.g., batch data report).
d. Tentatively Identified Compounds identified in the Headspace Gas Summary Report were identified on the Hazardous Constituent List, Attachment 5.
e. Ensure that, if a toxicity characteristic contaminant is identified, it is not included as a listed waste, and if analytical data regarding the concentration are not available, the corresponding EPA Hazardous Waste Code is applied.
f. The UCL_{90} for methanol exceeded the PRQL in the non-transform data set. This triggered an evaluation of the EPA Hazardous Waste Code. Per Section 5.0 of CCP-AK-ORNL-008, methanol is a F003-listed solvent which was identified as potentially present in this waste stream as a contaminant of debris waste. However, F003-listed waste is listed solely for ignitability, and waste would only exhibit the characteristic of ignitability if the solvents were in liquid form. The EPA Hazardous Waste Number F003 is not assigned to this waste stream for methanol because the waste is not liquid and is; therefore, not ignitable. This is consistent acceptable knowledge so no acceptable knowledge re-evaluation is required.

Site Project Manager:

Candice Weston — Print

Sign

08/23/11 — Date:

Acceptable Knowledge Expert:

JEFF HARRISON — Print

Sign

8/29/2011 — Date:

CCP Headspace Gas UCL_{90} Evaluation Form

SUPPORTING DOCUMENTATION

WSPF #: OR-ISTP-CH-HET **Waste Stream Headspace Gas Lot Number** 1 through 2

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL [1]	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Acetone	No	9	12	4.5000	2.0254	1.6118	2.6598	100	N/A		
Benzene	Log	4	12	-1.2730	-3.1611	0.7710	-2.8576	2.3026	2.3026		
Bromoform	Log	0	12	-4.6052	-4.8280	0.1017	-4.7880	2.3026	2.3026		
Butanol	Log	3	12	0.0000	-2.5999	1.0042	-2.2046	4.6052	4.6052		
Carbon Disulfide [e]	Log	8	12	-0.5447	-2.3203	1.2060	-1.8456	2.3026	2.3026		
Carbon Tetrachloride	Log	0	12	-4.2336	-4.4163	0.0893	-4.3811	2.3026	2.3026		
Chlorobenzene	Log	0	12	-3.7723	-3.9740	0.0922	-3.9377	2.3026	2.3026		
Chloroform	Log	0	12	-3.4900	-3.6931	0.0944	-3.6560	2.3026	2.3026		
Chloromethane [e]	Log	5	12	1.8245	-2.5181	1.6593	-1.8650	2.3026	2.3026		
Cyclohexane [e]	Log	0	12	-3.2702	-3.4713	0.0945	-3.4341	2.3026	2.3026		
1,1-Dichloroethane	Log	0	12	-3.9373	-4.1419	0.0931	-4.1053	2.3026	2.3026		
1,2-Dichloroethane	Log	0	12	-3.3104	-3.5207	0.0958	-3.4830	2.3026	2.3026		
1,1-Dichloroethylene	Log	0	12	-3.9373	-4.1502	0.0979	-4.1117	2.3026	2.3026		
cis-1,2-Dichloroethylene [e]	Log	0	12	-3.2442	-3.4543	0.0957	-3.4166	2.3026	2.3026		
trans-1,2-Dichloroethylene	Log	0	12	-3.3962	-3.5979	0.0948	-3.5606	2.3026	2.3026		
1,2-Dichloropropane [e]	Log	0	12	-3.7508	-3.9591	0.0969	-3.9209	2.3026	2.3026		
Ethyl benzene	Log	2	12	-1.8971	-3.7839	0.7865	-3.4744	2.3026	2.3026		
Ethyl Ether	Log	0	12	-3.8632	-4.0741	0.0958	-4.0364	2.3026	2.3026		
Methanol	No	7	12	220.0000	84.7500	72.7285	113.3751	100	N/A	Yes	(2)
Methyl Ethyl Ketone	Log	9	12	1.0986	-1.9307	1.6077	-1.2980	4.6052	4.6052		
Methyl Isobutyl Ketone	Log	4	12	-3.0159	-3.6977	0.3742	-3.5504	4.6052	4.6052		
Methylene Chloride	Log	1	12	-1.8971	-3.3482	0.4671	-3.1644	2.3026	2.3026		
1,1,2,2-Tetrachloroethane	Log	0	12	-4.2336	-4.4447	0.0951	-4.4073	2.3026	2.3026		
Tetrachloroethylene	Log	0	12	-3.8632	-4.0666	0.0941	-4.0295	2.3026	2.3026		
Toluene	Log	10	12	2.2618	-1.1880	1.7958	-0.4812	2.3026	2.3026		
1,1,1-Trichloroethane	Log	0	12	-4.1352	-4.3312	0.0947	-4.2939	2.3026	2.3026		
Trichoroethylene	Log	0	12	-3.9373	-4.1502	0.0979	-4.1117	2.3026	2.3026		
Trichlorofluoromethane [e]	Log	0	12	-3.3814	-3.5935	0.0968	-3.5554	2.3026	2.3026		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	0	12	-4.0745	-4.2763	0.0984	-4.2376	2.3026	2.3026		

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-ISTP-CH-HET

Waste Stream Headspace Gas Lot Number 1 through 2

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL [1]	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
1,3,5-Trimethylbenzene[a]	Log	1	12	-2.2073	-3.9640	0.5578	-3.7445	2.3026	2.3026		
1,2,4-Trimethylbenzene[a]	Log	1	12	-0.9943	-3.6610	0.8429	-3.3293	2.3026	2.3026		
m/p-Xylene[b]	Log	1	12	-1.9661	-3.5122	0.4963	-3.3168	2.3026	2.3026		
o-Xylene	Log	2	12	-2.6593	-3.4424	0.3288	-3.3130	2.3026	2.3026		
Formaldehyde[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hydrazine[d]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SUPPORTING DOCUMENTATION

[a] These compounds are from CCP-PO-003, CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC) and are flammable VOCs that do not appear in CCP-PO-001. These are not part of the target analyte list, but samples may be analyzed for these compounds.

[b] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

[c] Required only for homogenous solids and soil/gravel waste from Savannah River Site.

[d] Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

[e] These compounds are reported by the Laboratory and are included for completeness.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section C4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) EPA HWN F003 is not assigned to this waste stream for Methanol because the waste is not liquid and is therefore not ignitable. This is consistent with acceptable knowledge.

Signature of Site Project Manager	Candice Weston Printed Name	8/22/2011 Date

CCP Headspace Gas Summary Data

Waste Stream Number OR-ISTP-CH-HET Lot Number (s) 2

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
2-Methyl-1-propanol	1.00	1	9.09%

Data Supports EPA Hazardous Waste Numbers Assigned by AK? ☑ Yes ☐ No

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature _____ Date 8/22/2011

SUPPORTING DOCUMENTATION

RTR Data
OR-ISTP-CH-HET
Lot 2

SUPPORTING DOCUMENTATION

Batch Data Report No.	Container	Iron-based Metals (kg)	Aluminum-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Cellulosics (kg)	Rubber (kg)	Plastics (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Soils (kg)	Total Organic (kg)	Total Inorganic (kg)	Total Organic (L)	Total Inorganic (L)
X10C0501534	OR-RTR6-0342	19.5			3.0	1.5	0.6	7.2				9.3	22.5	9.9	5.2
X10C9311353A	OR-RTR6-0348	2.5	3.5		2.6	17.2		4.0				21.2	8.6	37.4	3.9
X10C9312003A	OR-RTR6-0350	130.0						2.6				2.6	130.0	2.4	16.7
X10C9312723A	OR-RTR6-0352	2.5	12.6		4.0	4.7		7.0				11.7	19.1	15.6	8.5
X10C0501524	OR-RTR6-0353	10.2	0.4		2.5	1.2	0.6	5.3				7.1	13.1	7.6	3.7
X10C0501650	OR-RTR6-0353	13.6	5.0		2.5	5.8		6.7				12.5	21.1	17.5	5.8
X10C9312805A	OR-RTR6-0354	8.3			2.5	2.5	7.5	4.0				14.0	10.8	13.5	3.3
X10C9311196A	OR-RTR6-0355	10.0			20.2	27.0		8.0				35.0	30.2	60.2	19.6
X10C9311252A	OR-RTR6-0355	5.0	2.5		2.5	23.3	1.5	5.0				29.8	10.0	51.2	3.8
X10C0501810	OR-RTR6-0359	2.5			2.6	4.0	5.2	4.0				13.2	5.1	14.9	2.7
X10C9311396A	OR-RTR6-0360	12.3		3.5	3.0			9.5				9.5	18.8	8.6	5.0
X10C9312096A	OR-RTR6-0362	983.0	2.0		2.5			12.0				12.0	987.5	10.9	129.0
X10C9312789A	OR-RTR6-0362	2.5	3.0		3.5	7.8		6.0				13.8	9.0	20.7	4.6
X10C9311517A	OR-RTR6-0362	67.3	3.5		10.0	15.0		12.0				27.0	80.8	40.3	19.0
X10C9311680A	OR-RTR6-0365	12.0		20.8				3.0				3.0	32.8	2.7	5.5
X10C9313025A	OR-RTR6-0365	22.0		2.0	4.0		1.8	4.0				5.8	28.0	4.8	6.8
X10C9602104L	OR-RTR6-0368	24.0		1.0	7.0	3.0		11.2				14.2	32.0	16.1	9.6
X10C9602104K	OR-RTR6-0368	19.2			3.0	2.0		5.0				7.0	22.2	8.5	5.2
X10C9313671A	OR-RTR6-0369	23.9			7.0	0.3		4.0				4.3	30.9	4.2	9.4
X10C9602104H	OR-RTR6-0369	31.2		0.6		3.0	1.2	10.0				14.2	31.8	15.8	4.1
X10C9602104F	OR-RTR6-0370	1.0			2.0	17.4		8.0				25.4	3.0	41.4	1.9
X10C9602104E	OR-RTR6-0370	20.6			2.0		0.2	8.0				8.2	22.6	7.4	4.5
X10C9602104Q	OR-RTR6-0371	36.0			4.0		2.0	5.0				7.0	40.0	5.9	8.3
X10C9312473A	OR-RTR6-0372	11.5			3.3	4.0		4.0				8.0	14.8	11.5	4.5
X10C9313670A	OR-RTR6-0372	2.5	8.3		2.0	21.0		15.0				36.0	12.8	54.8	5.1
X10C9313119A	OR-RTR6-0372	121.8	5.0			9.7	0.3	2.0				12.0	126.8	21.0	17.4
X10C9312642B	OR-RTR6-0373	1.6	3.0			5.0	0.4	8.6				14.0	4.6	17.9	1.3
X10C9312642A	OR-RTR6-0378	3.0	4.0			18.8		4.0				22.8	7.0	40.5	1.8
X10C9312387C	OR-RTR6-0380	94.8						2.0				2.0	94.8	1.8	12.2
X10C9400202A	OR-RTR6-0380	12.0			10.0	0.3	0.5	14.0				14.8	22.0	13.6	10.6
X10C9311364A	OR-RTR6-0380	18.5			10.0	2.0	0.5	8.0				10.5	28.5	11.5	11.5
X10C9312174A	OR-RTR6-0380	8.0		0.2	12.0	3.0	1.3	11.3				15.6	20.2	17.0	12.0
X10C9602104U	OR-RTR6-0382	44.6			3.0	0.4	0.5	3.5				4.4	47.6	4.3	8.4
X10C9312100A	OR-RTR6-0391	60.8			2.0			8.0				8.0	62.8	7.3	9.6
X10C9313063A	OR-RTR6-0392	42.5	2.0		1.5	4.0		7.0				11.0	46.0	14.2	7.5
X10C9313102A	OR-RTR6-0393	30.4			5.0			3.0				3.0	35.4	2.7	8.4

RTR Data
OR-ISTP-CH-HET
Lot 2

SUPPORTING DOCUMENTATION

Batch Data Report No.	Container	Iron-based Metals (kg)	Aluminum-based Metals (kg)	Other Metals (kg)	Other Inorganics (kg)	Cellulosics (kg)	Rubber (kg)	Plastics (kg)	Organic Matrix (kg)	Inorganic Matrix (kg)	Soils (kg)	Total Organic (kg)	Total Inorganic (kg)	Total Organic (L)	Total Inorganic (L)
X10C9400031A	OR-RTR6-0393	17.0			4.5			5.0				5.0	21.5	4.5	6.3
X10C9311558A	OR-RTR6-0393	31.4			3.5			4.5				4.5	34.9	4.1	7.2
X10C9313065A	OR-RTR6-0393	32.3			0.5			2.5				2.5	32.8	2.3	4.6
X10C9311999A	OR-RTR6-0393	12.4			1.5	4.0		4.5				8.5	13.9	11.9	3.0
X10C9311757A	OR-RTR6-0395	50.0			4.5			6.0				6.0	54.5	5.5	10.5
X10C9313046B	OR-RTR6-0396	17.4		1.0	3.0		0.5	2.5				3.0	21.4	2.6	5.1
X10C9311285A	OR-RTR6-0397	1.5			3.0	8.0		11.5				19.5	4.5	26.1	2.9
X10C9312335A	OR-RTR6-0398	61.5			10.0	3.5		3.0				6.5	71.5	9.6	17.0
X10C9312716A	OR-RTR6-0398	40.2			5.0			2.5				2.5	45.2	2.3	9.7
X10C0401430A	OR-RTR6-0398	18.8			0.5	0.1	2.5	5.0				7.6	19.3	6.4	2.9
X10C9400038A	OR-RTR6-0398	38.7		8.0	12.0	0.1		4.0				4.1	58.7	3.8	17.4
X10C9313104A	OR-RTR6-0398	27.6			3.5			15.0				15.0	31.1	13.6	6.7
X10C9312946A	OR-RTR6-0398	33.6			1.0			1.5				1.5	34.6	1.4	5.2
X10C9312834A	ORVECH0050	124.8	0.4			3.0	1.1	6.7	10.0			20.8	125.2	21.0	16.1

RTR Data
OR-ISTP-CH-HET
Lot 2

SUPPORTING DOCUMENTATION

Batch Data Report No.	Container	Vol. % Organic	Vol. % Inorganic	Iron-based Metals Weight %	Aluminum-based Metals Weight %	Other Metals Weight %	Other Inorganics Weight %	Cellulosics Weight %	Rubber Weight %	Plastics Weight %	Organic Matrix Weight %	Inorganic Matrix Weight %	Soils Weight %
X10C0501534	OR-RTR6-0342	65.41%	34.59%	61.32%	0.00%	0.00%	9.43%	4.72%	1.89%	22.64%	0.00%	0.00%	0.00%
X10C9311353A	OR-RTR6-0348	90.47%	9.53%	8.39%	11.74%	0.00%	8.72%	57.72%	0.00%	13.42%	0.00%	0.00%	0.00%
X10C9312003A	OR-RTR6-0350	12.42%	87.58%	98.04%	0.00%	0.00%	0.00%	0.00%	0.00%	1.96%	0.00%	0.00%	0.00%
X10C9312723A	OR-RTR6-0352	64.82%	35.18%	8.12%	40.91%	0.00%	12.99%	15.26%	0.00%	22.73%	0.00%	0.00%	0.00%
X10C0501524	OR-RTR6-0353	67.03%	32.97%	50.50%	1.98%	0.00%	12.38%	5.94%	2.97%	26.24%	0.00%	0.00%	0.00%
X10C0501650	OR-RTR6-0353	75.06%	24.94%	40.48%	14.88%	0.00%	7.44%	17.26%	0.00%	19.94%	0.00%	0.00%	0.00%
X10C9312805A	OR-RTR6-0354	80.23%	19.77%	33.47%	0.00%	0.00%	10.08%	10.08%	30.24%	16.13%	0.00%	0.00%	0.00%
X10C9311196A	OR-RTR6-0355	75.40%	24.60%	15.34%	0.00%	0.00%	30.98%	41.41%	0.00%	12.27%	0.00%	0.00%	0.00%
X10C9311252A	OR-RTR6-0355	93.08%	6.92%	12.56%	6.28%	0.00%	6.28%	58.54%	3.77%	12.56%	0.00%	0.00%	0.00%
X10C0501810	OR-RTR6-0359	84.78%	15.22%	13.66%	0.00%	0.00%	14.21%	21.86%	28.42%	21.86%	0.00%	0.00%	0.00%
X10C9311396A	OR-RTR6-0360	63.50%	36.50%	43.46%	0.00%	12.37%	10.60%	0.00%	0.00%	33.57%	0.00%	0.00%	0.00%
X10C9312096A	OR-RTR6-0362	7.80%	92.20%	98.35%	0.20%	0.00%	0.25%	0.00%	0.00%	1.20%	0.00%	0.00%	0.00%
X10C9312789A	OR-RTR6-0362	81.94%	18.06%	10.96%	13.16%	0.00%	15.35%	34.21%	0.00%	26.32%	0.00%	0.00%	0.00%
X10C9311517A	OR-RTR6-0362	68.01%	31.99%	62.43%	3.25%	0.00%	9.28%	13.91%	0.00%	11.13%	0.00%	0.00%	0.00%
X10C9311680A	OR-RTR6-0365	33.30%	66.70%	33.52%	0.00%	58.10%	0.00%	0.00%	0.00%	8.38%	0.00%	0.00%	0.00%
X10C9313025A	OR-RTR6-0365	41.44%	58.56%	65.09%	0.00%	5.92%	11.83%	0.00%	5.33%	11.83%	0.00%	0.00%	0.00%
X10C9602104L	OR-RTR6-0368	62.52%	37.48%	51.95%	0.00%	2.16%	15.15%	6.49%	0.00%	24.24%	0.00%	0.00%	0.00%
X10C9602104K	OR-RTR6-0368	62.00%	38.00%	65.75%	0.00%	0.00%	10.27%	6.85%	0.00%	17.12%	0.00%	0.00%	0.00%
X10C9313671A	OR-RTR6-0369	30.94%	69.06%	67.90%	0.00%	0.00%	19.89%	0.85%	0.00%	11.36%	0.00%	0.00%	0.00%
X10C9602104H	OR-RTR6-0369	79.32%	20.68%	67.83%	0.00%	1.30%	0.00%	6.52%	2.61%	21.74%	0.00%	0.00%	0.00%
X10C9602104F	OR-RTR6-0370	95.51%	4.49%	3.52%	0.00%	0.00%	7.04%	61.27%	0.00%	28.17%	0.00%	0.00%	0.00%
X10C9602104E	OR-RTR6-0370	62.42%	37.58%	66.88%	0.00%	0.00%	6.49%	0.00%	0.65%	25.97%	0.00%	0.00%	0.00%
X10C9602104Q	OR-RTR6-0371	41.60%	58.40%	76.60%	0.00%	0.00%	8.51%	0.00%	4.26%	10.64%	0.00%	0.00%	0.00%
X10C9312473A	OR-RTR6-0372	71.95%	28.05%	50.44%	0.00%	0.00%	14.47%	17.54%	0.00%	17.54%	0.00%	0.00%	0.00%
X10C9313670A	OR-RTR6-0372	91.48%	8.52%	5.12%	17.01%	0.00%	4.10%	43.03%	0.00%	30.74%	0.00%	0.00%	0.00%
X10C9313119A	OR-RTR6-0372	54.73%	45.27%	87.75%	3.60%	0.00%	0.00%	6.99%	0.22%	1.44%	0.00%	0.00%	0.00%
X10C9312642B	OR-RTR6-0373	93.34%	6.66%	8.60%	16.13%	0.00%	0.00%	26.88%	2.15%	46.24%	0.00%	0.00%	0.00%
X10C9312642A	OR-RTR6-0378	95.71%	4.29%	10.07%	13.42%	0.00%	0.00%	63.09%	0.00%	13.42%	0.00%	0.00%	0.00%
X10C9312387C	OR-RTR6-0380	13.01%	86.99%	97.93%	0.00%	0.00%	0.00%	0.00%	0.00%	2.07%	0.00%	0.00%	0.00%
X10C9400202A	OR-RTR6-0380	56.22%	43.78%	32.61%	0.00%	0.00%	27.17%	0.82%	1.36%	38.04%	0.00%	0.00%	0.00%
X10C9311364A	OR-RTR6-0380	50.14%	49.86%	47.44%	0.00%	0.00%	25.64%	5.13%	1.28%	20.51%	0.00%	0.00%	0.00%
X10C9312174A	OR-RTR6-0380	58.71%	41.29%	22.35%	0.00%	0.56%	33.52%	8.38%	3.63%	31.56%	0.00%	0.00%	0.00%
X10C9602104U	OR-RTR6-0382	33.74%	66.26%	85.77%	0.00%	0.00%	5.77%	0.77%	0.96%	6.73%	0.00%	0.00%	0.00%
X10C9312100A	OR-RTR6-0391	43.07%	56.93%	85.88%	0.00%	0.00%	2.82%	0.00%	0.00%	11.30%	0.00%	0.00%	0.00%
X10C9313063A	OR-RTR6-0392	65.37%	34.63%	74.56%	3.51%	0.00%	2.63%	7.02%	0.00%	12.28%	0.00%	0.00%	0.00%
X10C9313102A	OR-RTR6-0393	24.42%	75.58%	79.17%	0.00%	0.00%	13.02%	0.00%	0.00%	7.81%	0.00%	0.00%	0.00%

RTR Data
OR-ISTP-CH-HET
Lot 2

SUPPORTING DOCUMENTATION

Batch Data Report No.	Container	Vol. % Organic	Vol. % Inorganic	Iron-based Metals Weight %	Aluminum-based Metals Weight %	Other Metals Weight %	Other Inorganics Weight %	Cellulosics Weight %	Rubber Weight %	Plastics Weight %	Organic Matrix Weight %	Inorganic Matrix Weight %	Soils Weight %
X10C9400031A	OR-RTR6-0393	42.03%	57.97%	64.15%	0.00%	0.00%	16.98%	0.00%	0.00%	18.87%	0.00%	0.00%	0.00%
X10C9311558A	OR-RTR6-0393	36.21%	63.79%	79.70%	0.00%	0.00%	8.88%	0.00%	0.00%	11.42%	0.00%	0.00%	0.00%
X10C9313065A	OR-RTR6-0393	33.09%	66.91%	91.50%	0.00%	0.00%	1.42%	0.00%	0.00%	7.08%	0.00%	0.00%	0.00%
X10C9311999A	OR-RTR6-0393	80.16%	19.84%	55.36%	0.00%	0.00%	6.70%	17.86%	0.00%	20.09%	0.00%	0.00%	0.00%
X10C9311757A	OR-RTR6-0395	34.19%	65.81%	82.64%	0.00%	0.00%	7.44%	0.00%	0.00%	9.92%	0.00%	0.00%	0.00%
X10C9313046B	OR-RTR6-0396	33.61%	66.39%	71.31%	0.00%	4.10%	12.30%	0.00%	2.05%	10.25%	0.00%	0.00%	0.00%
X10C9311285A	OR-RTR6-0397	89.95%	10.05%	6.25%	0.00%	0.00%	12.50%	33.33%	0.00%	47.92%	0.00%	0.00%	0.00%
X10C9312335A	OR-RTR6-0398	36.10%	63.90%	78.85%	0.00%	0.00%	12.82%	4.49%	0.00%	3.85%	0.00%	0.00%	0.00%
X10C9312716A	OR-RTR6-0398	18.98%	81.02%	84.28%	0.00%	0.00%	10.48%	0.00%	0.00%	5.24%	0.00%	0.00%	0.00%
X10C0401430A	OR-RTR6-0398	69.11%	30.89%	69.89%	0.00%	0.00%	1.86%	0.37%	9.29%	18.59%	0.00%	0.00%	0.00%
X10C9400038A	OR-RTR6-0398	18.07%	81.93%	61.62%	0.00%	12.74%	19.11%	0.16%	0.00%	6.37%	0.00%	0.00%	0.00%
X10C9313104A	OR-RTR6-0398	66.99%	33.01%	59.87%	0.00%	0.00%	7.59%	0.00%	0.00%	32.54%	0.00%	0.00%	0.00%
X10C9312946A	OR-RTR6-0398	20.72%	79.28%	93.07%	0.00%	0.00%	2.77%	0.00%	0.00%	4.16%	0.00%	0.00%	0.00%
X10C9312834A	ORVECH0050	56.59%	43.41%	85.48%	0.27%	0.00%	0.00%	2.05%	0.75%	4.59%	6.85%	0.00%	0.00%

Total Lot Weight %

Iron-based Metals Weight %	Aluminum-based Metals Weight %	Other Metals Weight %	Other Inorganics Weight %	Cellulosics Weight %	Rubber Weight %	Plastics Weight %	Organic Matrix Weight %	Inorganic Matrix Weight %	Soils Weight %
73.75%	1.68%	1.13%	5.85%	6.79%	0.86%	9.64%	0.30%	0.00%	0.00%

Total Lot % Volume

Organic	Inorganic
59.51%	40.49%

RTR Density Rollup Data Through Lot: 2
OR-ISTP-CH-HET

Waste Stream Waste Material Parameter Weight Percent									
Iron-based Metals	Aluminum-based Metals	Other Metals	Other Inorganics	Cellulosics	Rubber	Plastics	Organic Matrix	Inorganic Matrix	Soils
70.01%	1.95%	2.49%	6.37%	7.63%	1.01%	10.27%	0.27%	0.00%	0.00%

Waste Stream Organic/Inorganic Volume Percent	
Vol. % Organic	Vol. % Inorganic
61.25%	38.75%

SUPPORTING DOCUMENTATION

NDA Isotopic Mass (g) Percent
OR-ISTP-CH-HET
Lot 2

CONTAINERID	NDABDR	Sr-90	Cs-137	U-232	U-233	U-234	U-235	U-238	Np-237	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	Am-241
OR-IQ3-0118	X10C9311353A	6.88E-09	1.08E-08	4.29E-09					6.40E-03	7.02E-03	2.51E-01	3.72E-01	2.14E-02	1.73E-01	
OR-IQ3-0118	X10C9312723A	4.89E-10	7.69E-10	8.69E-09					8.33E-03	1.38E-02	4.28E-01	7.19E-01	5.49E-02	2.30E-01	1.83E-01
OR-IQ3-0119	X10C0501534	1.78E-08	2.80E-08	1.13E-08					1.18E-01		5.69E-01	1.75E+00	1.53E-02		2.22E-02
OR-IQ3-0120	X10C0501524	1.60E-09	2.51E-09	3.04E-09						1.99E-04	6.63E-03				8.63E-06
OR-IQ3-0125	X10C0501650	1.36E-09	2.14E-09	5.29E-08					1.35E-03	2.52E-04	5.29E-01	3.28E-02	2.16E-03	7.30E-04	1.52E-02
OR-IQ3-0131	X10C9312003A	1.11E-09	1.74E-09	1.70E-08					3.07E-04	4.15E-04	1.69E-02	3.40E-02	1.93E-03	2.01E-02	1.05E-02
OR-IQ3-0132	X10C9312805A			5.63E-09		1.60E-03			1.30E-01	3.31E-03			6.69E-04	4.41E-06	7.38E-04
OR-IQ3-0134	X10C9311196A	6.38E-09	1.00E-08	2.57E-09		1.21E-02			4.62E-03	2.49E-02				3.32E-05	2.84E-03
OR-IQ3-0140	X10C0501810	3.91E-10	6.15E-10	2.12E-09		3.22E-03			4.05E-04	6.62E-03				8.86E-06	9.01E-04
OR-IQ3-0141	X10C9311252A	3.90E-09	6.13E-09	1.20E-08					1.17E-02	1.26E-02	5.50E-01	8.66E-01	4.30E-02	2.54E-01	2.44E-01
OR-IQ3-0144	X10C9312096A	1.49E-09	2.35E-09	2.41E-08		5.27E-03	3.30E-01		6.48E-04	2.09E-04	7.45E-01	2.94E-02	7.73E-04	1.83E-04	4.80E-03
OR-IQ3-0150	X10C9312789A	1.09E-07	1.72E-07	2.02E-08				1.26E+01	6.33E-03						1.02E+00
OR-IQ3-0151	X10C9311517A	3.20E-09	5.03E-09	6.61E-09					5.46E-03	5.65E-03	2.41E-01	4.83E-01	2.02E-02	1.21E-01	1.08E-01
OR-IQ3-0151	X10C9311680A	7.58E-08	1.19E-07	1.69E-07		1.76E+00			2.13E-02	3.63E+00				4.84E-03	
OR-IQ3-0151	X10C9313025A	2.09E-08	3.29E-08	7.32E-08		5.96E-01			7.70E-03	1.23E+00				1.64E-03	
OR-IQ3-0154	X10C9312387C	2.38E-09	3.74E-09			1.74E-03	1.09E-01		6.82E-04	8.10E-04	3.65E-02		2.91E-03		2.24E-02
OR-IQ3-0156	X10C9602104F	1.17E-08	1.84E-08			7.08E-05			1.35E-04	1.46E-04				1.95E-07	1.29E-04
OR-IQ3-0157	X10C9602104Q	8.48E-09	1.33E-08			3.58E-04			6.18E-04	7.42E-04				9.86E-07	5.58E-04
OR-IQ3-0158	X10C9312473A	7.09E-08	1.12E-07	6.57E-09		6.95E-03	4.34E-01		3.46E-02	4.20E-02	5.83E+00	2.95E-01	7.95E-03		1.65E-03
OR-IQ3-0158	X10C9400202A	2.49E-09	3.92E-09			1.28E-03			2.39E-04	2.64E-03				3.51E-06	1.61E-04
OR-IQ3-0159	X10C9312834A	1.24E-08	1.96E-08	3.74E-08					7.49E-03		1.42E-01				5.39E-02
OR-IQ3-0160	X10C9602104L	7.21E-09	1.13E-08			6.29E-04		5.25E+00	5.76E-04	1.30E-03				1.73E-06	1.65E-03
OR-IQ3-0160	X10C9602104K	1.48E-09	2.33E-09			1.31E-04			3.64E-05	2.71E-04				3.61E-07	5.28E-05
OR-IQ3-0161	X10C9602104H	1.66E-08	2.62E-08			5.09E-04			1.35E-03	1.05E-03				1.40E-06	2.15E-03
OR-IQ3-0162	X10C9313671A	6.90E-09	1.08E-08	3.32E-09					4.44E-03	1.64E-02	3.13E-01	5.88E-01	1.96E-02		9.49E-02
OR-IQ3-0162	X10C9313670A	4.34E-08	6.83E-08	2.73E-08					1.28E-02	4.15E-02	6.55E-01	1.28E+00	4.01E-02		2.31E-01
OR-IQ3-0164	X10C9311364A	3.73E-08	5.86E-08	3.88E-09		6.02E-03			6.56E-03	1.24E-02				1.66E-05	5.28E-02
OR-IQ3-0164	X10C9312174A	8.51E-09	1.34E-08	2.38E-07					1.40E-01	8.21E-02	1.00E-01			1.09E-04	
OR-IQ3-0168	X10C9602104E	1.88E-08	2.96E-08			1.36E-01			6.81E-04	1.78E-03				5.98E-04	9.03E-04
OR-IQ3-0169	X10C9312642B	3.30E-08	5.19E-08						3.18E-03		1.56E-01		1.26E-02		2.23E-02
OR-IQ3-0176	X10C9313119A	6.54E-09	1.03E-08						1.96E-03	3.65E-03	1.13E-01		1.34E-02		1.64E-02
OR-IQ3-0176	X10C9312642A	2.57E-08	4.04E-08						2.46E-03		1.44E-01		1.16E-02		4.45E-02
OR-IQ3-0180	X10C9602104U	1.29E-08	2.02E-08			2.78E-04			5.66E-04	5.75E-04				7.66E-07	6.82E-04
OR-IQ3-0181	X10C9312100A	1.61E-07	2.54E-07						1.49E-02	1.84E-02		5.85E-01	8.06E-03		2.95E-02
OR-IQ3-0181	X10C9313102A					4.95E-02			1.87E-03	1.02E-01				1.36E-04	1.24E-03
OR-IQ3-0181	X10C9400031A	2.59E-09	4.07E-09	1.23E-07		1.85E-01			2.00E-03	3.82E-01	1.02E-01			5.09E-04	1.19E-02
OR-IQ3-0182	X10C9311558A	4.80E-09	7.56E-09			1.59E-01			9.52E-04	3.28E-01				4.37E-04	2.01E-04
OR-IQ3-0182	X10C9313065A	1.03E-09	1.62E-09	1.03E-09		5.08E-03			2.05E-04	1.05E-02				1.40E-05	3.95E-04
OR-IQ3-0183	X10C9311999A	2.43E-09	3.82E-09	1.56E-08					9.50E-04		5.85E-03				6.98E-04
OR-IQ3-0183	X10C9311757A	2.39E-07	3.75E-07	2.81E-08					2.35E-02		6.72E+00		8.20E-03		1.82E-02
OR-IQ3-0186	X10C9312335A	1.09E-08	1.71E-08								4.03E+00				3.12E-03

SUPPORTING DOCUMENTATION

NDA Isotopic Mass (g) Percent
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CONTAINERID	NDABDR	Sr-90	Cs-137	U-232	U-233	U-234	U-235	U-238	Np-237	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	Am-241
OR-IQ3-0186	X10C9312716A	2.18E-08	3.43E-08	1.49E-08		6.38E-02			5.47E-03	1.32E-01				1.76E-04	1.12E-02
OR-IQ3-0187	X10C9311285A	1.82E-08	2.87E-08						3.93E-04	1.22E-02		2.84E-01			7.53E-04
OR-IQ3-0188	X10C9313046B	2.71E-08	4.27E-08			1.81E-02				3.74E-02				5.01E-05	4.32E-03
OR-IQ3-0188	X10C0401430A	1.99E-09	3.13E-09	1.72E-08						8.93E-03	4.54E-02				2.60E-03
OR-IQ3-0188	X10C9313104A	9.47E-08	1.49E-07	8.85E-09		3.04E-03			1.33E-03	6.28E-03				8.40E-06	4.96E-03
OR-IQ3-0190	X10C9313063A	5.57E-08	8.77E-08			2.34E-01				4.82E-01				6.46E-04	5.18E-01
OR-IQ3-0190	X10C9400038A	3.10E-08	4.88E-08	6.17E-08					2.86E-02						3.78E-01
OR-IQ3-0197	X10C9312946A	3.03E-08	4.77E-08			3.92E-02		1.51E+02	8.14E-03	8.11E-02				1.08E-04	
OR-IQ3-0198	X10C9311396A	3.16E-08	4.98E-08	1.90E-07				3.45E+01	1.30E-02		1.63E+01		1.85E-02		2.28E-01
		1.31E-06	2.06E-06	1.19E-06	0.00E+00	3.29E+00	8.73E-01	2.03E+02	6.42E-01	6.74E+00	3.80E+01	7.32E+00	3.03E-01	8.08E-01	3.37E+00
	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02
	Mass%	0.00%	0.00%	0.00%	0.00%	1.24%	0.33%	76.47%	0.24%	2.54%	14.30%	2.75%	0.11%	0.30%	1.27%

SUPPORTING DOCUMENTATION

NDA Isotopic Mass (g) Percent
OR-ISTP-CH-HET
Lot 2

SUPPORTING DOCUMENTATION

CONTAINERID	NDABDR	Am-243	Cm-243	Cm-244	Cm-245	Cm-246	Cf-249	Ac-227	Co-60	Eu-152	Eu-154	Sb-125	Ra-226	Cs-134	Th-232
OR-IQ3-0118	X10C9311353A						1.28E-08								
OR-IQ3-0118	X10C9312723A														
OR-IQ3-0119	X10C0501534								2.57E-11				2.75E-07		
OR-IQ3-0120	X10C0501524	6.16E-06					5.67E-09								
OR-IQ3-0125	X10C0501650												3.16E-06		
OR-IQ3-0131	X10C9312003A						2.25E-08				1.87E-10				
OR-IQ3-0132	X10C9312805A						1.00E-07								
OR-IQ3-0134	X10C9311196A	1.23E-03		5.04E-03	1.22E-04		8.59E-06		1.80E-11				6.71E-08		
OR-IQ3-0140	X10C0501810	4.23E-04		8.76E-04			9.16E-09								
OR-IQ3-0141	X10C9311252A	4.34E-05					2.47E-06		8.16E-12						
OR-IQ3-0144	X10C9312096A						8.41E-08						3.18E-05		
OR-IQ3-0150	X10C9312789A										9.26E-09		1.33E-05		
OR-IQ3-0151	X10C9311517A	2.56E-06					1.48E-08		4.75E-12						
OR-IQ3-0151	X10C9311680A	3.45E-02		1.04E-01	1.28E-02						2.26E-08		8.23E-07		
OR-IQ3-0151	X10C9313025A	1.19E-01		1.84E-01	1.55E-02								1.31E-06		
OR-IQ3-0154	X10C9312387C			2.20E-04			1.71E-07						1.44E-05		
OR-IQ3-0156	X10C9602104F								5.40E-11		5.44E-11				
OR-IQ3-0157	X10C9602104Q	2.83E-06							1.99E-11		4.20E-10				
OR-IQ3-0158	X10C9312473A	1.77E-04					2.71E-06				3.65E-10		8.54E-08		
OR-IQ3-0158	X10C9400202A	1.90E-04		1.55E-03	3.97E-05		2.90E-07		8.74E-12				5.34E-08		
OR-IQ3-0159	X10C9312834A	2.03E-03		1.15E-03	3.40E-05		1.13E-07								
OR-IQ3-0160	X10C9602104L	1.05E-06		1.24E-04					1.59E-11		6.55E-10				
OR-IQ3-0160	X10C9602104K			1.53E-05			1.46E-09		2.83E-12		4.48E-11				
OR-IQ3-0161	X10C9602104H	1.92E-06		2.32E-04					6.83E-11		1.16E-09				
OR-IQ3-0162	X10C9313671A	2.44E-05		4.84E-04			6.97E-07		8.03E-12		2.06E-10		1.90E-07		
OR-IQ3-0162	X10C9313670A	1.21E-04		1.02E-03			2.27E-06				4.09E-10		6.48E-07		
OR-IQ3-0164	X10C9311364A	2.25E-04		2.11E-03	4.49E-05		8.29E-06				2.28E-09				
OR-IQ3-0164	X10C9312174A	2.44E-03					2.49E-06						1.22E-05		
OR-IQ3-0168	X10C9602104E	9.16E-07							5.86E-11		6.75E-10				
OR-IQ3-0169	X10C9312642B						1.40E-07		2.04E-10				4.31E-06		
OR-IQ3-0176	X10C9313119A	9.60E-06					4.02E-07		1.28E-11						
OR-IQ3-0176	X10C9312642A	6.85E-06					3.36E-07		1.65E-11				6.99E-06		
OR-IQ3-0180	X10C9602104U	1.70E-06					6.59E-09		6.25E-11		8.83E-10				
OR-IQ3-0181	X10C9312100A	9.33E-04		1.50E-03	6.10E-05		4.02E-05		9.01E-10		3.86E-09		4.88E-05		
OR-IQ3-0181	X10C9313102A	7.32E-03		7.12E-02	2.26E-03										
OR-IQ3-0181	X10C9400031A	1.42E-04		7.13E-02											
OR-IQ3-0182	X10C9311558A	3.09E-03		4.52E-02	2.22E-03								4.17E-07		
OR-IQ3-0182	X10C9313065A	1.01E-04		2.66E-03	7.56E-05		5.53E-09								
OR-IQ3-0183	X10C9311999A	1.57E-05		6.39E-05			2.66E-08								
OR-IQ3-0183	X10C9311757A	7.43E-04			2.92E-05		2.71E-05		1.82E-10		1.42E-08		1.50E-06		
OR-IQ3-0186	X10C9312335A	1.60E-05	1.05E-07				1.34E-07	1.03E-08			1.29E-08				

NDA Isotopic Mass (g) Percent
OR-ISTP-CH-HET
Lot 2

CONTAINERID	NDABDR	Am-243	Cm-243	Cm-244	Cm-245	Cm-246	Cf-249	Ac-227	Co-60	Eu-152	Eu-154	Sb-125	Ra-226	Cs-134	Th-232
OR-IQ3-0186	X10C9312716A	5.00E-04	3.46E-06	8.10E-03	5.24E-04		1.60E-06								
OR-IQ3-0187	X10C9311285A	3.37E-04	1.58E-07				8.78E-07	3.16E-07			2.44E-09		4.91E-08		
OR-IQ3-0188	X10C9313046B	2.93E-04	1.90E-06	3.67E-03	9.08E-05		9.21E-07	2.31E-08			8.47E-10				
OR-IQ3-0188	X10C0401430A	1.94E-04	2.79E-07	1.25E-03	5.02E-05		8.08E-06								
OR-IQ3-0188	X10C9313104A	2.11E-04	4.24E-07	6.66E-04	1.50E-05		1.25E-07				3.35E-09				
OR-IQ3-0190	X10C9313063A	6.39E-03	2.87E-05	1.42E-01	4.64E-03		2.54E-07				1.41E-08				
OR-IQ3-0190	X10C9400038A		1.53E-06				9.92E-06	2.28E-07			2.44E-09				
OR-IQ3-0197	X10C9312946A	1.87E-02	3.40E-05	2.96E-01	5.98E-03										
OR-IQ3-0198	X10C9311396A		6.80E-06	6.15E-04				1.26E-06							
		1.99E-01	7.74E-05	9.45E-01	4.45E-02	0.00E+00	1.18E-04	1.84E-06	1.67E-09	0.00E+00	9.33E-08	0.00E+00	1.40E-04	0.00E+00	0.00E+00
	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02	2.66E+02
	Mass%	0.07%	0.00%	0.36%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

SUPPORTING DOCUMENTATION

NDA Mass Percent Rollup Through Lot 2
OR-ISTP-CH-HET

	Sr-90	Cs-137	U-232	U-233	U-234	U-235	U-238	Np-237	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242
Total Activity	1.81E-06	2.84E-06	2.00E-06	0.00E+00	3.53E+00	8.73E-01	2.03E+02	2.72E+00	7.29E+00	3.96E+01	1.04E+01	4.77E-01	1.88E+00
2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02
Mass%	0.00%	0.00%	0.00%	0.00%	1.27%	0.31%	73.23%	0.98%	2.63%	14.27%	3.73%	0.17%	0.68%

SUPPORTING DOCUMENTATION

NDA Mass Percent Rollup Through Lot 2
OR-ISTP-CH-HET

Am-241	Am-243	Cm-243	Cm-244	Cm-245	Cm-246	Cf-249	Ac-227	Co-60	EU-152	EU-154	Sb-125	Ra-226	Cs-134	Th-232
6.27E+00	2.37E-01	7.74E-05	1.02E+00	4.68E-02	0.00E+00	1.32E-04	1.84E-06	1.67E-09	0.00E+00	2.00E-07	0.00E+00	1.68E-04	0.00E+00	0.00E+00
2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02	2.78E+02
2.26%	0.09%	0.00%	0.37%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

SUPPORTING DOCUMENTATION

DIVIDER PAGE

URS

CP:11:01576
UFC:5900.00

Washington TRU Solutions LLC

INTER-OFFICE CORRESPONDENCE

DATE: August 31, 2011

FROM: C. M. Weston cmw 08/31/11 LOCATION: Certification

TO: CCP Records Custodian GSA-212 LOCATION: Retrieval, Characterization and Transportation

SUBJECT: TRANSMITTAL OF OAK RIDGE NATIONAL LABORATORY CHARACTERIZATION INFORMATION SUMMARY FOR WASTE STREAM OR-ISTP-CH-HET, LOT 2 AND LOT 3

Please accept the attached Oak Ridge National Laboratory Characterization Information Summary to be placed in Records for Waste Stream OR-ISTP-CH-HET, Lot 2 and Lot 3.

If further information is needed, I may be contacted at (303) 898-2399.

CMW:jmc

Attachment

cc: WTS

(without attachment)
R. P. Kantrowitz ED
M. W. Pearcy ED
B. S. Schrock ED

CCP RECORDS ORIGINAL
DATE REC'D 12/12/11

CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-ISTP-CH-HET

Lot 2

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CCP Characterization Information Summary Cover Page

Waste Stream #: OR-ISTP-CH-HET Lot #: 2

AK Expert Review: N/A Date: N/A

SPM Review: Candice Weston Date: 8/22/2011

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Radiography (RTR/NDE):

CCP-TP-053	Rev. 11	07/20/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 10	03/04/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	06/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 7	10/21/09	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Visual Examination (VE):

CCP-TP-113	Rev. 16	04/25/11	CCP Standard Contact-Handled Waste Visual Examination
CCP-TP-113	Rev. 15	12/29/10	CCP Standard Contact-Handled Waste Visual Examination
CCP-TP-113	Rev. 14	06/30/10	CCP Standard Contact-Handled Waste Visual Examination
CCP-TP-113	Rev. 13	03/11/09	CCP Standard Contact-Handled Waste Visual Examination

Non Destructive Assay (NDA):

CCP-TP-048	Rev. 15	03/24/11	CCP Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 14	03/08/10	CCP Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 13	10/12/09	CCP Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-166	Rev. 3	02/26/10	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-166	Rev. 2	12/05/08	CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations
CCP-TP-168	Rev. 3	11/17/09	CCP Drum Waste Assay System Imaging Passive/Active Neutron/Segmented Gamma Scanner Data Generation Level Validation
CCP-TP-169	Rev. 2	11/18/08	CCP Operating the Mobile Segmented Gamma Scanner

Headspace Gas Sampling and Analysis (HSG):

CCP-TP-093	Rev. 15	03/10/11	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 14	12/29/10	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 13	03/19/07	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 7	12/29/10	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-106	Rev. 6	07/12/07	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-173	Rev. 1	09/30/09	CCP Analysis of Gas Samples for VOCs by GC/FID
CCP-TP-175	Rev. 2	12/29/10	CCP Analysis of Gas Samples for VOCs by GC/MS
CCP-TP-175	Rev. 1	03/29/10	CCP Analysis of Gas Samples for VOCs by GC/MS

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	06/09/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	06/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	06/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 18	12/29/10	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/08/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 29	04/26/11	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 28	05/12/10	CCP CH TRU Waste Certification and WWIS/WDS Data Entry

WAP Certification:

CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan
CCP-PO-027	Rev. 3	12/29/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 2	04/22/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document

CIS-002

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET

Lot # 2

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
X10C0501534	OR-IQ3-0119	OR-RTR6-0342	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311353A	OR-IQ3-0118	OR-RTR6-0348	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312003A	OR-IQ3-0131	OR-RTR6-0350	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312723A	OR-IQ3-0118	OR-RTR6-0352	N/A	N/A	N/A		N/A	N/A	N/A
X10C0501524	OR-IQ3-0120	OR-RTR6-0353	N/A	N/A	N/A		N/A	N/A	N/A
X10C0501650	OR-IQ3-0125	OR-RTR6-0353	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312805A	OR-IQ3-0132	OR-RTR6-0354	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311196A	OR-IQ3-0134	OR-RTR6-0355	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311252A	OR-IQ3-0141	OR-RTR6-0355	N/A	N/A	N/A		N/A	N/A	N/A
X10C0501810	OR-IQ3-0140	OR-RTR6-0359	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311396A	OR-IQ3-0198	OR-RTR6-0360	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312096A	OR-IQ3-0144	OR-RTR6-0362	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312789A	OR-IQ3-0150	OR-RTR6-0362	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311517A	OR-IQ3-0151	OR-RTR6-0362	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311680A	OR-IQ3-0151	OR-RTR6-0365	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313025A	OR-IQ3-0151	OR-RTR6-0365	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104L	OR-IQ3-0160	OR-RTR6-0368	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104K	OR-IQ3-0160	OR-RTR6-0368	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313671A	OR-IQ3-0162	OR-RTR6-0369	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104H	OR-IQ3-0161	OR-RTR6-0369	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104F	OR-IQ3-0156	OR-RTR6-0370	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312634A	OR-IQ3-0159	N/A	ORVECH0050	N/A	N/A		N/A	N/A	N/A
X10C9602104E	OR-IQ3-0168	OR-RTR6-0370	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104Q	OR-IQ3-0157	OR-RTR6-0371	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312473A	OR-IQ3-0158	OR-RTR6-0372	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313670A	OR-IQ3-0162	OR-RTR6-0372	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313119A	OR-IQ3-0176	OR-RTR6-0372	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312642B	OR-IQ3-0169	OR-RTR6-0373	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312642A	OR-IQ3-0176	OR-RTR6-0378	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312387C	OR-IQ3-0154	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400202A	OR-IQ3-0158	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311384A	OR-IQ3-0164	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312174A	OR-IQ3-0164	OR-RTR6-0380	N/A	N/A	N/A		N/A	N/A	N/A
X10C9602104U	OR-IQ3-0180	OR-RTR6-0382	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312100A	OR-IQ3-0181	OR-RTR6-0391	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313063A	OR-IQ3-0190	OR-RTR6-0392	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313102A	OR-IQ3-0181	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A

CTS-083

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-ISTP-CH-HET Lot # 2

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
~~X10C9400691A~~	~~OR-IQ3-0181~~	~~OR-RTR6-0393~~	~~N/A~~	~~N/A~~	~~N/A~~		~~N/A~~	~~N/A~~	~~N/A~~ (1) RK 12/21/11
X10C9311558A	OR-IQ3-0182	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313065A	OR-IQ3-0182	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311999A	OR-IQ3-0183	OR-RTR6-0393	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311757A	OR-IQ3-0183	OR-RTR6-0395	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313046B	OR-IQ3-0186	OR-RTR6-0396	N/A	N/A	N/A		N/A	N/A	N/A
X10C9311285A	OR-IQ3-0187	OR-RTR6-0397	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312335A	OR-IQ3-0186	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312716A	OR-IQ3-0186	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C0401430A	OR-IQ3-0188	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9400038A	OR-IQ3-0190	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9313104A	OR-IQ3-0188	OR-RTR6-0398	N/A	N/A	N/A		N/A	N/A	N/A
X10C9312946A	OR-IQ3-0197	OR-RTR6-0396	N/A	N/A	N/A		N/A	N/A	N/A

Signature of Site Project Manager

Candice Weston
Printed Name

8/22/2011
Date

(1) per NCR-ORNL-3560-11 RK 12/21/11

CTS-804

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-ISTP-CH-HET **Waste Stream Headspace Gas Lot Number** 1 through 2

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL [1]	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Acetone	No	9	12	4.5000	2.0254	1.6118	2.6598	100	N/A		
Benzene	Log	4	12	-1.2730	-3.1611	0.7710	-2.8576	2.3026	2.3026		
Bromoform	Log	0	12	-4.6052	-4.8280	0.1017	-4.7880	2.3026	2.3026		
Butanol	Log	3	12	0.0000	-2.5999	1.0042	-2.2046	4.6052	4.6052		
Carbon Disulfide *	Log	6	12	-0.5447	-2.3203	1.2060	-1.8456	2.3026	2.3026		
Carbon Tetrachloride	Log	0	12	-4.2336	-4.4163	0.0893	-4.3811	2.3026	2.3026		
Chlorobenzene	Log	0	12	-3.7723	-3.9740	0.0922	-3.9377	2.3026	2.3026		
Chloroform	Log	0	12	-3.4900	-3.6931	0.0944	-3.6560	2.3026	2.3026		
Chloromethane *	Log	5	12	1.8245	-2.5181	1.6593	-1.8650	2.3026	2.3026		
Cyclohexane *	Log	0	12	-3.2702	-3.4713	0.0945	-3.4341	2.3026	2.3026		
1,1-Dichloroethane	Log	0	12	-3.9373	-4.1419	0.0931	-4.1053	2.3026	2.3026		
1,2-Dichloroethane	Log	0	12	-3.3104	-3.5207	0.0958	-3.4830	2.3026	2.3026		
1,1-Dichloroethylene	Log	0	12	-3.9373	-4.1502	0.0979	-4.1117	2.3026	2.3026		
cis-1,2-Dichloroethylene *	Log	0	12	-3.2442	-3.4543	0.0957	-3.4166	2.3026	2.3026		
trans-1,2-Dichloroethylene	Log	0	12	-3.3962	-3.5979	0.0948	-3.5606	2.3026	2.3026		
1,2-Dichloropropane *	Log	0	12	-3.7508	-3.9591	0.0969	-3.9209	2.3026	2.3026		
Ethyl benzene	Log	2	12	-1.8971	-3.7839	0.7865	-3.4744	2.3026	2.3026		
Ethyl Ether	Log	0	12	-3.8632	-4.0741	0.0958	-4.0364	2.3026	2.3026		
Methanol	No	7	12	220.0000	84.7500	72.7285	113.3751	100	N/A	Yes	(2)
Methyl Ethyl Ketone	Log	9	12	1.0986	-1.9307	1.6077	-1.2980	4.6052	4.6052		
Methyl Isobutyl Ketone	Log	4	12	-3.0159	-3.6977	0.3742	-3.5504	4.6052	4.6052		
Methylene Chloride	Log	1	12	-1.8971	-3.3482	0.4671	-3.1644	2.3026	2.3026		
1,1,2,2-Tetrachloroethane	Log	0	12	-4.2336	-4.4447	0.0951	-4.4073	2.3026	2.3026		
Tetrachloroethylene	Log	0	12	-3.8632	-4.0666	0.0941	-4.0295	2.3026	2.3026		
Toluene	Log	10	12	2.2618	-1.1880	1.7958	-0.4812	2.3026	2.3026		
1,1,1-Trichloroethane	Log	0	12	-4.1352	-4.3312	0.0947	-4.2939	2.3026	2.3026		
Trichoroethylene	Log	0	12	-3.9373	-4.1502	0.0979	-4.1117	2.3026	2.3026		
Trichlorofluoromethane *	Log	0	12	-3.3814	-3.5935	0.0968	-3.5554	2.3026	2.3026		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	0	12	-4.0745	-4.2763	0.0984	-4.2376	2.3026	2.3026		

See CIS

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: OR-ISTP-CH-HET **Waste Stream Headspace Gas Lot Number** 1 through 2

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL [1]	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
1,3,5-Trimethylbenzene[a]	Log	1	12	-2.2073	-3.9640	0.5578	-3.7445	2.3026	2.3026		
1,2,4-Trimethylbenzene[a]	Log	1	12	-0.9943	-3.6610	0.8429	-3.3293	2.3026	2.3026		
m/p-Xylene[b]	Log	1	12	-1.9661	-3.5122	0.4963	-3.3168	2.3026	2.3026		
o-Xylene	Log	2	12	-2.6593	-3.4424	0.3288	-3.3130	2.3026	2.3026		
Formaldehyde[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hydrazine[d]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[a] These compounds are from CCP-PO-003, CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC) and are flammable VOCs that do not appear in CCP-PO-001. These are not part of the target analyte list, but samples may be analyzed for these compounds.

[b] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

[c] Required only for homogenous solids and soil/gravel waste from Savannah River Site.

[d] Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

[e] These compounds are reported by the Laboratory and are included for completeness.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section C4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) EPA HWN F003 is not assigned to this waste stream for Methanol because the waste is not liquid and is therefore not ignitable. This is consistent with acceptable knowledge.

Signature of Site Project Manager

Candice Weston
Printed Name

8/22/2011
Date

AIS-006

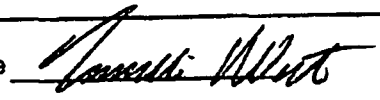
CCP Headspace Gas Summary Data

Waste Stream Number OR-ISTP-CH-HET Lot Number (s) 2

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
2-Methyl-1-propanol	1.00	1	9.09%

Data Supports EPA Hazardous Waste Numbers Assigned by AK? ☑ Yes ☐ No

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature  Date 8/22/2011

CIS-007

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-ISTP-CH-HET Lot(s)#: 2

Container Number	RTR Prohibited Items [a,b]	Visual Examination Prohibited Items [a,b]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	None of the containers in this lot had prohibited items identified during RTR.	None of the containers in this lot had prohibited items identified during VE.

a. See Batch Data Reports

b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Justification for the selection of RTR and/or VE: Containers in this waste stream were characterized using RTR and VE. RTR was selected as the characterization method for the containers because the waste was previously packaged and RTR meets all the Data Quality Objectives for NDE for waste stream OR-ISTP-CH-HET. VE was selected as the characterization method for some containers because the waste was repackaged and VE meets all the Data Quality Objectives for NDE for waste stream OR-ISTP-CH-HET.

Site Project Manager Signature | Candice Weston (Printed Name) | 8/22/2011 (Date)

CIS-008

CCP Reconciliation with Data Quality Objectives

WS# OR-ISTP-CH-HET Lot # 2

Sampling Completeness

RTR/VE:

Number of Valid Samples: 50 Number of Total Samples Analyzed: 50

Percent Complete: 100 (QAO is 100%)

NDA

Number of Valid Samples: 50 Number of Total Samples Analyzed: 50

Percent Complete: 100 (QAO is 100%)

HSG

Number of Valid Samples: ~~11~~ 12 AK 1/12/12 Number of Total Samples Collected: ~~11~~ 12 AK 1/12/12

Percent Complete: 100 (QAO is ≥90%)

Number of Valid Samples: ~~11~~ 12 AK 1/12/12 Number of Total Samples Analyzed: ~~11~~ 12 AK 1/12/12

Percent Complete: 100 (QAO is ≥90%)

Total VOC

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total SVOC

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total Metals

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

CIS-009

CCP Reconciliation with Data Quality Objectives

WS# OR-ISTP-CH-HET Lot # 2

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	Y	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP-TP-003 Attachment 3, and additional U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	NA	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003, Attachment 4, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7b	NA	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003, Attachment 5, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7c	NA	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 6, and additional EPA HWNs were assigned as required. Samples were randomly collected.

CI5-010

CCP Reconciliation with Data Quality Objectives

WS# OR-ISTP-CH-HET Lot # 2

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC *incorporating* 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	Y	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section C3-1 of the QAPjP.
13	Y	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections C3-2 through C3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	Y	Y	Y
Headspace Gas Analysis	Y	Y	Y
Solids Sampling	NA	NA	NA
Solids VOCs	NA	NA	NA
Solids SVOCs	NA	NA	NA
Solids Metals	NA	NA	NA

Comments: NONE

Signature of Site Project Manager

Candice Weston
Printed Name

8/22/2011
Date

CIS-011

DIVIDER

PAGE

Attachment 13 – CCP Waste Stream Characterization Checklist

CCP Waste Stream Characterization Checklist

Site(s): ORNL

Waste Stream Number: OR-REDC-RH-HET Lot # 29

Waste Stream Description: Oak Ridge National Laboratory Radiochemical Engineering Development Center Remote-Handled Transuranic Waste.

Acceptable Knowledge Information or other data points[a]	Characterization Method(s)	Acceptable Knowledge Re-evaluation Required? Yes/No[b]?	Comments[c]
Physical waste form/description	AK, VE	NO	VE data sheets indicate consistency with Attachment 6 of CCP-TP-005 and Section 5.0 of CCP-AK-ORNL-500.
Waste material parameters weights	AK, VE	NO	VE data sheets indicate consistency with Attachment 6 of CCP-TP-005 and Section 5.0 of CCP-AK-ORNL-500.
Waste percent volume consistent with nondestructive examination or visual examination data and audio/video tapes or equivalent media	AK, VE	NO	VE data sheets indicate consistency with waste stream description in Section 5.0 of CCP-AK-ORNL-500.
Summary Category Group assignment	AK, VE	NO	Assignment of a summary category group S5000 is consistent with VE data sheets.
Waste Matrix Code assignment	AK, VE	NO	Assignment of waste matrix code S5400 is consistent with VE data sheets.
Absence of prohibited items	AK, VE	NO	VE confirmed the absence of prohibited items.
EPA Hazardous Waste Number assignment[d]	AK	NO	EPA Hazardous Waste Number assignments were made in CCP-AK-ORNL-500.
Toxicity characteristic code assignment	AK	NO	Toxicity characteristic code assignments were made in CCP-AK-ORNL-500.
VOCs from packaging materials or radiolysis present	AK	NO	No VOCs associated with packaging or radiolysis were identified by AK, CCP-TP-005 Attachment 5.
State Hazardous Waste Number assignment	AK	NO	Tennessee Hazardous Waste Numbers are identical to EPA assignment.
Radionuclides present	AK, DTC	NO	Radionuclides present were determined according to CCP-AK-ORNL-501 and quantified using the DTC method.
Other radiological parameters: (specify)	AK, DTC	NO	The 18 radionuclides constituting greater than 95% of the hazard were calculated and reported according to CCP-AK-ORNL-501.

Attachment 13 – CCP Waste Stream Characterization Checklist – Example Form (Continued)

CCP Waste Stream Characterization Checklist

Additional Comments:
VE BDRs: ORNLRHVE13001, ORNLRHVE13002, ORNLRHVE13003, ORNLRHVE13004, ORNLRHVE13005, ORNLRHVE13006
DTC BDR: ORRHDTC13001

a. Identified in the AK Summary Report or included in the in-process record documentation (e.g., BDR's)
b. If "yes," AKE completes an *Acceptable Knowledge Re-evaluation Checklist*.
c. Identify the source of the waste testing information (e.g., VE or RTR batch data reports). Note if an AK Sufficiency Determination has been approved to meet any characterization parameter.
d. Ensure that, if a toxicity characteristic contaminant is identified, it is not included as a listed waste, and if analytical data regarding the concentration are not available, the corresponding EPA Hazardous Waste Number is applied.

Site Project Manager:

Laura Nelson Date:
Print Sign

Acceptable Knowledge Expert:

Date:
Print Sign

DIVIDER

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CHARACTERIZATION INFORMATION SUMMARY

WSPF # OR-REDC-RH-HET

Lot 29

TABLE OF CONTENTS

Characterization Information Cover Page..... 002

Correlation of Container Identification Numbers to Batch Data Report Numbers..... 003

RTR/VE Summary of Prohibited Items and AK Confirmation..... 004

Reconciliation with Data Quality Objectives..... 005

CCP Characterization Information Summary Cover Page

Waste Stream # OR-REDC-RH-HET Lot #: 29

AK Expert Review: Kevin Peters Date:

SPM Review: Laura M. Nelson Date:

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Visual Examination (VE):

CCP-TP-500	Rev. 7	02/27/08	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 8	07/24/08	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 9	06/30/10	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 10	12/29/10	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 11	04/21/11	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 12	07/18/13	CCP Remote-Handled Waste Visual Examination
CCP-TP-500	Rev. 13	09/23/13	CCP Remote-Handled Waste Visual Examination

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	08/09/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 20	09/27/12	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 21	06/06/13	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 20	08/18/08	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	08/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	06/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 24	12/28/11	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 25	02/11/13	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 26	08/19/13	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-005	Rev. 18	11/18/08	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 24	11/28/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 25	06/19/13	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 26	08/12/13	CCP Acceptable Knowledge Documentation
CCP-TP-530	Rev. 7	07/11/08	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-530	Rev. 8	09/09/09	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-530	Rev. 9	12/11/09	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-530	Rev. 10	04/25/11	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-530	Rev. 11	08/19/13	CCP RH TRU Waste Certification and WWIS/WDS Data Entry

WAP Certification:

CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 21	05/31/13	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-027	Rev. 0	10/02/07	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 1	02/17/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 2	04/22/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 3	12/29/10	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 4	10/01/12	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
CCP-PO-027	Rev. 5	10/02/13	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document

WAC Certification:

CCP-PO-002	Rev. 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 22	01/12/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 27	05/31/13	CCP Transuranic Waste Certification Plan

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # OR-REDC-RH-HET

Lot # 29

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR	RTR BDR	VE BDR	Load Management/ Overpack Yes	Transportation BDR
ORRH00678	N/A	ORRHDTC13001	N/A	ORNLRHVE13001		
ORRH00679	N/A	ORRHDTC13001	N/A	ORNLRHVE13002		
ORRH00680	N/A	ORRHDTC13001	N/A	ORNLRHVE13003		
ORRH00681	N/A	ORRHDTC13001	N/A	ORNLRHVE13004		
ORRH00682	N/A	ORRHDTC13001	N/A	ORNLRHVE13004		
ORRH00683	N/A	ORRHDTC13001	N/A	ORNLRHVE13005		
ORRH00684	N/A	ORRHDTC13001	N/A	ORNLRHVE13006		

Signature of Site Project Manager

Laura M. Nelson
Printed Name

Date

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: OR-REDC-RH-HET Lot #: 29

Container Number	RTR Prohibited Items [a]	Visual Examination Prohibited Items [a]	Does the Physical Form of the Waste
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	RTR was not used to certify any containers in this lot.	None of the containers in this Lot had prohibited items identified during Visual Examination technique.	The physical form of the waste found in all the containers in this lot match the Waste Stream Description as Determined by AK.

a. See Batch Data Reports
b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Justification for the selection of RTR and/or VE: VE was selected as the characterization method for this lot because the containers were newly generated and meet all the Data Quality Objectives for VE for the waste stream OR-REDC-RH-HET.

Site Project Manager Signature | Laura M. Nelson Printed Name | Date

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 29

Sampling Completeness

VE
Number of Valid Samples: 7 Number of Total Samples Analyzed: 7
Percent Complete: 100 (QAO is 100%)

RTR
Number of Valid Samples: NA Number of Total Samples Analyzed: NA
Percent Complete: NA (QAO is 100%)

NDA
Number of Valid Samples: 7 Number of Total Samples Analyzed: 7

	Y/N/NA	Reconcilliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
7	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
8	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
9		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in CCP-PO-001 Sections C3-1 through C3-2 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	NA	NA	NA
VE	Y	Y	Y

N/A

Laura M. Nelson
Printed Name

Date

CCP Reconcilliation with Data Quality Objectives

WSF# OR-REDC-RH-HET Lot # 29

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR6-0092	Examination Date: 08/18/08			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR? **Reference Source: CCP-PO-001, B3-10b**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, B3-10b**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, B3-10b**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, B3-10b**				Container Numbers: NFS0165, NFS0258, NFS0321, NFS0340, NFS0345, NFS0440, NFS0518, NFS0718, NFS0722, NFS0744, NFS0773, NFS0829, NFS0836, NFS0837
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table B3-11**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? **Reference Source: CCP-PO-001, Table B3-11**	X			NCR-ORNL-0647-08 for NFS0667.
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, B3-10**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, B3-10b**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, B3-4, Table B3-11**	X			
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, B1-3, Table B3-11**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0092	Examination Date: 08/18/08			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
11. Are prohibited items absent? **Reference Source: CCP-PO-001, B3-4a**	X			Except NFS0667.
12. Is there an absence of liquid (less than or equal to residual)? **Reference Source: CCP-PO-001, B3-4a**	X			Except NFS0667.
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? **Reference Source: CCP-PO-001, B3-4a**			X	No discrepancies were identified.
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, B3-4a**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, B3-4a**	X			
16. Was the Lines-Pair Resolution Test Check included in the BDR? **Reference Source: CCP-PO-001, B3-4a**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, B1-3**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, B1-3**	X			
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, B1-3**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0092 **Examination Date: 08/18/08**

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, B1-3**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP-PO-001, Table B3-1**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.

Comments: None

The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.

Candice Weston — Candice Weston — 01/09/09

SPM Printed Name — Signature — Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date

Attachment 5 – CCP Radiography Batch Data Report Cover Sheet

Batch Data Report No.: OR-RTR6-0092 Date: 08/18/08

	Waste Container ID Numbers
Replicate Scan:	NFS0722
Independent Observation:	NFS0837
1	NFS0837
2	NFS0718
3	NFS0258
4	NFS0440
5	NFS0345
6	NFS0667
7	NFS0722
8	NFS0744
9	NFS0340
10	NFS0165
11	NFS0773
12	NFS0518
13	NFS0829
14	NFS0836
15	NFS0321
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

Independent Technical Reviewer:

William Mussman — Printed Name

Signature — Date: 10-18-08

12-10-08

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR6-0092 Date: 08/18/08

Table of Contents

Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP Independent Technical Reviewer Checklist	3
4	CCP RTR Measurement Control Report	5
5	CCP Radiography Data Sheets	6
6	Copy of NCRs (NA, If Not Applicable)	57

Batch Narrative

All Quality Checks were performed and recorded on CCP-TP-053, Rev. 6, CCP Radiography Measurement Control Report.

E. LEE Smith
William Mussman
RTR Operator

Signature

12-1-08
10-14-08
Date

STEVE BINNING

Steve Binning

12-10-2008

Per CCP-SO-011,100% of the audio/video record for all containers in this BDR have been reviewed. All potential prohibited items are correctly identified and Quality Assurance Objectives have been met.

ITR Name: William Mussman Signature: Will Date: 10-14-08

Will 12-10-08

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR6-0092

1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☑ YES	☐ N/A
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 6	☐ NO	☑ YES	☐ N/A
3.	Are the waste material parameters (WMPs) entered correctly?	☐ NO	☑ YES	☐ N/A
4.	Verify the hand calculations on the Radiography Data Sheet, and for each WMP, the weights are entered into the Estimated Weight column of Section 4 of Attachment 2.	☐ NO	☑ YES	☐ N/A
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☑ YES	☐ N/A
6.	Has the data been verified for transcription errors?	☐ NO	☑ YES	☐ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☑ YES	☐ N/A
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☑ YES	☐ N/A
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☑ YES	☐ N/A
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☑ YES	☐ N/A
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☒ YES	MKW ~~☐ N/A~~ 12-10-08
12.	Was justification made for changing the original data?	☐ NO	☒ YES	[illegible] ~~☐ N/A~~ 12-10-08
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☒ YES	MKW ~~☐ N/A~~ 12-10-08
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☑ YES	☐ N/A
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☑ YES	☐ N/A
16.	Is there an adequate written description of the contents of each item?	☐ NO	☑ YES	☐ N/A
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☑ YES	☐ N/A
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☑ YES	☐ N/A

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR6-0092

19.	Was the Image Test Pattern Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☑ YES	☐ N/A
20.	Was the Replicate Scan performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent.)	☐ NO	☑ YES	☐ N/A
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☑ YES	☐ N/A
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☑ YES	☐ N/A
23.	Was the Independent Observation performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent.)	☐ NO	☑ YES	☐ N/A
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☑ YES	☐ N/A
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☑ YES	☐ N/A
26.	Was the data collection performed by qualified individuals?	☐ NO	☑ YES	☐ N/A
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☑ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☑ YES	☐ N/A

Comments:
N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

William Mussman — Printed Name

Signature — Date: 10-18-08

Signature — Date: 12-10-08

Attachment 1 – CCP RTR Measurement Control Report

Site Location: ORNL		
Batch Data Report No.: OR-RTR6-0092		
Examination Date: 08/18/2008		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test Pattern Test lines-pair/cm: 25 (Minimum acceptable is 5 lines-pair/cm)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator: E. Lee Smith (Printed Name) — E. Lee Smith (Signature) — 08/18/2008 (Date)		

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☐ RTR Examination ☑ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0722
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 268.8 kg. Tare Wt: 37.9 kg. Net Wt: 230.9 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	75 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0722

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with a horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	229.9
Total WMP Weight:	230.9

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0722

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
This replicate scan is in agreement with the original scan.

RTR Operator:

Susan J. Smith	Susan J. Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☑ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0837
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 296.6 kg. Tare Wt: ~~0.0~~ 37.9 kg. SJS 12/1/08 Net Wt: ~~296.6~~ 258.7 kg. SJS 12/1/08
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0837

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail
Soil

Section 4: Packaging Material and Waste Material Parameters		
Packaging Material:	Estimated Weight (kg)	
Steel (ST):	~~0.0~~ 30.5	SJS 12/1/08
Plastics (PP):	~~0.0~~ 7.4	SJS 12/1/08
Others:	0.0	
Total Packaging Weight:	~~0.0~~ 37.9	SJS 12/1/08
Waste Material Parameter:	Estimated Weight (kg)	
Iron-based Metal / Alloys (IM):		
Aluminum-based Metals / Alloys (AM):		
Other Metals (OM):		
Other Inorganic Materials (OI):		
Cellulosics (C):		
Rubber (R):		
Plastics (waste materials) (XPM):	1.0	
Organic Matrix (OR):		
Inorganic Matrix (IN):		
Soils (S):	~~295.6~~ 257.7	SJS 12/1/08
Total WMP Weight:	~~296.6~~ 258.7	SJS 12/1/08

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0837

Section 5 - RTR Summary (Questions answered YES will be explained in the Comments Section)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
This Independent Observation agrees with the original scan.

RTR Operator:

Susan J. Smith	Susan J. Smith	08/18/08
Print Name	Signature	Date

Susan J. Smith Susan J. Smith 12/1/08

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0837
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 296.6 kg. Tare Wt: 37.9 kg. Net Wt: 258.7 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0837

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	257.7
Total WMP Weight:	258.7

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0837

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0718
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 259.4 kg. Tare Wt: 37.9 kg. Net Wt: 221.5 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	75 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0718

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	220.5
Total WMP Weight:	221.5

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0718

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0258
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 253.6 kg. Tare Wt: 37.9 kg. Net Wt: 215.7 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0258

Section 3: Container Inventory and Comments (Detailed descriptions)
Scrap metal (no weight value given)
Plastic bag with horsetail
Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	214.7
Total WMP Weight:	215.7

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0258

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	

TRUPACT II Criteria

Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0440
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 263.2 kg. Tare Wt: 37.9 kg. Net Wt: 225.3 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0440

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with hosetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	224.3
Total WMP Weight:	225.3

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0440

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0345
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 243.2 kg. Tare Wt: 37.9 kg. Net Wt: 205.3 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0345

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	204.3
Total WMP Weight:	205.3

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0345

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0667
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☐ NO ☑ YES NCR No.: NCR-ORNL-0647-08 NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 269.8 kg. Tare Wt: 37.9 kg. Net Wt: 231.9 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	75 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0667

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil ~250 ml of non-residual liquid between the 90 ml rigid liner and the plastic bag on the bottom ~50 ml of non- residual liquid in fold of plastic bag at 28"

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	230.9
Total WMP Weight:	231.9

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0667

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☑	☐	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☑	☐	☐
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☑	☐
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
NCR-ORNL-0647-08 ~250 ml of non-residual liquid between the 90 ml rigid liner and the plastic bag on the bottom.

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0722
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 268.8 kg. Tare Wt: 37.9 kg. Net Wt: 230.9 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0722

Section 3: Container Inventory and Comments (Detailed descriptions)
Absorbent pads
Plastic bag with horsetail
Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	0.5
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	229.4
Total WMP Weight:	230.9

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0722

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Page 1 of 3

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0744
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 246.0 kg. Tare Wt: 37.9 kg. Net Wt: 208.1 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	70 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0744

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	207.1
Total WMP Weight:	208.1

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0744

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0340
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 259.0 kg. Tare Wt: 37.9 kg. Net Wt: 221.1 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0340

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	220.1
Total WMP Weight:	221.1

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0340

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Page 1 of 3

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0165
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 247.2 kg. Tare Wt: 37.9 kg. Net Wt: 209.3 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	75 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0165

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	208.3
Total WMP Weight:	209.3

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0165

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith Jr.	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Page 1 of 3

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0773
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 270.4 kg. Tare Wt: 37.9 kg. Net Wt: 232.5 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0773

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	231.5
Total WMP Weight:	232.5

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0773

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0518
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 304.0 kg. Tare Wt: 37.9 kg. Net Wt: 266.1 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0518

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	265.1
Total WMP Weight:	266.1

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0518

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Page 1 of 3

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0829
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 236.8 kg. Tare Wt: 37.9 kg. Net Wt: 198.9 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	70 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0829

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	197.9
Total WMP Weight:	198.9

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0829

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0836
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 277.0 kg. Tare Wt: 37.9 kg. Net Wt: 239.1 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0836

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	238.1
Total WMP Weight:	239.1

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0836

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0092
Examination Date:	08/18/08
Waste Container ID:	NFS0321
Video/Audio Recorded Media Number:	OR-RTR6-0092 A
Procedure and Revision No.:	CCP-TP-053 Rev. 6
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 111/211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt: 246.6 kg. Tare Wt: 37.9 kg. Net Wt: 208.7 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	90mil Liner - Punctured Lid
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0321

Section 3: Container Inventory and Comments (Detailed descriptions)
Plastic bag with horsetail Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	30.5
Plastics (PP):	7.4
Others:	0.0
Total Packaging Weight:	37.9
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	207.7
Total WMP Weight:	208.7

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: NFS0321

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there liquid in the container?	☐	☑	
Is there any liquid in the waste, including internal containers, that **DOES NOT** meet the criteria of residual (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container)?	☐	☐	☑
Is the total volume of liquid in the container **GREATER** than 1% of the container?	☐	☐	☑
Is there detectable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	

TRUPACT II Criteria

Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:
N/A

RTR Operator:

E. Lee Smith	E. Lee Smith	08/18/08
Print Name	Signature	Date

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR - ORNL - 0647 - 08 Revision 0

1. Lot No./Heat No. or Serial No.: N/A	2. Process (NDA, HSG, NDE, VE, Other): NDE	3. Batch Data Report # (s): OR-RTR6-0092
4. Order/Work Order/Job Control Number (as applicable): N/A	5. PO #: N/A 6. Supplier: N/A	Container #(s): NFS0667

DESCRIPTION OF NONCONFORMANCE

7. (a) CCP HOLD TAGS SHALL BE APPLIED UNLESS JUSTIFIED AS FOLLOWS:

☐ < 100 nCi/g ☑ Prohibited Item ☐ >500 ppmv Flamm. VOCs

☐ E-Flag ☐ Receiving Inspection ☐ Transportation ☐ WWIS ☐ Other

(b) Description of Nonconformance
Required Condition (Implementing Procedure, Revision, Section & Text)

1. As per CCP-TP-053, Rev. 6, Table Section 4.4.3, NOTE ABOVE [H],...Internal containers (e.g., bottles, cans, etc.) shall be well drained and contain only residual liquids (i.e., contain as little residual liquid as is reasonably achievable by pouring, pumping, and/or aspirating), AND in all cases, it must be less than 1 inch or 2.5 centimeters of liquid in the bottom of the container, ..."

(c). Actual Condition

~250 ml of non-residual liquid between the 90 ml rigid liner and the plastic bag on the bottom.

8. NCR Originator (Print name, sign, and date) Steve Binning Steve Binning 8-18-2008	9. CCP QA Engineer or Designee Validation (Print name, sign, and date) Dean Mooney 9/3/2008
9a. Does this NCR have the potential to impact AK? ☐ YES ☑ NO ☐ INDETERMINATE If YES or INDETERMINATE, then apply Trend Code L in Block 12.	
10. Significant Condition? ☐ YES ☐ NO ☑ NA	11. Recurring Condition? ☐ YES ☑ NO (If YES, List NCRs/CARs)
12. Trend Code: K	13. Responsible Manager: Pat Tilmon

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR - ORNL - 0647 - 08 Revision 0

INTERIM DISPOSITION

14. Interim Disposition (Check One)

☑ N/A (See final Disposition) ☐ Hold ☐ Conditional Accept ☐ Conditional Use
☐ Sort ☐ Reinspect/Retest ☐ Remediate

(a) Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

15 .Responsible Manager/Individual (Print, sign, and date)	16. CCP QA Engineer or Designee (Print, sign and date)
Additional Approvals: (Print, sign and date)	Additional Approvals: (Print, sign and date)

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete Responsible Manager/Individual: (Print, sign and date)

18. Interim Disposition Verified CCP QA Engineer: (Print, sign and date)

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR - ORNL - 0647 - 08 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check One)
☐ Use-As-Is ☑ Reject ☐ Repair ☐ Rework ☐ Scrap

(a) Technical Justification (Required for Use-As-is and Repair dispositions, N/A for Reject, Scrap, or Rework dispositions.)

N/A

(b) Disposition Instructions (Required for Reject and Scrap, N/A for Use-As-Is, Rework, and Repair)

1. Reject container in BDR OR-RTR6-0092
2. Send container to NDA for characterization.
3. Hold container pending NDA results.
4. If NDA results are TRU, then send to TWPC for remediation.
5. Once remediated, re-scan the waste container at RTR and include results in a new BDR.

(c) Instructions for Completion of the Final Disposition, including Inspection Criteria (Required for Repair and Rework, N/A for Use-As-Is, Reject and Scrap)

N/A

(d) Corrective Actions (Actions to Prevent Recurrence) - as required.

N/A

FINAL DISPOSITION APPROVALS

20. Responsible Manager/Individual: (Print, sign, and date)	21. CCP QA Engineer or Designee: (Print, sign, and date)
Pat Tilmon 9-3-08	Dean Mooney 9/3/2008
Additional Approvals: (Print, sign, and date) N/A	Additional Approvals: (Print, sign, and date) N/A

CLOSURE

22. Final Disposition Complete Responsible Manager/Individual: (Print, sign, and date)

23. Final Disposition Verified – NCR Closed CCP QA Engineer: (Print, sign, and date)

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Jeri Miles
Ship to:	CCP Records	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	Triumph
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	10/29/2008
Telephone Number:	505-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0092	NDE BDR	08/18/08	59
OR-RTR6-0092B	BACKUP DVD	08/18/2008	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

NONE

Acceptance/Rejection Signature and Date

Records Accepted [X] Tami Parker — TAMI PARKER — 10/30/08
Signature — Printed Name — Date

Records Rejected [ ] ——— — ——— — ———
Signature — Printed Name — Date

Reason for Rejection: N/A

Re-submittal: ——— — ——— — ———
Signature — Printed Name — Date

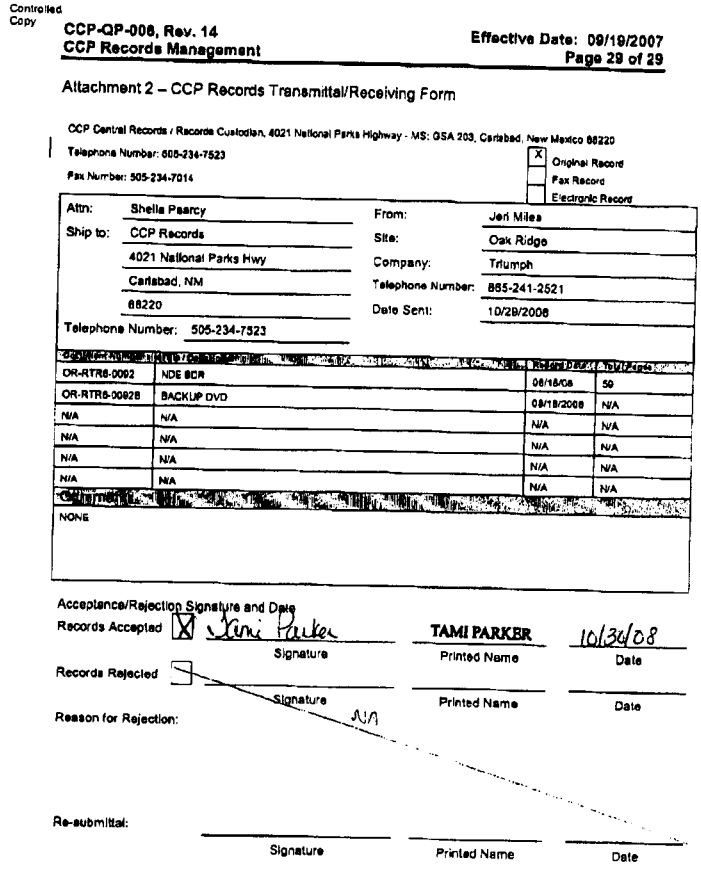
HP LaserJet *M2727nf MFP*

Fax Confirmation Report

HP LASERJET FAX

Oct-30-2008 3:06PM

Job	Date	Time	Type	Identification	Duration	Pages	Result
2242	10/30/2008	3:05:17PM	Send	918652413117	0:40	1	OK



Controlled Copy

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CCP Records Management

Effective Date: 09/19/2007
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Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 505-234-7523
Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Jeri Miles
Ship to:	CCP Records	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	Triumph
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	10/29/2008
Telephone Number:	505-234-7523		

Container No.	Description	Record Date	Total Pages
OR-RTR6-0092	NDE BCR	08/18/08	59
OR-RTR6-00928	BACKUP DVD	08/18/2008	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments:
NONE

Acceptance/Rejection Signature and Date

Records Accepted [X] Jeri Parker — Signature — TAMI PARKER — Printed Name — 10/30/08 — Date

Records Rejected [ ] _____ — Signature — _____ — Printed Name — _____ — Date

Reason for Rejection: N/A

Re-submittal: _____ — Signature — _____ — Printed Name — _____ — Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 505-234-7523

Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Jeri Miles
Ship to:	CCP Records	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	Triumph
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	10/22/2008
Telephone Number:	505-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0092A	PRIMARY DVD	8/18/2008	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

NONE

Acceptance/Rejection Signature and Date

Records Accepted [X] — Signature: [signature] — Printed Name: JANDE HERNANDEZ — Date: 10.28.08

Records Rejected [ ] — Signature: _____ — Printed Name: _____ — Date: _____

Reason for Rejection:

ORIGINAL

Re-submittal: Signature: _____ — Printed Name: _____ — Date: _____

HP LaserJet *M2727nf MFP*

Fax Confirmation Report

HP LASERJET FAX

Oct-29-2008 8:50AM

Job	Date	Time	Type	Identification	Duration	Pages	Result
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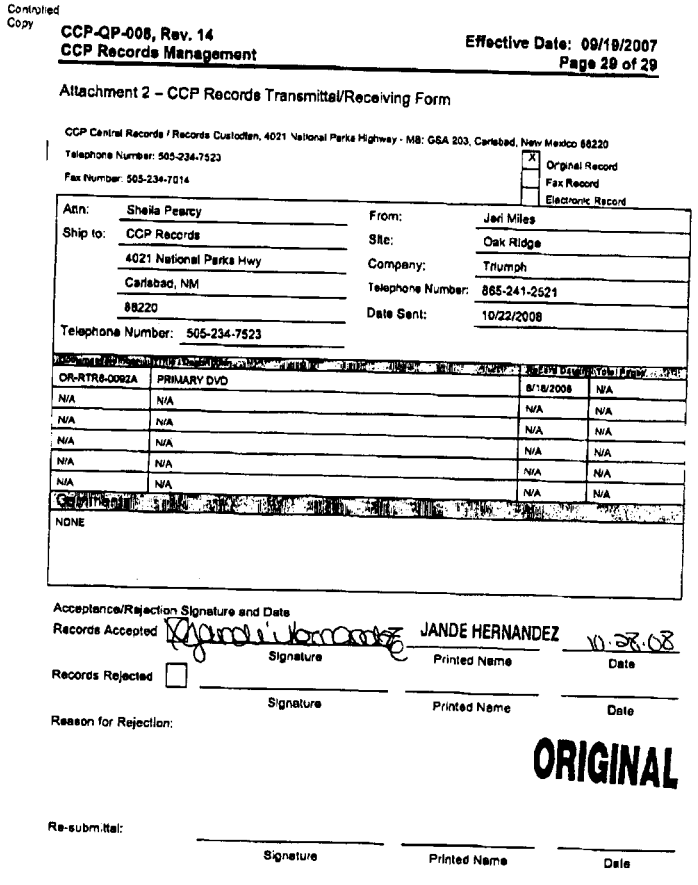

Controlled Copy

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CCP Records Management

Effective Date: 09/19/2007
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Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MB: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 505-234-7523
Fax Number: 505-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Jeri Miles
Ship to:	CCP Records	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	Triumph
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	10/22/2008
Telephone Number:	505-234-7523		

OR-RTR8-0092A	PRIMARY DVD	8/18/2008	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments:
NONE

Acceptance/Rejection Signature and Date

Records Accepted [X] — Signature — JANDE HERNANDEZ (Printed Name) — 10.28.08 (Date)

Records Rejected [ ] — Signature — Printed Name — Date

Reason for Rejection:

ORIGINAL

Re-submittal: — Signature — Printed Name — Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523

Fax Number: 575-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Jeri Miles
Ship to:	CCP Records	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	Triumph
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	12/17/2008
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0092	CORRECTIONS TO NDE BDR (P 1, 2, 3, 4, 9, 10, 11, 12, 13, 14)	12/10/2008	10
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

PLEASE HAVE SPM INSERT CORRECTED PAGES AND SUPERCEDE.

Acceptance/Rejection Signature and Date

Records Accepted [✓] — Signature: Janice Hernandez — Printed Name: JANICE HERNANDEZ — Date: 01/07/09

Records Rejected [ ] — Signature: _____ — Printed Name: _____ — Date: _____

Reason for Rejection: N/A

ORIGINAL

Re-submittal: Signature: _____ — Printed Name: _____ — Date: _____

HP LaserJet *M2727nf MFP*

Fax Confirmation Report

HP LASERJET FAX

Jan-8-2009 7:50AM

Job	Date	Time	Type	Identification	Duration	Pages	Result
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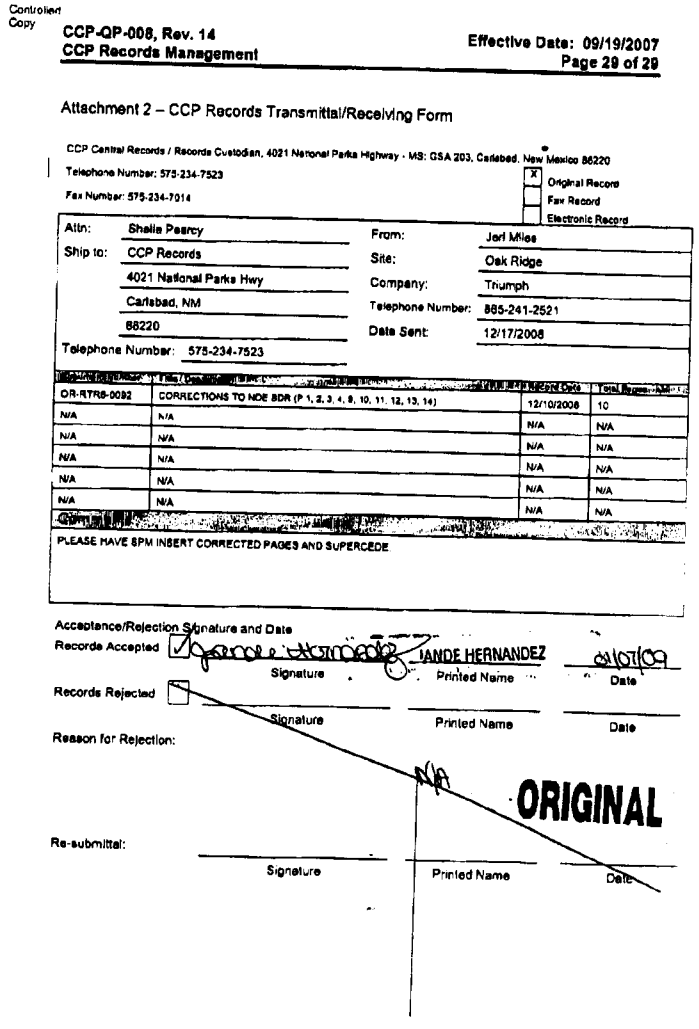

Controlled Copy

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CCP Records Management

Effective Date: 09/19/2007
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Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523
Fax Number: 575-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Shelia Pearcy	From:	Jeri Miles
Ship to:	CCP Records	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	Triumph
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	12/17/2008
Telephone Number:	575-234-7523		

OR-RTRS-0092	CORRECTIONS TO NDE SDR (P 1, 2, 3, 4, 9, 10, 11, 12, 13, 14)	12/10/2008	10
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

PLEASE HAVE SPM INSERT CORRECTED PAGES AND SUPERCEDE

Acceptance/Rejection Signature and Date

Records Accepted [x] — Signature — IANDE HERNANDEZ (Printed Name) — 01/07/09 (Date)

Records Rejected [ ] — Signature — Printed Name — Date

Reason for Rejection:

N/A

ORIGINAL

Re-submittal: Signature — Printed Name — Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523

Fax Number: 575-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Jeri Miles
Ship to:	CCP Records	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	S.M. STOLLER
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	1/12/2009
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0092	SPM REVIEW	01/09/2009	3
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

NONE.

Acceptance/Rejection Signature and Date

Records Accepted [✓] — Signature: Jeri Miles — Printed Name: JANDE HERNANDEZ — Date: 1/20/09

Records Rejected [ ] — Signature: _____ — Printed Name: _____ — Date: _____

Reason for Rejection:

Re-submittal: Signature: _____ — Printed Name: _____ — Date: _____

HP LaserJet *M2727nf MFP*

Fax Confirmation Report

HP LASERJET FAX

Jan-20-2009 9:58AM

Job	Date	Time	Type	Identification	Duration	Pages	Result
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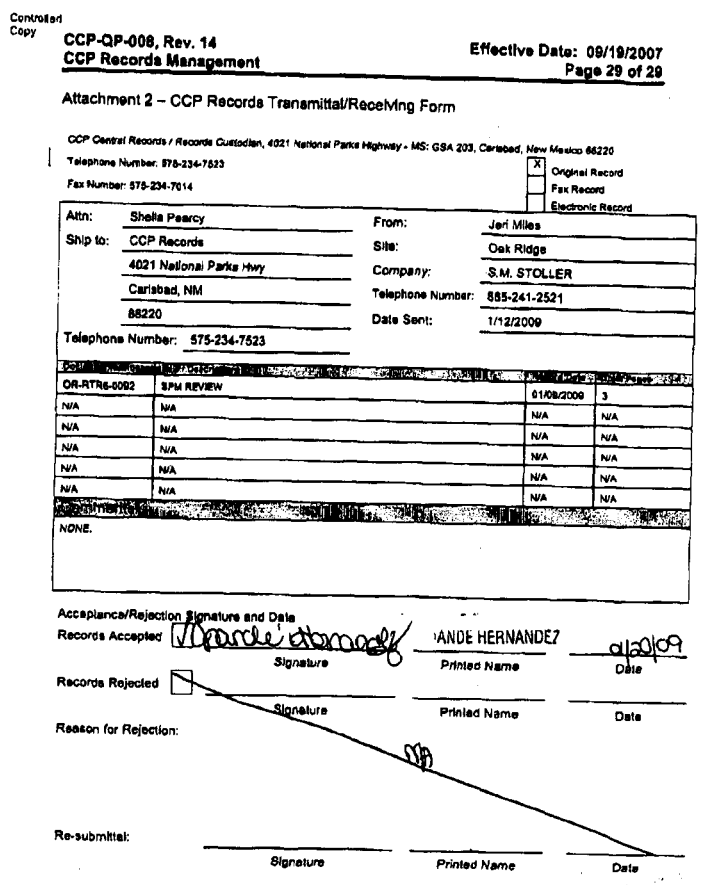


Controlled Copy

CCP-QP-008, Rev. 14
CCP Records Management

Effective Date: 09/19/2007
Page 29 of 29

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Central Records / Records Custodian, 4021 National Parks Highway - MS: GSA 203, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523
Fax Number: 575-234-7014

[X] Original Record
[ ] Fax Record
[ ] Electronic Record

Attn:	Sheila Pearcy	From:	Jeri Miles
Ship to:	CCP Records	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	S.M. STOLLER
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	1/12/2009
Telephone Number:	575-234-7523		

OR-RTR6-0092	3PM REVIEW	01/08/2009	3
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

NONE.

Acceptance/Rejection Signature and Date

Records Accepted — Signature — ANDE HERNANDEZ (Printed Name) — 1/20/09 (Date)

Records Rejected — Signature — Printed Name — Date

Reason for Rejection:

Re-submittal: — Signature — Printed Name — Date

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR6-0342 **Examination Date:** 8/23/10

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-10b**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-10b**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-10b**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-10b**				Container Numbers: X10C9309201G, X10C9309201H, X10C0501828, X10C9309201J, X10C9400066A, X10C0501534, X10C0501527A, X10C0501536, X10C0102547G
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-11**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-11**			X	No NCRs
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-10**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-10b**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, C3-4, Table C3-11**	X			

ORIGINAL

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0342 **Examination Date:** 8/23/10

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, C1-3, Table C3-11**	X			
11. Are prohibited items absent? **Reference Source: CCP-PO-001, C3-4a**	X			
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C3-4a**			X	No observable liquids.
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-4a**			X	No discrepancies.
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-4a**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C3-4a**	X			
16. Was the Lines-Pair Resolution Test Check included in the BDR? **Reference Source: CCP-PO-001, C3-4a**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-3**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-3**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0342 **Examination Date:** 8/23/10

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-3**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-3**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP-PO-001, Table C3-1**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.

Comments: *None*

The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.

Beverly S. Schrock	BSSchrock	April 18, 2011
SPM Printed Name	Signature	Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5 – CCP Radiography Batch Data Report Cover Sheet

Batch Data Report No.: OR-RTR6-0342 Date: 08/23/10

Replicate Scan:	X10C0501536
Independent Observation:	X10C9309201G
1	X10C9309201G
2	X10C9309201H
3	X10C0501828
4	X10C9309201J
5	X10C9400066A
6	X10X0501534 MAE 10-8-10
7	X10C0501527A
8	X10C0501536
9	X10C0102547G
10	N/A
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

Independent Technical Reviewer:

Sue BRADLEY (Printed Name) Sue Bradley (Signature) 10-19-10 (Date)

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR6-0342 Date: 08/23/10

Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP Independent Technical Reviewer Checklist	3
4	CCP RTR Measurement Control Report	5
5	CCP Radiography Data Sheets	6
6	Copy of NCRs (NA, If Not Applicable)	N/A

All Quality Checks were performed and recorded on CCP-TP-053, Rev. 8, CCP Radiography Measurement Control Report.

Steve Binning
RTR Operator

Steve Binning
Signature

10-26-2010
Date

Per CCP-SO-011, 100% of the audio/video record for all containers in this BDR have been reviewed. All potential prohibited items are correctly identified and Quality Assurance Objectives have been met.
ITR Name: SUE BRADLEY Signature: Sue Bradley Date: 10-19-10

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR6-0342

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐NO	☒YES	☐N/A
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 8	☐NO	☒YES	☐N/A
3.	Are the WMPs entered correctly?	☐NO	☒YES	☐N/A
4.	Verify the hand calculations on the Radiography Data Sheet, and for each WMP, the weights are entered into the Estimated Weight column of Section 4 of Attachment 2.	☐NO	☒YES	☐N/A
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐NO	☒YES	☐N/A
6.	Has the data been verified for transcription errors?	☐NO	☒YES	☐N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐NO	☒YES	☐N/A
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐NO	☒YES	☐N/A
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐NO	☒YES	☐N/A
10.	Is all data recorded clearly, legibly, and accurately?	☐NO	☒YES	☐N/A
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐NO	☒YES	☐N/A
12.	Was justification made for changing the original data?	☐NO	☒YES	☐N/A
13.	Were data changes made by the individual who originally collected the data?	☐NO	☒YES	☐N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐NO	☒YES	☐N/A
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐NO	☒YES	☐N/A
16.	Is there an adequate written description of the contents of each item?	☐NO	☒YES	☐N/A
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐NO	☒YES	☐N/A
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐NO	☒YES	☐N/A

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR6-0342

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐NO	☒YES	☐ N/A
20.	Was the Replicate Scan performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent).	☐ NO	☒YES	☐N/A
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐NO	☒ YES	☐N/A
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐NO	☒YES	☐ N/A
23.	Was the Independent Observation performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent).	☐NO	☒YES	☐N/A
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐NO	☒YES	☐N/A
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐NO	☒YES	☐N/A
26.	Was the data collection performed by qualified individuals?	☐NO	☒YES	☐ N/A
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐NO	☐YES	☒N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐NO	☒YES	☐N/A

Comments: N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

SUE BRADLEY — Printed Name

Sue Bradley — Signature

10-19-10 — Date

4

Attachment 1 – CCP RTR Measurement Control Report

Site Location:	ORNL	
Batch Data Report No.:	OR-RTR6-0342	
Examination Date:	8/23/2010	
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test Pattern Test lines-pair/cm: 25 (Minimum acceptable is 5 lines-pair/cm)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator: Steve Binning (Printed Name) — Steve Binning (Signature) — 8/23/2010 (Date)		

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☐ RTR Examination ☑ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0342
Examination Date:	08/23/10
Waste Container ID:	X10C0501536
Video/Audio Recorded Media Number:	OR-RTR6-0342 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 49.1 kg. Tare Wt: 33.2 kg. Net Wt: 15.9 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	75 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501536

Section 3: Container Inventory and Comments (Detailed descriptions)
Metal clips, electrical device, scrap metal Absorbent material Rubber gloves Plastic bags with horsetails, plastic suits, tyvek coveralls, breathing air hose/fittings, plastic belt buckles, plastic pen, plastic sheeting, plastic tubing

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	0.5
Cellulosics (C):	
Rubber (R):	0.3
Plastics (waste materials) (XPM):	14.1
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	15.9

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501536

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑ MS 10-5-10	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

The Replicate Scan is in agreement with the original scan.

RTR Operator:

Maria Steade	Maria Steade	08/23/10
Print Name	Signature Maria Steade	Date 10/5/10

Attachment 2 – CCP Radiography Data Sheet

Section 1	
☐ RTR Examination ☐ RTR Replicate Scan ☑ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0342
Examination Date:	08/23/10
Waste Container ID:	X10C9309201G
Video/Audio Recorded Media Number:	OR-RTR6-0342 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: ~~51.8~~ 55.2 kg. mLS 10-13-10 Tare Wt: 33.2 kg. Net Wt: ~~18.6~~ 22.0 kg. mLS 10-13-10
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	90 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9309201G

Section 3: Container Inventory and Comments (Detailed descriptions)
Metal clips, scrap metal
Absorbent material
Wood w/nails
Rubber gloves
Plastic bags with horsetails, tyvek coveralls, plastic suits, breathing air hose/fittings, plastic belt buckles

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.3
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	2.0
Cellulosics (C):	~~7.0~~ 7.5 MKS 10-13-10
Rubber (R):	0.6
Plastics (waste materials) (XPM):	~~9.0~~ 11.6 MKS 10-13-10
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	~~19.6~~ 23.0 MKS 10-13-10

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9309201G

Screen	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
Radiography			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

This Independent Observation is in agreement with the original scan.

RTR Operator:

Maria Steade — Maria Steade — 08/23/10

Print Name — Signature Maria Steade — Date 10-13-10

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0342
Examination Date:	08/23/10
Waste Container ID:	X10C9309201G
Video/Audio Recorded Media Number:	OR-RTR6-0342 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 55.2 kg. Tare Wt: 33.2 kg. Net Wt: 22.0 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9309201G

Section 3: Container Inventory and Comments (Detailed descriptions)
Metal clips, scrap metal Absorbent material Wood, paper Rubber gloves Plastic bags with horsetails, tyvek coveralls, plastic suits, breathing air hose with fittings, plastic belt buckles, plastic sheeting

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	8.0
Rubber (R):	0.6
Plastics (waste materials) (XPM):	10.8
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	22.0

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9309201G

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	08/23/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0342
Examination Date:	08/23/10
Waste Container ID:	X10C9309201H
Video/Audio Recorded Media Number:	OR-RTR6-0342 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 67.7 kg. Tare Wt: 33.2 kg. Net Wt: 34.5 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9309201H

Section 3: Container Inventory and Comments (Detailed descriptions)
Scrap metal, metal clips, communication cable Absorbent material Wood with nails Rubber gloves Plastic bags with horsetails, tyvek coveralls, plastic sheeting, breathing air hose with fittings, plastic suits, plastic belt buckles

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	12.5
Rubber (R):	0.6
Plastics (waste materials) (XPM):	18.4
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	34.5

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9309201H

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block.)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	08/23/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0342
Examination Date:	08/23/10
Waste Container ID:	X10C0501828
Video/Audio Recorded Media Number:	OR-RTR6-0342 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 58.4 kg. Tare Wt: 33.2 kg. Net Wt: 25.2 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	75 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501828

Section 3: Container Inventory and Comments (Detailed descriptions)
Hack saw blade @ 12", metal clips, hand tool, metal closure ring, banding material, razor blade on bottom of drum, scrap metal Cardboard, CLOTH GLOVES BB. 10-19-10 Rubber gloves Plastic bags with horsetails, tyvek coveralls, plastic suits, breathing air hose with fittings, plastic sheeting, plastic belt buckles, plastic ~~wound~~ WANDS BB. 10-19-10

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	4.4
Rubber (R):	0.6
Plastics (waste materials) (XPM):	17.2
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	25.2

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501828

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	08/23/10
Print Name	Signature	Date
STEVE BINNING	Steve Binning	10-19-10

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0342
Examination Date:	08/23/10
Waste Container ID:	X10C9309201J
Video/Audio Recorded Media Number:	OR-RTR6-0342 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 51.8 kg. Tare Wt: 33.2 kg. Net Wt: 18.6 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9309201J

Section 3: Container Inventory and Comments (Detailed descriptions)
Absorbent material Canvas blanket, wood with nails Rubber gloves Plastic bags with horsetails, plastic spray bottle top, plastic containers, plastic sheeting, plastic seat ring, tyvek coveralls, plastic suits, breathing air hose with fittings, plastic belt buckles

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	5.1
Rubber (R):	0.5
Plastics (waste materials) (XPM):	10.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	18.6

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9309201J

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	08/23/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0342
Examination Date:	08/23/10
Waste Container ID:	X10C9400066A
Video/Audio Recorded Media Number:	OR-RTR6-0342 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 90.0 kg. Tare Wt: 33.2 kg. Net Wt: 56.8 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 3 layers
Volume Utilization Percentage:	90 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9400066A

Section 3: Container Inventory and Comments (Detailed descriptions)
Scrap metal, hand tools, metal lab ware, metal pipe, air cooled electric motor, electric heater, one gallon metal paint cans, metal hot plate, electrical devices Glass lab ware, broken glass @ 8", 22", 27" in paint cans, absorbent material Rubber gloves Plastic bags with horsetails, plastic sheeting, tygon tubing

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	39.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	10.0
Cellulosics (C):	
Rubber (R):	0.6
Plastics (waste materials) (XPM):	7.2
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	56.8

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9400066A

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	08/23/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0342
Examination Date:	08/23/10
Waste Container ID:	X10C0501534
Video/Audio Recorded Media Number:	OR-RTR6-0342 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 65.0 kg. Tare Wt: 33.2 kg. Net Wt: 31.8 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 3 layers
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501534

Section 3: Container Inventory and Comments (Detailed descriptions)
Batteries, scrap metal, metal lab ware, hand tools, electric heater, c - clamp, metal electrical device
fluorescent light bulb, absorbent material
Cloth lab coat
Rubber gloves
Plastic bags with horsetails, tyvek coveralls, plastic lapel filter housings, plastic sheeting

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	19.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	3.0
Cellulosics (C):	1.5
Rubber (R):	0.6
Plastics (waste materials) (XPM):	7.2
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	31.8

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501534

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	08/23/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Page 1 of 3

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0342
Examination Date:	08/23/10
Waste Container ID:	X10C0501527A
Video/Audio Recorded Media Number:	OR-RTR6-0342 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 66.8 kg. Tare Wt: 33.2 kg. Net Wt: 33.6 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	80 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501527A

Section 3: Container Inventory and Comments (Detailed descriptions)
Scrap metal, metal bolt, metal clips, metal c - clamp, battery Absorbent material CARDBOARD JB. 10-19-10 Rubber gloves Plastic bags with horsetails, plastic spray bottle tops and bottles empty, plastic suits, tyvek coveralls, breathing air hose with fittings, plastic sheeting, plastic belt buckles

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	4.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	4.4 JB, 10-19-10
Rubber (R):	0.6
Plastics (waste materials) (XPM):	~~26.0~~ 21.6 JB 10-19-10
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	33.6

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501527A

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	08/23/10
Print Name	Signature	Date
STEVE BINNING	Steve Binning	10-19-10

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0342
Examination Date:	08/23/10
Waste Container ID:	X10C0501536
Video/Audio Recorded Media Number:	OR-RTR6-0342 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 49.1 kg. Tare Wt: 33.2 kg. Net Wt: 15.9 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	75 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501536

Section 3: Container Inventory and Comments (Detailed descriptions)
Metal clips, metal badge holder clip Aluminum face plate and wires Plastic bags with horsetails, plastic suits, tyvek coveralls, breathing air hose with fittings, plastic belt buckles, plastic sheeting, plastic ink pens

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	0.2
Aluminum-based Metals / Alloys (AM):	0.4
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	0.6
Plastics (waste materials) (XPM):	14.7
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	15.9

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501536

Section 5: RTR Summary (Questions answered 'YES' will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	08/23/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0342
Examination Date:	08/23/10
Waste Container ID:	X10C0102547G
Video/Audio Recorded Media Number:	OR-RTR6-0342 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-RF-CH-HET
Waste Container Weights:	Gross Wt: 67.2 kg. Tare Wt: 33.2 kg. Net Wt: 34.0 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0102547G

Section 3: Container Inventory and Comments (Detailed descriptions)
Metal handles, metal framed H.E.P.A. filter with filter media Absorbent material Wood Plastic bags with horsetails, plastic sheeting, plastic suits, plastic spray bottle top, plastic belt buckles, plastic bottle, tyvek coveralls

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	17.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	3.0
Rubber (R):	
Plastics (waste materials) (XPM):	11.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	34.0

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0102547G

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block).	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	08/23/10
Print Name	Signature	Date

DIVIDER PAGE ONLY

Not part of page count

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523 or 575-234-7431

Fax Number: 575-234-7033

[ ] Original Record [ ] Copy
[ ] Fax Record
[X] Electronic Record

Attn:	Sheila Pearcy	From:	Laurel Smith
Ship to:	CCP Records Custodian	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	S.M. Stoller
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	10/27/10
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0342-A	NDE PRIMARY DVD	8/23/10	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

Comments

NONE

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X] — Signature: Cheryl Armijo — Printed Name: CHERYL ARMIJO — Date: 10-29-10

Records Rejected [ ] — Signature: _____ — Printed Name: _____ — Date: _____

Reason for Rejection:

Re-submittal: Signature: _____ — Printed Name: _____ — Date: _____

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	3980
DESTINATION TEL #	918652413117
DESTINATION ID	ORNL
ST. TIME	10/29 11:59
TIME USE	00'15
PAGES SENT	1
RESULT	OK

[redacted]

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523 or 575-234-7431

Fax Number: 575-234-7033

[ ] Original Record [ ] Copy
[ ] Fax Record
[X] Electronic Record

Attn:	Sheila Pearcy	From:	Laurel Smith
Ship to:	CCP Records Custodian	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	S.M. Stoller
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	10/27/10
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0342-A	NDE PRIMARY DVD	8/23/10	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

Comments

NONE

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X] _____ CHERYL ARMIJO 10-29-10
Signature Printed Name Date

Records Rejected [ ]

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523 or 575-234-7431

Fax Number: 575-234-7033

[X] Original Record
[ ] Fax Record
[X] Electronic Record
[ ] Copy

Attn:	Sheila Pearcy	From:	Laurel Smith
Ship to:	CCP Records Custodian	Site:	ORNL
	4021 National Parks Hwy	Company:	S.M. Stoller
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	4/20/11
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0342	NDE BDR	8/23/10	38
OR-RTR6-0342-B	BACKUP DVD	8/23/10	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

Comments

SPM CHECKLIST IN CARLSBAD

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [☑]	Donna Birchell (Signature)	DONNA BIRCHELL (Printed Name)	4-21-11 (Date)
Records Rejected [ ]	(Signature)	(Printed Name)	(Date)

Reason for Rejection:

Re-submittal:

(Signature)	(Printed Name)	(Date)

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	4084
DESTINATION TEL #	918652413117
DESTINATION ID	ORNL
ST. TIME	04/25 15:03
TIME USE	00'18
PAGES SENT	1
RESULT	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523 or 575-234-7431

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[X] Electronic Record

Attn:	Sheila Pearcy	From:	Laurel Smith
Ship to:	CCP Records Custodian	Site:	ORNL
	4021 National Parks Hwy	Company:	S.M. Stoller
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	4/20/11
Telephone Number:	575-234-7523		

Document Number	Title/Description	Record Date	Total Pages
OR-RTR6-0342	NDE BDR	8/23/10	38
OR-RTR6-0342-B	BACKUP DVD	8/23/10	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

Comments:

SPM CHECKLIST IN CARLSBAD

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [X] Donna Birchell (Signature) DONNA BIRCHELL (Printed Name) 4-21-11 (Date)

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR6-0353 **Examination Date:** 9/15/10

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR? **Reference Source: CCP-PO-001, B3-10b**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, B3-10b**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, B3-10b**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, B3-10b**				Container Numbers: X10C9312235A X10C0501533 X10C0501599 X10C0501605 X10C0501603 X10C0501650 X10C0501524 X10C9310003E
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table B3-11**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table B3-11**	X			NCR-ORNL-0127-10
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, B3-10**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, B3-10b**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, B3-4, Table B3-11**	X			Except X10C0501524 – Use As Is per NCR-ORNL-0127-10
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, B1-3, Table B3-11**	X			Except X10C0501524 – Use As Is per NCR-ORNL-0127-10

ORIGINAL

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0353 **Examination Date:** 9/15/10

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
11. Are prohibited items absent? **Reference Source: CCP-PO-001, B3-4a**	X			
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, B3-4a**			X	No observable liquid in containers.
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, B3-4a**			X	No discrepancies.
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, B3-4a**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, B3-4a**	X			
16. Was the Lines-Pair Resolution Test Check included in the BDR? **Reference Source: CCP-PO-001, B3-4a**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, B1-3**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, B1-3**	X			
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, B1-3**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0353 **Examination Date:** 9/15/10

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, B1-3**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP-PO-001, Table B3-1**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.

Comments: None

The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.

Beverly S. Schrock	BSSchrock	November 1, 2010
SPM Printed Name	Signature	Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5 – CCP Radiography Batch Data Report Cover Sheet

Batch Data Report No.: OR-RTR6-0353 Date: 9/15/10

Replicate Scan:	X10C0501599
Independent Observation:	X10C0501650
1	X10C9312235A
2	X10C0501533
3	X10C0501599
4	X10C0501605
5	X10C0501603
6	X10C0501650
7	X10C0501524
8	X10C9310003E
9	N/A
10	N/A
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

Independent Technical Reviewer:

HARDIP SINGH DHINGRA (Printed Name) H. S. Dhingra (Signature) 10/18/2010 (Date)

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR6-0353 Date: 9/15/10

Table Of Contents

Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP Independent Technical Reviewer Checklist	3
4	CCP RTR Measurement Control Report	5
5	CCP Radiography Data Sheets	6
6	Copy of NCRs (NA, If Not Applicable)	36

Batch Narrative

All Quality Checks were performed and recorded on CCP-TP-053, Rev. 8, CCP Radiography Measurement Control Report.

STEVE BINNING
RTR Operator

Steve Binning
Signature

10-26-2010
Date

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR6-0353

	Description			
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	☐ N/A
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 8	☐ NO	☒ YES	☐ N/A
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	☐ N/A
4.	Verify the hand calculations on the Radiography Data Sheet, and for each WMP, the weights are entered into the Estimated Weight column of Section 4 of Attachment 2.	☐ NO	☒ YES	☐ N/A
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	☐ N/A
6.	Has the data been verified for transcription errors?	☐ NO	☒ YES	☐ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	☐ N/A
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	☐ N/A
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	☐ N/A
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	☐ N/A
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☒ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☒ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☒ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	☐ N/A
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	☐ N/A
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	☐ N/A
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	☐ N/A
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	☐ N/A

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR6-0353

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	☐ N/A
20.	Was the Replicate Scan performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent).	☐ NO	☒ YES	☐ N/A
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	☐ N/A
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	☐ N/A
23.	Was the Independent Observation performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent).	☐ NO	☒ YES	☐ N/A
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	☐ N/A
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	☐ N/A
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	☐ N/A
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☒ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	☐ N/A

Comments:

X10C0501524 - AKE Issue Batteries NCR-ORNL-0127-10
X10C0501533, X10C0501605, X10C0501603, and X10C9310003E are Low Level Waste

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Hardip Singh Dhingra	H.S. Dhingra	10/18/2010
Printed Name	Signature	Date

Attachment 1 – CCP RTR Measurement Control Report

Site Location:	ORNL	
Batch Data Report No.:	OR-RTR6-0353	
Examination Date:	9/15/2010	
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test Pattern Test lines-pair/cm: 27 (Minimum acceptable is 5 lines-pair/cm)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator:		
Steve Binning (Printed Name)	Steve Binning (Signature)	9/15/2010 (Date)

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☐ RTR Examination ☑ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0353
Examination Date:	09/15/10
Waste Container ID:	X10C0501599
Video/Audio Recorded Media Number:	OR-RTR6-0353 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 45.0 kg. Tare Wt: 33.2 kg. Net Wt: 11.8 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	90 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501599

Section 3: Container Inventory and Comments (Detailed descriptions)
Scrap metal, metal clip
Absorbent material
Cardboard, paper
Rubber gloves
Plastic bags with horsetails, plastic suits, tygon tubing, plastic sheeting, plastic cuff, plastic belt buckle

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	0.2
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	1.5
Cellulosics (C):	2.0
Rubber (R):	0.3
Plastics (waste materials) (XPM):	7.8
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	11.8

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501599

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

The Replicate Scan is in agreement with the original scan.

RTR Operator:

Maria Steade	Maria Steade	09/15/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

☐ RTR Examination	☐ RTR Replicate Scan	☑ RTR Independent Observation
Site ID and Location:	ORNL	
Batch Number:	OR-RTR6-0353	
Examination Date:	09/15/10	
Waste Container ID:	X10C0501650	
Video/Audio Recorded Media Number:	OR-RTR6-0353 A	
Procedure and Revision No.:	CCP-TP-053	Rev. A 8 mcs 12/20/10
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A	

Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 66.8 kg. Tare Wt: 33.2 kg. Net Wt: 33.6 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501650

Section 3: Container Inventory and Comments (Detailed descriptions)
Scrap metal, metal drum closure ring, hand tool, bolts, small metal tubing/fittings
Aluminum rings
Absorbent material
Wooden framed HEPA filters, wooden handle brushes
Plastic bags with horsetails, tygon tubing, plastic sheeting

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	14.1
Aluminum-based Metals / Alloys (AM):	4.5
Other Metals (OM):	
Other Inorganic Materials (OI):	2.0
Cellulosics (C):	7.5
Rubber (R):	
Plastics (waste materials) (XPM):	5.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	33.6

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501650

	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

This Independent Observation is in agreement with the original scan.

RTR Operator:

Maria Steade — Maria Steade — 09/15/10

Print Name — Signature Maria Steade — Date 10/20/10

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0353
Examination Date:	09/15/10
Waste Container ID:	X10C9312235A
Video/Audio Recorded Media Number:	OR-RTR6-0353 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 94.7 kg. Tare Wt: 33.2 kg. Net Wt: 61.5 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9312235A

Section 3: Container Inventory and Comments (Detailed descriptions)
Scrap metal, metal glove box frames, metal bolt, metal can openers, metal valve handle, metal cans
Aluminum rings
Absorbent material, glass lab ware with solidified material
Leather gloves, wood framed H.E.P.A. filters with filter media
Plastic bags with horsetails, plastic lab ware

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	31.0
Aluminum-based Metals / Alloys (AM):	5.0
Other Metals (OM):	
Other Inorganic Materials (OI):	6.0
Cellulosics (C):	9.5
Rubber (R):	
Plastics (waste materials) (XPM):	10.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	61.5

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9312235A

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	09/15/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0353
Examination Date:	09/15/10
Waste Container ID:	X10C0501533
Video/Audio Recorded Media Number:	OR-RTR6-0353 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 66.2 kg. Tare Wt: 33.2 kg. Net Wt: 33.0 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501533

Section 3: Container Inventory and Comments (Detailed descriptions)
Metal can, small metal pipe and fittings, scrap metal, shut off valves, metal bolt, metal pump assembly, unistrut
Absorbent material
Wood handle paint brush, cloth lab coats
Rubber gloves, rubber hose
Plastic bag with horsetail, plastic sheeting

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	17.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	3.7
Rubber (R):	2.3
Plastics (waste materials) (XPM):	7.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	33.0

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501533

Section 5: RTR Summary (Questions answered 'YES' will be explained in the Comments block.)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	09/15/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0353
Examination Date:	09/15/10
Waste Container ID:	X10C0501599
Video/Audio Recorded Media Number:	OR-RTR6-0353 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 45.0 kg. Tare Wt: 33.2 kg. Net Wt: 11.8 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	80 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501599

Section 3: Container Inventory and Comments (Detailed descriptions)
Metal clip Absorbent material Cardboard, paper, canvas blanket Rubber gloves Plastic bags with horsetails, plastic sheeting, plastic belt buckle, plastic cuff, tyvek coveralls, breathing air hose with no fittings

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	3.0
Rubber (R):	0.3
Plastics (waste materials) (XPM):	5.9
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	11.8

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501599

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	09/15/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0353
Examination Date:	09/15/10
Waste Container ID:	X10C0501605
Video/Audio Recorded Media Number:	OR-RTR6-0353 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 63.2 kg. Tare Wt: 33.2 kg. Net Wt: 30.0 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501605

Section 3: Container Inventory and Comments (Detailed descriptions)
Hack saw blades and band saw blade @ 5" to 13", metal can, metal hose clamps, hand tools, scrap metal, threaded pipe, metal clips, metal closure rings Absorbent material Cloth gloves Rubber gloves Plastic bag with horsetail, plastic encased vacuum cleaner with attachments, breathing air hose with fittings, tyvek coveralls, plastic suits, plastic sheeting, plastic belt buckle, plastic bottle

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	6.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	3.0
Rubber (R):	0.9
Plastics (waste materials) (XPM):	17.6
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	30.0

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501605

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	09/15/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0353
Examination Date:	09/15/10
Waste Container ID:	X10C0501603
Video/Audio Recorded Media Number:	OR-RTR6-0353 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 59.2 kg. Tare Wt: 33.2 kg. Net Wt: 26.0 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	80 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501603

Section 3: Container Inventory and Comments (Detailed descriptions)
Metal clips, metal shavings, saws all blades @ 22", 25", breaded wire choker cable, scrap metal, wire reenforced flex hose, metal bolts Absorbent material Plastic bags with horsetails, plastic suits, plastic belt buckles, tyvek coveralls, breathing air hose with fittings, plastic cuff, plastic sheeting

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	10.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	13.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	26.0

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501603

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	09/15/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0353
Examination Date:	09/15/10
Waste Container ID:	X10C0501650
Video/Audio Recorded Media Number:	OR-RTR6-0353
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 66.8 kg. Tare Wt: 33.2 kg. Net Wt: 33.6 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 3 layers
Volume Utilization Percentage:	80 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501650

Section 3: Container Inventory and Comments (Detailed descriptions)
Banding material, scrap metal, metal closure ring, metal plates stacked, small metal tubing with fittings, metal file
Aluminum rings
Absorbent material
Wood framed H.E.P.A. filters, wood handled brushes
Plastic bags with horsetails, plastic sheeting, plastic tubing

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	13.6
Aluminum-based Metals / Alloys (AM):	5.0
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	5.8
Rubber (R):	
Plastics (waste materials) (XPM):	6.7
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	33.6

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501650

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	09/15/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0353
Examination Date:	09/15/10
Waste Container ID:	X10C0501524
Video/Audio Recorded Media Number:	OR-RTR6-0353 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☐ NO ☑ YES NCR No.: NCR-ORNL-0127-10 NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-ISTP-CH-HET
Waste Container Weights:	Gross Wt: 53.4 kg. Tare Wt: 33.2 kg. Net Wt: 20.2 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	80 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501524

Section 3: Container Inventory and Comments (Detailed descriptions)
Metal framed H.E.P.A. filters with filter media, batteries, scissors @ 30"
Aluminum respirator cartridges
Absorbent material
Cloth lab coat
Rubber gloves
Plastic bags with horsetails, plastic cuff, plastic sheeting, plastic rope, plastic lapel filter housings

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	10.2
Aluminum-based Metals / Alloys (AM):	0.4
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	1.2
Rubber (R):	0.6
Plastics (waste materials) (XPM):	5.3
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	20.2

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C0501524

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☑	☐	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

AKE Issue Batteries NCR-ORNL-0127-10

RTR Operator:

Steve Binning	Steve Binning	09/15/10
Print Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☑ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID and Location:	ORNL
Batch Number:	OR-RTR6-0353
Examination Date:	09/15/10
Waste Container ID:	X10C9310003E
Video/Audio Recorded Media Number:	OR-RTR6-0353 A
Procedure and Revision No.:	CCP-TP-053 Rev. 8
NCR(s) associated with the container? (e.g., Prohibited Items)	☑ NO ☐ YES NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 125/225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt: 50.6 kg. Tare Wt: 33.2 kg. Net Wt: 17.4 kg.
Rigid Liner and Liner Vent Description: (e.g., "90 mil liner – NO Lid" or "NO Liner")	No Liner
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	60 %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9310003E

Section 3: Container Inventory and Comments (Detailed descriptions)
Metal paint roller, metal clip, scrap metal Absorbent material Cloth mop heads, tape rolls, cardboard Rubber gloves Plastic bags with horsetails, plastic tarp, plastic sheeting, plastic suits, tyvek coveralls, plastic belt buckles, breathing air hose with fittings

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	27.8
Plastics (PP):	1.0
Others: Cardboard Liner Insert	4.4
Total Packaging Weight:	33.2
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	1.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	2.5
Cellulosics (C):	3.0
Rubber (R):	0.3
Plastics (waste materials) (XPM):	10.1
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	17.4

Attachment 2 – CCP Radiography Data Sheet (Continued)

Waste Container ID: X10C9310003E

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)	Yes	No	N/A
Is there observable liquid in the container?	☐	☑	
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☑	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☑	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☑	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☑	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☑	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐	☑	
Is there an indication of wastes containing explosives or compressed gases?	☐	☑	
Is there an indication of polychlorinated biphenyls (PCBs) liquids?	☐	☑	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☑	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☑	
TRUPACT II Criteria			
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste?	☐	☑	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☑	
Are there sealed containers GREATER than 4 liters?	☐	☑	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☑	

Comments:

N/A

RTR Operator:

Steve Binning	Steve Binning	09/15/10
Print Name	Signature	Date

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR-ORNL-0127-10 Revision 0

1. Lot No./Heat No. or Serial No. (as applicable): N/A	2. Process (e.g., NDA, HSG, NDE, VE, Other): NDE	3. Batch Data Report # (s): See Attachment 1
4. Order/Work Order/Job Control Number (as applicable): N/A	5. PO # (as applicable): N/A	Container #(s): See Attachment 1
	6. Supplier (as applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7. (a) CCP HOLD TAGS SHALL BE APPLIED UNLESS JUSTIFIED AS FOLLOWS: This issue relates to a revision to the AK Summary Report, only. It does not affect the characterization, certification, or shipability of any of the containers noted in this NCR. See final disposition Use-As-Is for expanded discussion.

7. (b) NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ >500 ppmv Flamm. VOCs

☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS ☒ Other

7. (c) Description of Nonconformance Required Condition (Implementing Procedure, Revision, Section, & Text):

CCP-AK-ORNL-008 Rev.0 currently groups batteries into "Iron-based metals" when they would more appropriately be described as "Other metals".

7. (d) Actual Condition

Batteries have been identified by RTR personnel in various containers in the OR-ISTP-CH-HET waste stream.

NOTE1: Addition of containers meeting this condition will be added to the scope of this NCR and will not require revision to this NCR.
NOTE 2:

1. **RTR personnel will continue to document batteries as "IM" on the Radiography data sheets until such time as the Revision 1 to the AK Summary is issued.**
2. **No change to BDRs where batteries were included in the "IM" waste material parameter will be necessary if the BDRs were completed prior to the issue of CCP-AK-ORNL-008, Revision 1.**
3. **This NCR will remain open and containers added without revision to the NCR until Revision 1 of CCP-ORNL-AK-008 is issued.**
4. **Upon issue of CCP-ORNL-AK-008, Revision 1, this NCR may be closed and a copy of the NCR with all containers identified will be provided to the AKE.**

8. NCR Originator (Print name, sign, and date) Steve Binning Steve Binning 9-13-2010	9. CCP QA Engineer or Designee Validation (Print name, sign, and date) Dean Mooney 9/13/10
9a. Does this NCR have the potential to impact AK? ☒ YES ☐ NO ☐ INDETERMINATE If YES or INDETERMINATE, then apply Trend Code L in Block 12.	
9b. Have the CCP HOLD TAGS associated with the NCR been applied? ☐ YES ☒ NO ☐ N/A	
10. Significant Condition? ☐ YES ☒ NO ☐ N/A	11. Recurring Condition? ☐ YES ☒ NO (If YES, List NCRs/CARs)
12. Trend Code: L	13. Responsible Manager: Candice Weston

COPY

Attachment 1 – CCP Nonconformance Report (NCR)	
NCR No. NCR-ORNL-0127-10	Revision 0
INTERIM DISPOSITION	
14. Interim Disposition (Check One) ☒ N/A (See Final Disposition) ☐ Hold ☐ Conditional Accept ☐ Conditional Use ☐ Sort ☐ Reinspect/Retest ☐ Remediate (a) Instructions for Completion of the Interim Disposition:	
INTERIM DISPOSITION APPROVALS	
15 .Responsible Manager/Individual (Print, sign, and date)	16. CCP QA Engineer or Designee (Print, sign and date)
Additional Approvals: (Print, sign and date)	Additional Approvals: (Print, sign and date)
COMPLETION OF INTERIM DISPOSITION	
17. Interim Disposition Complete Responsible Manager/Individual: (Print, sign and date)	
18. Interim Disposition Verified CCP QA Engineer: (Print, sign and date)	

COPY

Attachment 1 – CCP Nonconformance Report (NCR)

NCR No. NCR-ORNL-0127-10 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check One)
☒ Use-As-Is ☐ Reject ☐ Repair ☐ Rework ☐ Scrap

(a) Technical Justification (Required for Use-As-Is and Repair dispositions, N/A for Reject, Scrap, or Rework dispositions.)
The Acceptable Knowledge Expert has been directed by the ORNL SPM and CCP Management that batteries will be grouped as "Other Metals" (see Attachment 2). The Acceptable Knowledge Expert has submitted a freeze file change to Documents Control personnel to have the discussion of batteries moved from "Iron-based metals" to "Other metals" (see Attachment 3 of this NCR). This freeze file change will be incorporated when CCP-ORNL-AK-008 is revised to Revision 1. There is no impact to the usability of the data as the Radiography data sheets confirm the waste form matches the Waste Stream description and/or the Waste Matrix Code currently described in CCP-AK-ORNL-008, Revision 1.

(b) Disposition Instructions (Required for Reject and Scrap, N/A for Use-As-Is, Rework, and Repair) N/A

(c) Instructions for Completion of the Final Disposition, Including Inspection Criteria (Required for Repair and Rework, N/A for Use-As-Is, Reject and Scrap) N/A

(d) Corrective Actions (Actions to Prevent Recurrence) - as required, N/A if left blank. N/A

FINAL DISPOSITION APPROVALS

20. Responsible Manager/Individual: (Print, sign, and date)	21. CCP QA Engineer or Designee: (Print, sign, and date)
Candice Weston [signature] 09/13/11	Dean Mooney [signature] 9/13/11
Additional Approvals: (Print, sign, and date) N/A	Additional Approvals: (Print, sign, and date) N/A

CLOSURE

22. Final Disposition Complete Responsible Manager/Individual: (Print, sign, and date)

23. Attachments:
Attachment 1 – Listing of Containers and Corresponding BDRs
Attachment 2 – Direction to group batteries into "OM" from ORNL SPM and CCP Management
Attachment 3 – Freeze file change submitted by the AKE to Documents Control personnel

24. (a) HOLD TAG removal has been validated and reconciled for all nonconforming items on the NCR. ☐
(b) Check if not applicable (N/A) and provide an explanation here or on a continuation sheet. ☒

SEE BLOCK 7(a)

25. Final Disposition Verified – NCR Closed CCP QA Engineer: (Print, sign, and date)

COPY

X10C9309201W	OR-RTR6-0350
X10C9309201A	OR-RTR6-0352
X10C9309201U	OR-RTR6-0352
X10C0501524	OR-RTR6-0353

COPY

Weston, Candice - WTS NCR-ORNL-0127-10 Rev 0 ATTACHMENT 2 PAGE 1 OF 2

From: Porter, Larry - WTS
Sent: Tuesday, September 07, 2010 12:58 PM
To: Weston, Candice - WTS
Cc: Harrison, Jeff; Tilmon, Pat - ORNL; Martinez, Margie; Miles, Shane; Schrock, Beverly - WTS; Steade, Maria; 'Sbinning@cinci.rr.com'; Mooney, Dean - WTS
Subject: RE: Batteries

I concur that batteries are "other metals OM". I also feel the direction given in the email will clean up the problem.

Larry Porter
Program Manager
Work 575 234-7481
Cell Phone 575 706-0463

-----Original Message-----
From: Weston, Candice - WTS
Sent: Tuesday, September 07, 2010 12:53 PM
To: Porter, Larry - WTS
Cc: Harrison, Jeff; Tilmon, Pat - ORNL; Martinez, Margie; Miles, Shane; Schrock, Beverly - WTS; Steade, Maria; 'Sbinning@cinci.rr.com'; Mooney, Dean - WTS
Subject: RE: Batteries

Larry - Please see email traffic below. Can you please provide concurrence with direction provided in email dated 09/07/10 at 11:30 AM per our discussion.

Thank you, Candice Weston

-----Original Message-----
From: Martinez, Margie
Sent: Tuesday, September 07, 2010 12:04 PM
To: Weston, Candice - WTS
Cc: Harrison, Jeff; Porter, Larry - WTS; Tilmon, Pat - ORNL; Miles, Shane
Subject: RE: Batteries

Candice/Jeff,

In my e-mail on asking for direction on batteries, It was requested by Jeff to ask VE and RTR personnel what they were using as WMP's for batteries. I spoke with ORNL and LANL VE and RTR personnel and some were using IM and others were using OM there was really no consistency. In talking with Larry Porter he did say that everyone should be using OM. When Shane and I talked with Jeff prior to me talking with Larry everyone here at Oakridge was calling batteries IM. I am just clarifying that this was based on past practices here at ORNL and we will start using OM for batteries.

Thank you for providing us direction and the VEE Lead Operator will be meeting with VE personnel this afternoon to provide this information on how to proceed with batteries.

Margie

COPY

From: Weston, Candice - WTS [candice.weston@wipp.ws]

NCR-ORNL-0127-10 REV 0
ATTACHMENT 2 - PAGE 2 OF 2

Sent: Tuesday, September 07, 2010 11:13 AM
To: Harrison, Jeff; Tilmon, Pat; Margie Martinez; Miles, Shane; Schrock, Beverly - WTS; Steade, Maria; Sbinning@cinci.rr.com; mooney, dean
Subject: RE: Batteries

All - If I've missed anyone who was involved with this issue last week, please forward the email so they are also informed. There was quite a bit of back and forth as to how to proceed in regards to this battery issue, last week. What was finally decided was to write two project level NCRs (see attached) and employ the logic discussed below.

NCR-ORNL-0524-10 was written against X10C0102547C. This NCR indicated that the operator recorded the weight for the batteries in the "IM" WMP, when the current AK 4 shows that it should be recorded in the "OM" WMP.

NCR-ORNL-0525-10 was written against multiple containers in multiple BDRs that are in AK 6. It was written to indicate that the current AK revision does not discuss batteries.

Per L. Porter's direction, "OM" will be the WMP category that will need to be used from this point forward to record the weight of batteries. This means that if batteries are identified in the drum, a blanket NCR will need to be written to capture containers in AK's :

*
1, 2, 8 (all currently group batteries in the "IM" WMP)
*
5 (currently groups batteries into "Lab Equipment and electrical devices" examples)
*
6, and 7 (no mention of batteries in AK)

When this scenario occurs, we can work together on the NCR, but should be written at the DGL level. This practice will need to remain in place until such time that the AK is revised.

If there are questions in regards to this item, please call and we will discuss. Thank you,

Candice Weston
Site Project Manager
Retrieval, Characterization, and Transportation candice.weston@wipp.ws
303.843.3257 work
303.898.2399 cellular

From: Harrison, Jeff
Sent: Thu 9/2/2010 5:12 PM
To: Weston, Candice - WTS
Subject: Batteries

Did you talk to Larry Porter this afternoon? He called me around 3:00 pm today after he read my e-mail and said Margie was wrong and that we should be calling batteries "Other Metals."

COPY

Jeff Harrison

720.977.7042 (office)

Weston, Candice - WTS

NCR-ORNL-0127-10 REV 0
ATTACHMENT 3 PAGE 1 OF 1

From: Harrison, Jeff
Sent: Wednesday, September 08, 2010 8:52 AM
To: Hinojos, Felicia - Stoller
Cc: Davis, Valerie - Stoller; Weston, Candice - WTS
Subject: Freeze File for ORNL-001, ORNL-005, ORNL-006, and ORNL-008

Felicia,

Please add this e-mail to the freeze file for ORNL-001, ORNL-005, ORNL-006, and ORNL-008

ORNL-001: move batteries from "Iron-based metals" to "Other metals"
ORNL-005: move batteries from "Lab equipment and electrical devices" to "Other metals"
ORNL-006: add batteries to "Other metals", and add reference to DR029 (battery discrepancy resolution)
ORNL-008: move batteries from "Iron-based metals" to "Other metals"

Jeff Harrison
720.977.7042 (office)
303.918.8791 (cell)
720.977.7042 (fax)

COPY

DIVIDER PAGE ONLY

Not part of page count

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523 or 575-234-7431

Fax Number: 575-234-7033

[ ] Original Record [ ] Copy
[ ] Fax Record
[X] Electronic Record

Attn:	Sheila Pearcy	From:	Laurel Smith
Ship to:	CCP Records Custodian	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	S.M. Stoller
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	10/28/10
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0353-A	NDE PRIMARY DVD	9/15/10	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

Comments

NONE

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted	[X]	Signature	CHERYL ARMIJO (Printed Name)	11-1-10 (Date)
Records Rejected	[ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

```
**********************
***   TX REPORT    ***
**********************

TRANSMISSION OK

TX/RX NO                4092
DESTINATION TEL #       918652413117
DESTINATION ID          ORNL
ST. TIME                11/01 14:28
TIME USE                00'16
PAGES SENT                1
RESULT                  OK
```


Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523 or 575-234-7431

Fax Number: 575-234-7033

[ ] Original Record [ ] Copy
[ ] Fax Record
[X] Electronic Record

Attn:	Sheila Pearcy	From:	Laurel Smith
Ship to:	CCP Records Custodian	Site:	Oak Ridge
	4021 National Parks Hwy	Company:	S.M. Stoller
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	10/28/10
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0353-A	NDE PRIMARY DVD	9/15/10	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

Comments:

NONE

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X] Signature | CHERYL ARMIJO Printed Name | 11-1-10 Date

Records Rejected [ ]

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523 or 575-234-7431

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[X] Electronic Record

Attn:	Sheila Pearcy	From:	Laurel Smith
Ship to:	CCP Records Custodian	Site:	ORNL
	4021 National Parks Hwy	Company:	S.M. Stoller
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	11/2/10
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0353	NDE BDR	9/15/10	42
OR-RTR6-0353-B	BACKUP DVD	9/15/10	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

Comments

SPM CHECKLIST IN CARLSBAD

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X] — Signature: Cheryl Armijo — Printed Name: CHERYL ARMIJO — Date: 11-4-10

Records Rejected [ ] — Signature _____ — Printed Name _____ — Date _____

Reason for Rejection:

Re-submittal: Signature _____ — Printed Name _____ — Date _____

```
**********************
***   TX REPORT    ***
**********************

TRANSMISSION OK

TX/RX NO                4287
DESTINATION TEL #       918652413117
DESTINATION ID          ORNL
ST. TIME                11/04 09:33
TIME USE                00'17
PAGES SENT                1
RESULT                  OK
```


Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220
Telephone Number: 575-234-7523 or 575-234-7431
Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[X] Electronic Record

Attn:	Shelia Pearcy	From:	Laurel Smith
Ship to:	CCP Records Custodian	Site:	ORNL
	4021 National Parks Hwy	Company:	S.M. Stoller
	Carlsbad, NM	Telephone Number:	865-241-2521
	88220	Date Sent:	11/2/10
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0353	NDE BDR	9/15/10	42
OR-RTR6-0353-B	BACKUP DVD	9/15/10	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

Comments

SPM CHECKLIST IN CARLSBAD

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [X] Signature CHERYL ARMIJO Printed Name 11-4-10 Date

Records Rejected [ ]

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR6-0437				Examination Date(s): 12/03/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: NFS0479A1 NFS0808A NFS0594A NFS0879A NFS0865A NFS0149A NFS0507B NFS0478A NFS0414I
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**			X	
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			

NTPC RECORDS ORIGINAL
DATE REC'D 12.13.13

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0437				Examination Date(s): 12/03/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**			X	No observable liquid.
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0437	Examination Date(s): 12/03/2013			
Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.				
Daniel Wade	Daniel Wade			12/10/2013
SPM Printed Name	Signature			Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR6-0437 ☑ CH ☐ RH Date: 12-3-13

Waste Container ID Numbers	
Replicate Scan:	NFS0414I
Independent Observation:	NFS0479A1
1	NFS0479A1
2	NFS0808A
3	NFS0594A
4	NFS0879A
5	NFS0865A
6	NFS0149A
7	NFS0507B
8	NFS0478A
9	NFS0414I
10	N/A
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Eric Lyles — Printed Name

Signature

12-3-13 — Date

Independent Technical Reviewer:

FRED ONEY — Printed Name

Signature

12-9-13 — Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-10-2013

1

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR6-0437 Date: 12-3-13

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	n/A
6	CCP Independent Technical Reviewer Checklist	37

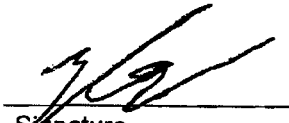
Batch Narrative
All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Eric Lyles
RTR Operator

Signature

12-3-13
Date

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR6-0437		
Examination Date: 12-3-13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 10 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator: Eric Lyles (Printed Name)	 (Signature)	12-3-13 (Date)

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0437
Examination Date:	12/3/2013
Waste Container ID:	NFS0414I
Video/Audio Recorded Media Number:	OR-RTR6-0437 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 64.8 kg Tare Wt.: 33.2 kg Net Wt.: 31.6 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

Waste Container ID: NFS0414I

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	Filter debris
C:	Coveralls, cloth
R:	Rubber gloves
XPM:	Vacuum hose, plastic bags, electrical cord, air hose, suits, belts, plastic containers, vacuum
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.3
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	6.0
Rubber (R):	1.3
Plastics (waste materials) (XPM):	20.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	31.6

CCP Radiography Data Sheet

Waste Container ID: NFS0414I

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:This Replicate scan agrees with the original scan.	

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☒ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0437
Examination Date:	12/3/2013
Waste Container ID:	NFS0479A1
Video/Audio Recorded Media Number:	OR-RTR6-0437 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 51.9 kg Tare Wt.: 43.8 kg Net Wt.: 8.1 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	100 %

CCP Radiography Data Sheet

Waste Container ID: NFS0479A1

Section 3: Container Inventory and Comments (Detailed descriptions)
IM:
AM:
OM:
OI:
C:
R:
XPM: Plastic bags, plastic containers
OR: Absorbent
IN: Homogeneous solids
S:

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard tube inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.5
Organic Matrix (OR):	1.0
Inorganic Matrix (IN):	5.6
Soils (S):	
Total WMP Weight:	8.1

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0479A1

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:This Independent Observation agrees with the original scan.	

RTR Operator:		
Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0437
Examination Date:	12/3/2013
Waste Container ID:	NFS0479A1
Video/Audio Recorded Media Number:	OR-RTR6-0437 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 51.9 kg Tare Wt.: 43.8 kg Net Wt.: 8.1 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0479A1

Section 3: Container Inventory and Comments (Detailed descriptions)

IM:

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.0
Organic Matrix (OR):	1.0
Inorganic Matrix (IN):	5.1
Soils (S):	
Total WMP Weight:	8.1

CCP Radiography Data Sheet

Waste Container ID: NFS0479A1

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	
RTR Operator: Eric Lyles (Print Name) — Signature — 12/3/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0437
Examination Date:	12/3/2013
Waste Container ID:	NFS0808A
Video/Audio Recorded Media Number:	OR-RTR6-0437 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 51.2 kg Tare Wt.: 43.8 kg Net Wt.: 7.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: NFS0808A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.5
Organic Matrix (OR):	1.0
Inorganic Matrix (IN):	3.4
Soils (S):	
Total WMP Weight:	7.4

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0808A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0437
Examination Date:	12/3/2013
Waste Container ID:	NFS0594A
Video/Audio Recorded Media Number:	OR-RTR6-0437 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 49.2 kg Tare Wt.: 43.8 kg Net Wt.: 5.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0594A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.0
Organic Matrix (OR):	1.2
Inorganic Matrix (IN):	1.2
Soils (S):	
Total WMP Weight:	5.4

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0594A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	
RTR Operator: Eric Lyles (Print Name) — Signature — 12/3/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0437
Examination Date:	12/3/2013
Waste Container ID:	NFS0879A
Video/Audio Recorded Media Number:	OR-RTR6-0437 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 54.8 kg Tare Wt.: 43.8 kg Net Wt.: 11.0 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: NFS0879A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal, metal hardware

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.5
Organic Matrix (OR):	1.0
Inorganic Matrix (IN):	6.0
Soils (S):	
Total WMP Weight:	11.0

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0879A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:		
Eric Lyles		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0437
Examination Date:	12/3/2013
Waste Container ID:	NFS0865A
Video/Audio Recorded Media Number:	OR-RTR6-0437 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 52.0 kg Tare Wt.: 43.8 kg Net Wt.: 8.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0865A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.0
Organic Matrix (OR):	1.0
Inorganic Matrix (IN):	4.7
Soils (S):	
Total WMP Weight:	8.2

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0865A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	
RTR Operator: Eric Lyles (Print Name) — Signature — 12/3/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination	[ ] RTR Replicate Scan [ ] RTR Independent Observation
Site ID:	ORNL
Batch Number:	OR-RTR6-0437
Examination Date:	12/3/2013
Waste Container ID:	NFS0149A
Video/Audio Recorded Media Number:	OR-RTR6-0437 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 53.4 kg Tare Wt.: 43.8 kg Net Wt.: 9.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: NFS0149A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal, metal hardware
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.5
Organic Matrix (OR):	3.3
Inorganic Matrix (IN):	3.3
Soils (S):	
Total WMP Weight:	9.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0149A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0437
Examination Date:	12/3/2013
Waste Container ID:	NFS0507B
Video/Audio Recorded Media Number:	OR-RTR6-0437 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 89.3 kg Tare Wt.: 43.8 kg Net Wt.: 45.5 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0507B

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	6.0
Organic Matrix (OR):	10.0
Inorganic Matrix (IN):	29.5
Soils (S):	
Total WMP Weight:	45.5

CCP Radiography Data Sheet

Waste Container ID: NFS0507B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0437
Examination Date:	12/3/2013
Waste Container ID:	NFS0478A
Video/Audio Recorded Media Number:	OR-RTR6-0437 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 50.6 kg Tare Wt.: 43.8 kg Net Wt.: 6.8 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: NFS0478A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.0
Organic Matrix (OR):	1.3
Inorganic Matrix (IN):	3.0
Soils (S):	
Total WMP Weight:	6.8

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0478A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0437
Examination Date:	12/3/2013
Waste Container ID:	NFS0414I
Video/Audio Recorded Media Number:	OR-RTR6-0437 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 64.8 kg Tare Wt.: 33.2 kg Net Wt.: 31.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0414I

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Electrical equipment, scrap metal
AM:	
OM:	
OI:	Absorbent
C:	Cloth, coveralls
R:	
XPM:	Plastic hose, plastic tubing, plastic bags, plastic caps, plastic containers, vacuum cleaner
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	8.0
Rubber (R):	
Plastics (waste materials) (XPM):	18.6
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	31.6

CCP Radiography Data Sheet

Waste Container ID: NFS0414I

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/3/2013
Print Name	Signature	Date

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR6-0437

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	☒ N/A
12.	Was justification made for changing the original data?	☐ NO	☐ YES	☒ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☐ YES	☒ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR6-0437

	Description			
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☐ YES	☒ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

FRED ONEY
Printed Name

Signature

12-9-13
Date

DIVIDER PAGE ONLY

NOT PART OF PAGE COUNT

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	0982
DESTINATION TEL #	918655768703
DESTINATION ID	ORNL
ST. TIME	12/16 10:14
TIME USE	00'40
PAGES SENT	1
RESULT	OK

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-10-2013
Telephone Number:	575-234-7523		

OR-RTR6-0437	BACKUP RTR DVD	12-03-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Fax Record [ ] Electronic Record [ ] Copy

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-10-2013
Telephone Number:	575-234-7523		

OR-RTR6-0437	BACKUP RTR DVD	12-03-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X] _____ (Signature) Misty Waldrip (Printed Name) 12.13.13 (Date)

Records Rejected [ ] _____ (Signature) _____ (Printed Name) _____ (Date)

Reason for Rejection:

Re-submittal: _____ (Signature) _____ (Printed Name) _____ (Date)

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR6-0438				Examination Date(s): 12/04/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: NFS0880A NFS0673A NFS0150A1 NFS0805A NFS0759A NFS0506B NFS0506A NFS0929A NFS0151A NFS0592A NFS0789A
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**	X			NCR-ORNL-0872-13 places container NFS0788A on an interim disposition of hold.
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			Except container NFS0788A.

NTPC RECORDS ORIGINAL
DATE REC'D 12.13.13

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0438				Examination Date(s): 12/04/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			Except container NFS0788A.
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**			X	
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR6-0438	Examination Date(s): 12/04/2013			
Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP. Daniel Wade 12/12/2013				
SPM Printed Name Signature Date				

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR6-0438 ☑ CH ☐ RH Date: 12-4-13

Waste Container ID Numbers	
Replicate Scan:	NFS0506B
Independent Observation:	NFS0880A
1	NFS0788A
2	NFS0880A
3	NFS0673A
4	NFS0150A1
5	NFS0805A
6	NFS0759A
7	NFS0506B
8	NFS0506A
9	NFS0929A
10	NFS0151A
11	NFS0592A
12	NFS0789A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Eric Lyles — Printed Name

Signature

12-4-13 — Date 12/11/13

Independent Technical Reviewer:

Fred Owey — Printed Name

Signature

12-11-13 — Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-11-2013

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR6-0438 Date: 12-4-13

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	N/A EL 12/11/13
6	CCP Independent Technical Reviewer Checklist	46-49 EL 12/11/13

EL 12/11/13

Batch Narrative

All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Eric Lyles
RTR Operator

Signature

12-4-13
Date 12/11/13

2

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR6-0438		
Examination Date: 12-4-13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 10 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator:		
Eric Lyles (Printed Name)	(Signature)	12-4-13 (Date)

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0506B
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 90.4 kg Tare Wt.: 43.8 kg Net Wt.: 46.6 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

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CCP Radiography Data Sheet

Waste Container ID: NFS0506B

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other: Cardboard tube inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	6.5
Organic Matrix (OR):	8.6
Inorganic Matrix (IN):	31.5
Soils (S):	
Total WMP Weight:	46.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0506B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Replicate scan agrees with the original scan.	
RTR Operator: Steve Redmond (Print Name) — Signature — 12/4/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☒ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0880A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 96.4 kg Tare Wt.: 43.8 kg Net Wt.: 52.6 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: NFS0880A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Metal Hardware, scrap metal

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other:Cardboard tube inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	7.5
Organic Matrix (OR):	6.0
Inorganic Matrix (IN):	37.1
Soils (S):	
Total WMP Weight:	52.6

CCP Radiography Data Sheet

Waste Container ID: NFS0880A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: This Independent Observation agrees with the original scan.

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0788A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [X] Yes NCR No.: ~~N/A~~ NCR-ORNL-0872-13 NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 80.0 kg Tare Wt.: 43.8 kg Net Wt.: 36.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0788A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	AA battery
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	0.1
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	8.0
Organic Matrix (OR):	5.0
Inorganic Matrix (IN):	21.1
Soils (S):	
Total WMP Weight:	36.2

CCP Radiography Data Sheet

Waste Container ID: NFS0788A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☒ Yes EL 12/11/13 ~~☒ No~~ EL 12/4/13
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: ~~N/A~~ EL 12/11/13
HCR-ORNL-0872-13 Battery is not listed in AK. EL 12/11/13

RTR Operator:

Eric Lyles
Print Name

Signature

12/4/2013
Date 12/11/13

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0880A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 96.4 kg Tare Wt.: 43.8 kg Net Wt.: 52.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0880A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	11.0
Organic Matrix (OR):	5.0
Inorganic Matrix (IN):	34.1
Soils (S):	
Total WMP Weight:	52.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0880A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0673A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 49.6 kg Tare Wt.: 43.8 kg Net Wt.: 5.8 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	60 ~~95~~ %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0673A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	Rubber gloves
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	1.0
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	1.0
Inorganic Matrix (IN):	1.8
Soils (S):	
Total WMP Weight:	5.8

CCP Radiography Data Sheet

Waste Container ID: NFS0673A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: ~~NA~~ EL 12/11/13
on the audio video recording operator stated 95%. the correct utilization is 60. This attachment 2 reflects my decision. EL 12/11/13

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date 12/11/13

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0150A1
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 53.7 kg Tare Wt.: 43.8 kg Net Wt.: 9.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: NFS0150A1

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.5
Organic Matrix (OR):	3.0
Inorganic Matrix (IN):	4.4
Soils (S):	
Total WMP Weight:	9.9

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0150A1

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0805A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 52.9 kg Tare Wt.: 43.8 kg Net Wt.: 9.1 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0805A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.5
Organic Matrix (OR):	2.0
Inorganic Matrix (IN):	4.6
Soils (S):	
Total WMP Weight:	9.1

CCP Radiography Data Sheet

Waste Container ID: NFS0805A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	
RTR Operator: Eric Lyles (Print Name) / [signature] (Signature) / 12/4/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination	[ ] RTR Replicate Scan [ ] RTR Independent Observation
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0759A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 48.7 kg Tare Wt.: 43.8 kg Net Wt.: 4.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	60 Estimated 85% Estimated

CCP Radiography Data Sheet

Waste Container ID: NFS0759A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	1.0
Inorganic Matrix (IN):	2.4
Soils (S):	
Total WMP Weight:	4.9

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0759A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: ~~N/A~~ EL 12/11/13
on the audio video recording media operator noted 95. after review I agree the utilization is 60. This attachment 2 reflects my decision. CL 12/11/13

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date 12/11/13

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0506B
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 90.4 kg Tare Wt.: 43.8 kg Net Wt.: 46.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0506B

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	7.0
Organic Matrix (OR):	10.0
Inorganic Matrix (IN):	29.6
Soils (S):	
Total WMP Weight:	46.6

CCP Radiography Data Sheet

Waste Container ID: NFS0506B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0506A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 87.2 kg Tare Wt.: 43.8 kg Net Wt.: 43.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: NFS0506A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	8.0
Organic Matrix (OR):	10.0
Inorganic Matrix (IN):	25.4
Soils (S):	
Total WMP Weight:	43.4

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0506A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0929A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 86.5 kg Tare Wt.: 43.8 kg Net Wt.: 42.7 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0929A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	7.0
Organic Matrix (OR):	3.0
Inorganic Matrix (IN):	32.2
Soils (S):	
Total WMP Weight:	42.7

CCP Radiography Data Sheet

Waste Container ID: NFS0929A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	
RTR Operator: Eric Lyles (Print Name) / [signature] (Signature) / 12/4/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0151A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 53.7 kg Tare Wt.: 43.8 kg Net Wt.: 9.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: NFS0151A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.5
Organic Matrix (OR):	2.0
Inorganic Matrix (IN):	4.4
Soils (S):	
Total WMP Weight:	9.9

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0151A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0592A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 85.4 kg Tare Wt.: 43.8 kg Net Wt.: 41.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0592A

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R:

XPM: Plastic bags, plastic containers

OR: Absorbent

IN: Homogeneous solids

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	8.0
Organic Matrix (OR):	10.0
Inorganic Matrix (IN):	20.6
Soils (S):	
Total WMP Weight:	41.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0592A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	
RTR Operator: Eric Lyles (Print Name) — Signature — 12/4/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR6-0438
Examination Date:	12/4/2013
Waste Container ID:	NFS0789A
Video/Audio Recorded Media Number:	OR-RTR6-0438 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 85.0 kg Tare Wt.: 43.8 kg Net Wt.: 41.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0789A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	6.0
Organic Matrix (OR):	8.0
Inorganic Matrix (IN):	26.2
Soils (S):	
Total WMP Weight:	41.2

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0789A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0872-13 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR6-0438
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): NFS0788A
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text): CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [H.2] states in part IF the waste form DOES NOT match the Waste Stream description and/or the Waste Matrix Code, THEN initiate an NCR in accordance with CCP-QP-005, AND record NCR number in Section 1 and in the comments block of Attachment 2.

7c. Actual Condition: Container(s) currently assigned to Waste Stream OR-NFS-CH-HOM-A. Waste contains a AA battery which is potential hazardous waste not noted in the AK therefore, the waste does not match the waste stream description or the waste matrix code.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator: Fred Oney (printed name) [signature] 12/10/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☒ YES ☐ NO ☐ INDETERMINATE

10. Trend Code: L	11. Responsible Manager: **Beverly Schrock**
12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation: LaKavia Harmon (printed name) [signature] 12/11/13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0872-13 **Revision 0**

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☐ N/A (See Final Disposition) ☒ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

1. Responsible Manager send this NCR to the AK Expert for re-evaluation in accordance with CCP-TP-005.
2. AK Expert perform the AK re-evaluation and include a copy of documented results as an attachment to this NCR.
3. SPM determine Final Disposition (block 19) based on the results of the AK Expert for re-evaluation.

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name	signature	date
Beverly Schrock	Andrew Stallings for Beverly Schrock	12/11/13

16b. QA Engineer or QA Designee:

printed name	signature	date
LaTrawn Harmon	LaTrawn Harmon	12/11/13

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name	signature	date

18. Interim Disposition Verified – QA Engineer:

printed name	signature	date

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0872-13 **Revision 0**

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☐ N/A for Reject, Rework, or Scrap]

☐ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☐ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

printed name _____ signature _____ date _____

21. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name _____ signature _____ date _____

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name _____ signature _____ date _____

COPY

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR6-0438

	Description			
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☒ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☒ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☒ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR6-0438

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☒ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: DURING ITR DRUM NFS0788A WAS identified AS NOT MATCHING the WASTE STREAM. NCR-ORNL-0872-13 WAS issued. TO 12-11-13

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Fred Olney
Printed Name

Signature

12-11-13
Date

DIVIDER PAGE ONLY

NOT PART OF PAGE COUNT

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Fax Record [ ] Electronic Record [ ] Copy

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-12-13
Telephone Number:	575-234-7523		

Document Number	Title/Description	Record Date	QA Page
OR-RTR6-0438	BACKUP RTR DVD	12-4-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X]	Signature	Misty Waldrip (Printed Name)	12.16.13 (Date)
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:	Signature	Printed Name	Date

```
**********************************
***        Send Results        ***
**********************************

   Sending is complete.

Job No.                    0072
Address                    918655768703
Name                       ORNL
Start Time                 12/16 01:18 PM
Call Length                00'47
Sheets                     1
Result                     OK
```

Controlled Copy

CCP-QP-008, Rev. 21
CCP Records Management

Effective Date: 02/28/2013

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-12-13
Telephone Number:	575-234-7523		

OR-RTR6-0438	BACKUP RTR DVD	12-4-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A			

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [ ] — Signature — Misty Waldrip (Printed Name) — 12.16.13 (Date)

Records Rejected [ ] _____

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-16-13
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR6-0438	RTR BDR	12-04-2013	50
OR-RTR6-0438	PRIMARY DVD	12-04-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [X]	Signature	Misty Waldrip (Printed Name)	12-18-13 (Date)
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:	Signature	Printed Name	Date

****
*** Send Results ***
****

Sending is complete.

Job No.	0120
Address	918655768703
Name	ORNL
Start Time	12/18 09:57 AM
Call Length	00'48
Sheets	1
Result	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-16-13
Telephone Number:	575-234-7523		

Document ID	Description	Record Date	Quantity
OR-RTR6-0438	RTR BDR	12-04-2013	50
OR-RTR6-0438	PRIMARY DVD	12-04-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments:

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [ ]

Signature

Misty Waldrip
Printed Name

12-18-13
Date

Records Rejected [ ]

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR7-0002				Examination Date(s): 12/03/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: X10C0506151C X10C0506148C X10C0506154A X10C0506150B X10C0506151B X10C0506149B X10C0506149E
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**			X	
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			

NTPC RECORDS ORIGINAL
DATE REC'D 12.13.13 MW

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0002			Examination Date(s): 12/03/2013	
Description of Criteria Reviewed	Criteria Met?			Comments/Qualifiers
	YES	NO	NA	
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**	X			
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0002	Examination Date(s): 12/03/2013			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.				
Daniel Wade — SPM Printed Name	Signature			12/12/2013 Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR7-0002 ☑ CH ☐ RH Date: 12/3/13

Waste Container ID Numbers	
Replicate Scan:	X10C0506149E
Independent Observation:	X10C0506151C
1	X10C0506151C
2	X10C0506148C
3	X10C0506154A
4	X10C0506150B
5	X10C0506151B
6	X10C0506149B
7	X10C0506149E
8	N/A
9	N/A
10	N/A
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Steve Redmond		12/3/13
Printed Name	Signature	Date

Independent Technical Reviewer:

FRED ONEY		12-9-13
Printed Name	Signature	Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-10-2013

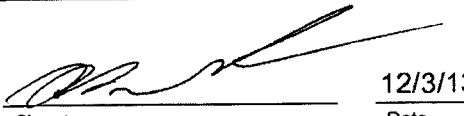
Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR7-0002 Date: 12/3/13

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	N/A
6	CCP Independent Technical Reviewer Checklist	31

Batch Narrative
All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Steve Redmond
RTR Operator


Signature

12/3/13
Date

2

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR7-0002		
Examination Date: 12/3/13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 15 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator:		
Steve Redmond (Printed Name)	(Signature)	12/3/13 (Date)

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506149E
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 256.6 kg Tare Wt.: 33.2 kg Net Wt.: 223.4 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506149E

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	
AM:	
OM:	
OI:	
C:	
R:	
XPM: Plastic bag	
OR:	
IN:	
S: Soil	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	0.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	222.9
Total WMP Weight:	223.4

CCP Radiography Data Sheet

Waste Container ID: X10C0506149E

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: This Replicate scan agrees with the original scan.	

RTR Operator:

Eric Lyles		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☒ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506151C
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 241.2 kg Tare Wt.: 33.2 kg Net Wt.: 208.0 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

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CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506151C

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Absorbent

C:

R:

XPM: Plastic bags

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	1.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	201.9
Total WMP Weight:	208.0

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CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506151C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Independent Observation agrees with the original scan.	

RTR Operator:

Eric Lyles		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506151C
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 241.2 kg Tare Wt.: 33.2 kg Net Wt.: 208.0 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506151C

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Absorbent

C:

R:

XPM: Plastic bags

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.5
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	202.4
Total WMP Weight:	208.0

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CCP Radiography Data Sheet

Waste Container ID: X10C0506151C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:N/A	
RTR Operator: Steve Redmond (Print Name) — (Signature) — 12/3/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information		
[X] RTR Examination	[ ] RTR Replicate Scan	[ ] RTR Independent Observation
Site ID:	ORNL	
Batch Number:	OR-RTR7-0002	
Examination Date:	12/3/2013	
Waste Container ID:	X10C0506148C	
Video/Audio Recorded Media Number:	OR-RTR7-0002	A&B
Procedure and Revision No.:	CCP-TP-053	Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A	

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 270.0 kg Tare Wt.: 33.2 kg Net Wt.: 236.8 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: X10C0506148C

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	Absorbent
C:	
R:	
XPM:	Plastic bags
OR:	
IN:	
S:	Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.3
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	231.4
Total WMP Weight:	236.8

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506148C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506154A
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 162.4 kg Tare Wt.: 33.2 kg Net Wt.: 129.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506154A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	Absorbent
C:	Tape
R:	
XPM:	Plastic bag
OR:	
IN:	
S:	Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	6.0
Cellulosics (C):	0.2
Rubber (R):	
Plastics (waste materials) (XPM):	0.3
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	122.2
Total WMP Weight:	129.2

CCP Radiography Data Sheet

Waste Container ID: X10C0506154A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:N/A	
RTR Operator: Steve Redmond (Print Name) — Signature — 12/3/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information		
[X] RTR Examination	[ ] RTR Replicate Scan	[ ] RTR Independent Observation
Site ID:	ORNL	
Batch Number:	OR-RTR7-0002	
Examination Date:	12/3/2013	
Waste Container ID:	X10C0506150B	
Video/Audio Recorded Media Number:	OR-RTR7-0002	A&B
Procedure and Revision No.:	CCP-TP-053	Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A	

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 259.2 kg Tare Wt.: 33.2 kg Net Wt.: 226.0 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506150B

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	Concrete pieces, absorbent
C:	
R:	
XPM:	Scrap plastic
OR:	
IN:	
S:	Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	4.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.3
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	217.7
Total WMP Weight:	226.0

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506150B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments:N/A	

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506151B
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 264.8 kg Tare Wt.: 33.2 kg Net Wt.: 231.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506151B

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Absorbent

C:

R:

XPM: Scrap plastic

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.3
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	225.3
Total WMP Weight:	231.6

CCP Radiography Data Sheet

Waste Container ID: X10C0506151B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: N/A	

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506149B
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 276.4 kg Tare Wt.: 33.2 kg Net Wt.: 243.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: X10C0506149B

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI:

C:

R:

XPM: Scrap plastic

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	0.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	242.2
Total WMP Weight:	243.2

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506149B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: ~~N/A~~ 12-3-13 On the audio/video recording of this container the incorrect ID (X10C0586498) was entered on the display and called out in the recording. ATTACHMENT 2 reflects the correct container ID.
12-3-13

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0002
Examination Date:	12/3/2013
Waste Container ID:	X10C0506149E
Video/Audio Recorded Media Number:	OR-RTR7-0002 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 256.6 kg Tare Wt.: 33.2 kg Net Wt.: 223.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: X10C0506149E

Section 3: Container Inventory and Comments (Detailed descriptions)
IM:
AM:
OM:
OI:
C:
R:
XPM: Scrap plastic
OR:
IN:
S: Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	0.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	222.9
Total WMP Weight:	223.4

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506149E

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No

Comments: On the audio/video recording of this container the incorrect container ID(X10C050649E) was entered on the the display and called out in the recording. Attachment 2 reflects the correct container ID.

RTR Operator:

Steve Redmond		12/3/2013
Print Name	Signature	Date

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR 7-0002

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☒ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☒ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☒ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR7-0002

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☐ YES	☒ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

FRED ONEY — Printed Name

Signature

12-9-13 — Date

DIVIDER PAGE ONLY

NOT PART OF PAGE COUNT

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	0986
DESTINATION TEL #	918655768703
DESTINATION ID	ORNL
ST. TIME	12/16 10:19
TIME USE	00'41
PAGES SENT	1
RESULT	OK

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-10-2013
Telephone Number:	575-234-7523		

OR-RTR7-0002	BACKUP RTR DVD	12-03-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-10-2013
Telephone Number:	575-234-7523		

OR-RTR7-0002	BACKUP RTR DVD	12-03-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments:

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [ ] _____ (Signature) Misty Waldrip (Printed Name) 12-13-13 (Date)

Records Rejected [ ] _____ (Signature) _____ (Printed Name) _____ (Date)

Reason for Rejection:

Re-submittal: _____ (Signature) _____ (Printed Name) _____ (Date)

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-16-13
Telephone Number:	575-234-7523		

Document Number	Title/Description	Record Date	Total Pages
OR-RTR7-0002	RTR BDR	12-03-2013	32
OR-RTR7-0002	PRIMARY DVD	12-03-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments:

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [ ] _____ (Signature) _____ (Printed Name) _____ (Date)

Records Rejected [ ] _____ (Signature) _____ (Printed Name) _____ (Date)

Reason for Rejection:

Re-submittal: _____ (Signature) _____ (Printed Name) _____ (Date)

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	2094
DESTINATION TEL #	918655768703
DESTINATION ID	ORNL
ST. TIME	01/06 09:02
TIME USE	00'39
PAGES SENT	1
RESULT	OK

Controlled Copy

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-16-13
Telephone Number:	575-234-7523		

OR-RTR7-0002	RTR BDR	12-03-2013	32
OR-RTR7-0002	PRIMARY DVD	12-03-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR7-0003				Examination Date(s): 12/04/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: X10C0506151E X10CSATN02612H X10CSATN02612D X10CSATN02682D X10CSATN02682A
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**	X			NCR-ORNL-841-13, places an interim disposition of "hold" on container NFS0794B. NCR-ORNL-842-13, places an interim disposition of "hold" on container NFS0815.
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			Yes, except containers NFS0794B and NFS0815.

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0003			Examination Date(s): 12/04/2013	
Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			Yes, except containers NFS0794B and NFS0815.
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**			X	No observable liquid.
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0003	Examination Date(s): 12/04/2013			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.				
Daniel Wade	Daniel Wade			12/12/2013
SPM Printed Name	Signature			Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR7-0003 ☑ CH ☐ RH Date: 12/4/13

Waste Container ID Numbers	
Replicate Scan:	X10CSATN02612H
Independent Observation:	X10C0506151E
1	NFS0794B
2	X10C0506151E
3	NFS0815
4	X10CSATN02612H
5	X10CSATN02612D
6	X10CSATN02682D
7	X10CSATN02682A
8	N/A
9	N/A
10	N/A
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Steve Redmond		12/4/13
Printed Name	Signature	Date

Independent Technical Reviewer:

Daphne Brothers		12/11/13
Printed Name	Signature	Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-11-2013

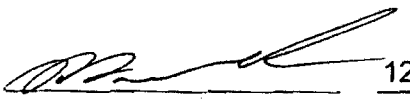
Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR7-0003 Date: 12/4/13

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	31
6	CCP Independent Technical Reviewer Checklist	37

Batch Narrative
All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Steve Redmond — RTR Operator



Signature

12/4/13 — Date

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR7-0003		
Examination Date: 12/4/13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 15 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator:		
Steve Redmond (Printed Name)	(Signature)	12/4/13 (Date)

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10CSATN02612H
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 47.3 kg Tare Wt.: 33.2 kg Net Wt.: 14.1 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be ~~1~~ 2 layer EL 12/11/13 EL 12/11/13
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612H

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal, electrical equipment, paint can
AM:	
OM:	
OI:	Glass containers
C:	Cloth, cardboard
R:	
XPM:	Plastic lids, plastic containers, plastic bags, plastic sheeting, plastic caps
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.5
Cellulosics (C):	4.0
Rubber (R):	
Plastics (waste materials) (XPM):	7.1
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	14.1

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612H

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: This Replicate scan agrees with the original scan.
after review the operator noted 1 layer of confinement. The correct layers of confinement is 2. this attachment 2 reflects my decision. EL 12/11/13

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date 12/11/13

CCP Radiography Data Sheet

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☒ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10C0506151E
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 258.6 kg Tare Wt.: 33.2 kg Net Wt.: 225.4 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: X10C0506151E

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM: Scrap metal	
AM:	
OM:	
OI:	
C:	
R:	
XPM: Plastic bag	
OR:	
IN:	
S: Soil	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	223.3
Total WMP Weight:	225.4

CCP Radiography Data Sheet

Waste Container ID: X10C0506151E

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: This Independent Observation agrees with the original scan.	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	NFS0794B
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[ ] No [X] Yes NCR No.: NCR-ORNL-0841-13 NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 128.4 kg Tare Wt.: 33.2 kg Net Wt.: 95.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: NFS0794B

Section 3: Container Inventory and Comments (Detailed descriptions)

IM:	Scrap metal, utility knife, metal hardware
AM:	
OM:	
OI:	Absorbent
C:	Cloth, coveralls, tape
R:	Rubber gloves
XPM:	Plastic bags, scrap plastic, air hose
OR:	
IN:	
S:	Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	3.0
Cellulosics (C):	5.0
Rubber (R):	2.6
Plastics (waste materials) (XPM):	16.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	67.6
Total WMP Weight:	95.2

CCP Radiography Data Sheet

Waste Container ID: NFS0794B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[X] Yes [ ] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: NCR-ORNL-0841-13	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10C0506151E
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 258.6 kg Tare Wt.: 33.2 kg Net Wt.: 225.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

Waste Container ID: X10C0506151E

Section 3: Container Inventory and Comments (Detailed descriptions)
IM: Scrap metal
AM:
OM:
OI:
C:
R:
XPM: Plastic bag
OR:
IN:
S: Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	224.3
Total WMP Weight:	225.4

CCP Radiography Data Sheet

Waste Container ID: X10C0506151E

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments:N/A	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	NFS0815
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[ ] No [X] Yes NCR No.: NCR-ORNL-0842-13 NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 183.0 kg Tare Wt.: 37.9 kg Net Wt.: 145.1 kg
Rigid Liner and Liner Vent Description:	Liner: [ ] No [X] Yes Lid: [ ] No [X] Yes Type: [ ] 30-mil [X] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [X] Yes [ ] N/A Punctured: [ ] No [X] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 0 layers
Volume Utilization Percentage:	75 %

CCP Radiography Data Sheet

Waste Container ID: NFS0815

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	Absorbent
C:	
R:	
XPM:	
OR:	
IN:	
S:	Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	30.5
Plastics (PP):	7.4
Other:	
Total Packaging Weight	37.9
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	6.5
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	138.5
Total WMP Weight:	145.1

CCP Radiography Data Sheet

Waste Container ID: NFS0815

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☒ Yes ☐ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:NCR-ORNL-0842-13	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10CSATN02612H
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 47.3 kg Tare Wt.: 33.2 kg Net Wt.: 14.1 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612H

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal, electrical devices, metal containers
AM:	
OM:	
OI:	Glass containers
C:	Cloth, wood, cardboard
R:	
XPM:	Scrap plastic, rope, plastic containers, vacuum, plastic bags, plastic sheeting, plastic cap
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.3
Cellulosics (C):	3.5
Rubber (R):	
Plastics (waste materials) (XPM):	7.3
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	14.1

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612H

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:N/A	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10CSATN02612D
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 45.1 kg Tare Wt.: 33.2 kg Net Wt.: 11.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	70 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612D

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	Aluminum collar
OM:	
OI:	Glass containers
C:	Cloth, cardboard
R:	
XPM:	Plastic bags, scrap plastic, plastic tubing, open plastic container, plastic caps, plastic sheeting
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	1.5
Other Metals (OM):	
Other Inorganic Materials (OI)	0.1
Cellulosics (C):	3.5
Rubber (R):	
Plastics (waste materials) (XPM):	5.8
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	11.9

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612D

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:N/A	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10CSATN02682D
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 44.6 kg Tare Wt.: 33.2 kg Net Wt.: 11.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02682D

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal, metal tubing
AM:	Aluminum collar
OM:	
OI:	
C:	Cloth, cardboard
R:	
XPM:	Plastic bags, scrap plastic, plastic tubing
OR:	
IN:	
S:	

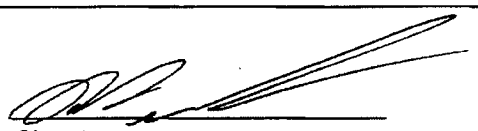
Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.3
Aluminum-based Metals / Alloys (AM):	1.5
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	3.5
Rubber (R):	
Plastics (waste materials) (XPM):	5.1
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	11.4

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02682D

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10CSATN02682A
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 49.3 kg Tare Wt.: 33.2 kg Net Wt.: 16.1 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02682A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal, electrical device, metal tubing
AM:	
OM:	Scrap lead
OI:	Glass containers
C:	Cloth, cardboard
R:	
XPM:	Scrap plastic, plastic bag, plastic containers, plastic tubing
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.3
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	6.0
Other Inorganic Materials (OI)	0.1
Cellulosics (C):	3.3
Rubber (R):	
Plastics (waste materials) (XPM):	5.4
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	16.1

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02682A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0841-13 Revision 0

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR7-0003
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): NFS0794B
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text): CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [H.2] IF the waste form DOES NOT match the Waste Stream description and/or the Waste Matrix Code, THEN initiate an NCR in accordance with CCP-QP-005, AND record NCR number in Section 1 and in the comments block of Attachment 2.

7c. Actual Condition: Container(s) currently assigned to Waste Stream OR-NFS-CH-SOIL. Waste appears to be greater than 50% debris; therefore, the waste does not match the waste stream description or the waste matrix code.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Steve Redmond (printed name) (signature) 12/4/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☒ YES ☐ NO ☐ INDETERMINATE

10. Trend Code: **L**	11. Responsible Manager: **Beverly Schrock**
12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaTravia Harmon (printed name) LaTravia Harmon (signature) 12/11/13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0841-13 **Revision 0**

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☐ N/A (See Final Disposition) ☒ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

1. Responsible Manager send this NCR to the AK Expert for re-evaluation in accordance with CCP-TP-005.
2. AK Expert perform the AK re-evaluation and include a copy of documented results as an attachment to this NCR.
3. SPM determine Final Disposition (block 19) based on the results of the AK Expert for re-evaluation.

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name	signature	date
Beverly Schrock	Andrew Stallings for Beverly Schrock	12/11/13

16b. QA Engineer or QA Designee:

printed name	signature	date
LaTravia Harmon	LaTravia Harmon	12/11/13

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name	signature	date

18. Interim Disposition Verified – QA Engineer:

printed name	signature	date

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0841-13 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☐ N/A for Reject, Rework, or Scrap]

☐ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☐ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

printed name _____ signature _____ date _____

21. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name _____ signature _____ date _____

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name _____ signature _____ date _____

COPY

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0842-13 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR7-0003
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): NFS0815
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text): CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [H.2] IF the waste form DOES NOT match the Waste Stream description and/or the Waste Matrix Code, THEN initiate an NCR in accordance with CCP-QP-005, AND record NCR number in Section 1 and in the comments block of Attachment 2.

7c. Actual Condition: Plastic liner bag not identified as required per AK.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Steve Redmond (printed name) (signature) 12/4/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☒ YES ☐ NO ☐ INDETERMINATE

10. Trend Code: L

11. Responsible Manager: **Beverly Schrock**

12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):

13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaTravia Harmon (printed name) LaTravia Harmon (signature) 12/11/13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR- ORNL-0842-13 **Revision 0**

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☐ N/A (See Final Disposition) ☒ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

1. Responsible Manager send this NCR to the AK Expert for re-evaluation in accordance with CCP-TP-005.
2. AK Expert perform the AK re-evaluation and include a copy of documented results as an attachment to this NCR.
3. SPM determine Final Disposition (block 19) based on the results of the AK Expert for re-evaluation.

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

Beverly Schrock	Andrew Stallings for Beverly Schrock	12/11/13
printed name	signature	date

16b. QA Engineer or QA Designee:

LaTravia Harmon	LaTravia Harmon	12/11/13
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name	signature	date

18. Interim Disposition Verified – QA Engineer:

printed name	signature	date

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR- ORNL-0842-13 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☐ N/A for Reject, Rework, or Scrap]

☐ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☐ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

printed name _____ signature _____ date _____

21. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name _____ signature _____ date _____

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name _____ signature _____ date _____

COPY

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR1-0003

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☒ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☒ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☒ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR7-0003

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☒ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Daphne Brothers — Printed Name

Daphne Brothers — Signature

12/11/13 — Date

DIVIDER PAGE ONLY

NOT PART OF PAGE COUNT

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Fax Record [ ] Electronic Record [ ] Copy

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-12-2013
Telephone Number:	575-234-7009		

Document Number	Title / Description	Copy Date	Copy Pages
OR-RTR7-0003	BACKUP RTR DVD	12-04-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [X]	Signature	Misty Waldrip Printed Name	12-16-13 Date
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

****
*** Send Results ***
****

Sending is complete.

Job No.	0139
Address	918655768703
Name	ORNL
Start Time	12/18 02:19 PM
Call Length	00'48
Sheets	1
Result	OK

Controlled Copy

CCP-QP-008, Rev. 21
CCP Records Management

Effective Date: 02/28/2013

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	12-12-2013
Telephone Number:	575-234-7009		

Document Number	Description	Date Received	Date Entered
OR-RTR7-0003	BACKUP RTR DVD	12-04-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments: N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [X] _____ Misty Waldrip 12-16-13
Signature Printed Name Date

Records Rejected [ ] _____

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record
[ ] Fax Record
[ ] Electronic Record
[ ] Copy

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	01-06-2014
Telephone Number:	575-234-7009		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR7-0003	RTR BDR	12-04-2013	38
OR-RTR7-0003	RTR PRIMARY DVD	12-04-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [ ]	Signature	Misty Waldrip Printed Name	1-9-14 Date
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

****
*** Send Results ***
****

Sending is complete.

Job No.	0513
Address	918655768703
Name	ORNL
Start Time	01/09 09:32 AM
Call Length	00'45
Sheets	1
Result	OK

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	CCP RECORDS	From:	PATRICK SMITH II
Ship to:	CCP RECORDS CUSTODIAN	Site:	ORNL
	4021 NATIONAL PARKS HWY.	Company:	S.M. STOLLER CORP.
	MS GSA 212	Telephone Number:	865-574-6002
	CARLSBAD, NM 88220-9082	Date Sent:	01-06-2014
Telephone Number:	575-234-7009		

Document Number	Title / Description	Record Date	Total Pages
OR-RTR7-0003	RTR BDR	12-04-2013	38
OR-RTR7-0003	RTR PRIMARY DVD	12-04-2013	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Comments:

N/A

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X] Signature Misty Waldrip Printed Name 1-9-14 Date

Attachment 3 – Visual Examination Site Project Manager Checklist

Batch Data Report No.: ORNLRHVE13004

1. Has all the data received an independent technical review as evidenced by a completed checklist (Attachment 2) and the appropriate ITR signature?		☐ NO	☒ YES
2. Are BDR contents complete and match the Visual Examination Batch Data Report Table of Contents?		☐ NO	☒ YES
3. Is the BDR complete (appropriately filled in forms for each container)?		☐ NO	☒ YES
4. Have the RH Quality Assurance Objectives (QAOs) for VE been met?			
Precision – reconciled discrepancies between operators		☐ NO	☒ YES
Accuracy – trained operators		☐ NO	☒ YES
Representativeness – description of container contents		☐ NO	☒ YES
Completeness – completed data form and/or recording		☐ NO	☒ YES
Comparability – proper training and adequate AK for unopened containers		☐ NO	☒ YES
5. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments

No NCRs

SPM:

Laura Nelson
Printed Name

Laura Nelson
Signature

12/30/13
Date

CCP RECORDS ORIGINAL
DATE REC'D 1/7/14

Attachment 4 – Visual Examination Batch Data Report Cover Sheet

Batch Data Report No.: ORNLRHVE13004 Date: 12/13/13

	Waste Container ID Number:
1	ORRH00681
2	ORRH00682
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

N/A CW 12/13/13

NTPC RECORDS ORIGINAL
DATE REC'D 12-18-2013

Attachment 5 – Visual Examination Batch Data Report Table of Contents

Batch Data Report No.: ORNLRHVE13004 Date: 12/13/13

Item	Description	Page No.
1	Visual Examination Batch Data Report Cover Sheet (Attachment 4)	1
2	Visual Examination Batch Data Report Table of Contents (Attachment 5)	2
3	Visual Examination Data Forms (Attachment 1)	3
4	Visual Examination Independent Technical Reviewer Checklist (Attachment 2)	7
5	Copy of NCRs (N/A [if not applicable])	N/A

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12/13/13		Batch Number: ORNLRHVE13004	
Procedure #: CCP-TP-500		Revision #: 13	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☒N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☒N/A		**Final Container** ☐N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00681	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: S5400	
Waste Stream:		Waste Stream: OR-REDC-RH-HET	
		Rigid Liner: ☐Y ☒N Type:	Rigid Liner Lid: ☐Y ☒N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 80
Layers of Confinement:	Closure Method:	Layers of Confinement: 0	Closure Method: N/A

Comments (e.g., filter information, NCRs):
CASK NUMBER X10C9600188
NucFil-019DS NUMBER CK694

Waste Description:

Plastic Bags (P)
Plastic Tape (P)
Manipulator Boot (IM)(P)
Glass (OIM)
Cheesecloth (C)
Plastic Lids (P)
Floor Sweepings (OIM)(P)(IM)(C)(R)
Metal Cans (IM)
Nylon Cord (P)
Glass Bottles (OIM)
Metal Pieces (OM)
Plastic Tubing (P)
Aluminum Pieces (AM)
Ceramic Pieces (OIM)
Metal Tools (IM)
Electrical Wire (OM)
Wire Brush (IM)(C)
Melted Plastic (P)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00681

Prohibited Item(s) Summary	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☒	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☒	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☒	
Does the container have observable liquid containing PCBs?	☐	☒	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☒	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☒	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☒	
Is there an indication of wastes containing explosives or compressed gases?	☐	☒	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☒	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☒	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☒	
RH 72B Criteria			
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☒	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	☒	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☒	
Is the waste consistent with the TRUCON Code?	☒	☐	

Comments: N/A

Visual Examination Operator 1:
Chuck Wallace (Print Name) — Chuck Wallace (Signature) — 12/13/13 (Date)

Visual Examination Operator 2:
Anthony Harley (Print Name) — (Signature) — 12-13-13 (Date)

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12/13/13		Batch Number: ORNLRHVE13004	
Procedure #: CCP-TP-500		Revision #: 13	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☒N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container: ☒N/A		Final Container: ☐N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00682	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: S5400	
Waste Stream:		Waste Stream: OR-REDC-RH-HET	
		Rigid Liner: ☐Y ☒N Type:	Rigid Liner Lid: ☐Y ☒N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 90
Layers of Confinement:	Closure Method:	Layers of Confinement: 0	Closure Method: N/A

Comments (e.g., filter information, NCRs):
CASK NUMBER X10C9600188
Nucfil-019DS Number FK785

Waste Description:

Nochar absorbant (C)
Plastic Bags (P)
Plastic Tape (P)
Plastic Lids (P)
Plastic Buckets (P)
Sweepings, Debris, Dust (C)(P)(OIM)(OM)(R)
Metal Lids (IM)
Electrical Cord (OM)
Cheesecloth (C)
Metal Can (IM)
Manipulator Finger (AM)
Pipette (OIM)
Metal Tool (IM)
Glass (OIM)
Leather Work Glove (C)
Wire Brush (OM)(C)
Melted Plastic (P)
Ceramic Pieces (OIM)
Glass Bottle (OIM)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00682

	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☒	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☒	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☒	
Does the container have observable liquid containing PCBs?	☐	☒	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☒	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☒	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☒	
Is there an indication of wastes containing explosives or compressed gases?	☐	☒	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☒	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☒	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☒	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☒	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	☒	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☒	
Is the waste consistent with the TRUCON Code?	☒	☐	

Comments: N/A

Visual Examination Operator 1:
Clinch Wallace (Print Name) — Clinch Wallace (Signature) — 12/13/13 (Date)

Visual Examination Operator 2:
Anthony Harley (Print Name) — (Signature) — 12-13-13 (Date)

Attachment 2 – Visual Examination Independent Technical Reviewer Checklist

Batch Data Report No.: ORNLRHVE13004

1. Were data generation and reduction conducted in a technically correct manner in accordance with the methods (procedure) used?	☐ NO	☒ YES	☐ N/A
2. Was the correct revision of the operating procedure used?	☐ NO	☒ YES	☐ N/A
3. Were all the transcription errors corrected?	☐ NO	☐ YES	☒ N/A
4. Are BDR contents complete and match the Visual Examination Batch Data report Table of Contents?	☐ NO	☒ YES	☐ N/A
5. Does the BDR include VE for no more than 20 containers?	☐ NO	☒ YES	☐ N/A
6. Is all data recorded signed and dated in reproducible ink?	☐ NO	☒ YES	☐ N/A
7. Is all raw data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	☐ N/A
8. Are all changes to original data lined out, initialed and dated by the individual making the changes or an individual authorized to make the change?	☐ NO	☐ YES	☒ N/A
9. Is there an adequate written description of the contents?	☐ NO	☒ YES	☐ N/A
10. Were the recording equipment checks satisfactory?	☐ NO	☐ YES	☒ N/A
11. Has each container in this BDR been evaluated for the presence of prohibited wastes?	☐ NO	☒ YES	☐ N/A
12. Has the physical waste form in each container in this BDR been evaluated against the Waste Stream Description and the Waste Matrix Code?	☐ NO	☒ YES	☐ N/A
13. Have the RH Quality Assurance Objectives (QAOs) for VE been met?	☐ NO	☒ YES	☐ N/A
Precision – reconciled discrepancies between operators or between the operator and ITR.	☐	☒	☐
Accuracy – trained operators	☐	☒	☐
Representativeness – description of container contents	☐	☒	☐
Completeness – completed data form and/or recording	☐	☒	☐
Comparability – proper training and adequate AK source documents are available for unopened containers.	☐	☒	☐
14. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A
Comments: N/A			

Independent Technical Reviewer:

Jason Cofer
Printed Name

Signature

12-16-13
Date

DIVIDER PAGE ONLY

Not part of page count

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Copy
[ ] Fax Record
[ ] Electronic Record

Attn:	Danette Acosta	From:	Laura Nelson
Ship to:	CCP Records	Site:	Denver
	4021 National Parks Highway	Company:	NWP
	MS:GSA:212	Telephone Number:	303-843-2269
	Carlsbad, NM 88220	Date Sent:	12/30/13
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
ORNLRHVE13004	SPM Checklist	12/30/13	1
	NA		

Comments

NA

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted [X]	Signature	Danette Acosta (Printed Name)	1/7/14 (Date)
Records Rejected [ ]	Signature	Printed Name	Date

Reason for Rejection:

Re-submittal:

Signature	Printed Name	Date

****
*** Send Results ***
****

Sending is complete.

Job No.	0356
Address	913038432208
Name	DENVER SPMS
Start Time	01/07 07:42 AM
Call Length	00'17
Sheets	1
Result	OK

Controlled Copy

CCP-QP-008, Rev. 21
CCP Records Management

Effective Date: 02/28/2013

Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

[X] Original Record [ ] Fax Record [ ] Electronic Record [ ] Copy

Attn:	Danette Acosta	From:	Laura Nelson
Ship to:	CCP Records	Site:	Denver
	4021 National Parks Highway	Company:	NWP
	MS:GSA:212	Telephone Number:	303-843-2269
	Carlsbad, NM 88220	Date Sent:	12/30/13
Telephone Number:	575-234-7523		

Document Number	Title / Description	Record Date	Total Pages
ORNLRHVE13004	SPM Checklist	12/30/13	1
	NA		

Comments

NA

(When the Record accepted line has been completed, the rest of the page below may be left blank.)

Acceptance/Rejection Signature and Date

Records Accepted [X] _____ Signature — Danette Acosta Printed Name — 1/7/14 Date

Records Rejected [ ] _____

Table C6-3 Radiography Checklist
ORNL/CCP Audit A-14-03
January 14-16, 2014

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Radiography Checklist

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-3 Radiography Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	QUALITY ASSURANCE OBJECTIVES					
233	Are process procedures in place to meet the following Quality Assurance Objectives? <u>Precision</u> • Does the site describe in its QAPjP and SOP(s) activities to reconcile any discrepancies between two radiography operators with regard to identification of the waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases through independent replicate scans and independent observations? And additionally, activities to verify the precision of radiography prior to use by tuning precisely enough to demonstrate compliance with QAOs through viewing an image test pattern? <u>Accuracy</u> • Was accuracy obtained by using a target to tune the image for maximum sharpness and by requiring operators to successfully identify 100 percent of the required items in a training container during their initial qualification and subsequent requalification	CCP-TP-053, S. 4.3.3, 4.5.3 & 4.6.3 CCP-QP-002, S. 4.3.2 [C.4](a) & Att. 4	Y	<u>RTR BDRs:</u> OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)** Training and Qualification Records for four RTR Operators **(RTR-2)**	Y	
233a	<u>Completeness</u> • Was an audio/videotape (or equivalent media) of the radiography examination and a radiography data form validated according to the requirements in Section C3-4? • Was an audio/videotape (or equivalent media) of the radiography examination and a radiography data form obtained for 100% of the waste containers subject to radiography? <u>Comparability</u> • Is comparability ensured through the use of standardized radiography procedures and operator training and qualifications (Section C3-2a)	CCP-TP-053, S. 2.2, 4.4, 4.5, 4.6, Att. 2 & 3 CCP-QP-002, S. 4.3.2	Y	<u>RTR BDRs:</u> OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)** Training and Qualification Records for four RTR Operators **(RTR-2)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-3 Radiography Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	CHARACTERIZATION AND SYSTEM REQUIREMENTS					
234	Does the site have procedures to ensure that radiography is used to identify and verify waste container contents and verify the waste's physical form? Does the site have procedures to identify prohibited materials? (Section C-3b; C1-1)	CCP-TP-053, S. 1.0, 4.4.1[B]-[E], Table 1 & Att. 2	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	
235	Do procedures or other supporting documentation ensure that every waste container will undergo radiography and/or VE as necessary to augment AK? (Section C-3b)	CCP-TP-001, S. 3.1, 4.2, & Att. 1 & 2 CCP-TP-500, S. 3.4, 4.4, & Att. 3 CCP-TP-002, S. 4.0	Y	OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** ORNLRHVE13005, ORNLRHVE13006, ORNLRHVE13001 **(GEN-2)** OR-REDC-RH-HET/CIS, Lot 28, Draft Lot 29 **(GEN-3)** OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS, Lot 12 **(GEN-6)**	Y	
236	Do procedures ensure that containers whose contents prevent full examination are examined by visual examination rather than by radiography unless the site certifies that visual examination would provide no additional relevant information for that container based on the AK information for the waste stream?	CCP-TP-053, S. 4.4.2 [B] & [C]	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-3 Radiography Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	(Section C1-1)			OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**		
237	Do procedures or other supporting documentation ensure that the physical form determined by radiography is compared with the waste stream descriptions? If discrepancies are noted, will a new waste stream be identified? (Section C-3b)	CCP-TP-001, S. 4.2 & Att. 2 CCP-TP-005, S. 4.5.3[A] & 4.8 CCP-TP-053, S. 4.4.2[H.2], Att. 2 & 3	Y	OR-NFS-CH-HET-A/CIS, Lot 8 **(GEN-4)** Draft OR-NFS-CH-HOM-A/CIS, Lot 1 **(GEN-5)** OR-NFS-CH-SOIL/CIS Lot 12 **(GEN-6)** OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)** RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	
238	Are there procedures to ensure the data is obtained from an audio/video recorded scan provided by trained radiography operators? (Section C1-1)	CCP-TP-053, S. 2.2, Att. 2 & 3	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-3 Radiography Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**		
239	Were all activities required to achieve the radiography objective described in site Quality Assurance Project Plans (QAPjPs) and Standard Operating Procedures (SOPs)? (Section C3-2)	CCP-PO-001, S. C3-2 CCP-TP-053, (ALL)	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	
240	Did the radiography system consist of the following equipment or equivalent: • an X-ray producing device? • an imaging system? • an enclosure for radiation protection? • a waste container handling system? • an audio/video recording system or equivalent? • an operator control and data acquisition station? (Section C1-1)	CCP-TP-053, S. 4.2 – 4.4 CCP-TP-164, (ALL) CCP-TP-165, (ALL)	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	The audit team observed the RTR characterization processes performed at the ORNL TWPC Waste Characterization area in Buildings 7880ZZ (RTR7) and 7880J (RTR6). Each RTR unit contained the components required by the WAP to effectively characterize the CH summary category groups subject to the audit scope.
241	Did the X-ray producing device have controls which allow the operator to vary voltage, thereby controlling image quality? Was it possible to vary the voltage, typically between 150-400 kV, to provide an optimum degree of penetration through the waste? Was high-density material examined with the X-ray device set on the maximum voltage? Was low-density material examined at lower voltage settings to improve contrast and image definition? (Section C1-1)	CCP-TP-053, S. 4.4.1 [C]	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	The audit team observed the RTR characterization processes performed at the ORNL TWPC Waste Characterization area in Buildings 7880ZZ (RTR7) and 7880J (RTR6). Each RTR unit contained the components required by the WAP to effectively characterize the CH summary category groups subject to the audit scope.
242	Do procedures or other documentation ensure that an audio/videotape or equivalent is made of the waste container scan and maintained as a non-permanent record?	CCP-TP-053, S. 4.3, 5.1.2, & Att.1, 2 & 3	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-3 Radiography Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	(Section C1-1)			OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**		
	DATA COMPILATION					
243	Are there procedures to ensure that a radiography data form is used to document the waste matrix code, ensure the waste container contains no ignitable, corrosive or reactive waste by documenting the absence of liquid in excess of TSDF-WAC limits or compressed gases, and verify that the physical form of the waste is consistent with the waste stream description documented on the WSPF? (Section C1-1)	CCP-TP-053, S. 4.4, Att. 2 & 3	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	
245	If radiography indicates that the waste does not match the waste stream description, do procedures ensure that the appropriate corrective action was taken? (Section C-3b)	CCP-TP-053, S. 4.4.2 [H.2]	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	
246	If a discrepancy is noted, do procedures ensure that the proper waste stream assignment is determined, the correct hazardous waste numbers assigned, and the resolution documented? (Section C-3b)	CCP-TP-005, S. 4.8, 4.9, Att. 10	Y	AK Discrepancy Resolutions at Characterization and AK Reevaluations **(AK-19)**	Y	
	TRAINING					
247	Do site procedures ensure that only trained personnel are allowed to operate	CCP-TP-053, S. 2.2.1	Y	Training and Qualification Records for four RTR	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-3 Radiography Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	radiography equipment? (Section C1-1)	CCP-QP-002, S. 4.3.2		Operators **(RTR-2)**		
248	Do site procedures ensure that training requirements for radiography operators is based upon existing industry standard training requirements? (Section C1-1)	CCP-QP-002, S. 4.3.2 [A.2]	Y	Training and Qualification Records for four RTR Operators **(RTR-2)**	Y	
249	Does the documented training program provide radiography operators with both formal and on-the-job training (OJT)? (Section C1-1)	CCP-QP-002, S. 4.3.2	Y	Training and Qualification Records for four RTR Operators **(RTR-2)**	Y	
250	Does the documented training program ensure that the radiography operators are instructed in the specific waste generating practices and typical packaging configurations expected to be found in each waste stream at the site? (Section C1-1)	CCP-QP-002, S. 4.1 & 4.2	Y	Training and Qualification Records for four RTR Operators **(RTR-2)**	Y	
251	Does the documented training program ensure that the OJT and apprenticeship are conducted by an experienced, qualified radiography operator prior to qualification of the candidate? (Section C1-1)	CCP-QP-002, S. 4.3.2[A.1]	Y	Training and Qualification Records for four RTR Operators **(RTR-2)**	Y	
252	Is the documented training program site specific? (Section C1-1)	CCP-QP-002, S. 3.5.5, 4.1, 4.3.2 & Att. 1	Y	Training and Qualification Records for four RTR Operators **(RTR-2)**	Y	
262	Does the documented training program ensure that a training drum with various container sizes is scanned by each operator on a semiannual basis? Is the videotape reviewed by a supervisor to ensure that operator's interpretations remain consistent and accurate? (Section C1-1)	CCP-QP-002, S. 4.3.2 [C.3] & [C.4] CCP-TP-028, (ALL)	Y	Training and Qualification Records for four RTR Operators **(RTR-2)**	Y	
263	Do site procedures ensure that the site prepares Testing Batch Data Reports or equivalent which includes all data pertaining to radiography for up to 20 waste containers without regard to waste matrix? (Section C3-4)	CCP-TP-053, S. 4.9.1	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-3 Radiography Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	QUALITY ASSURANCE					
265	Does the documented training program ensure that the imaging system characteristics are verified on a routine basis? (Section C1-1)	CCP-TP-053, S. 4.3	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)** Training and Qualification Records for four RTR Operators **(RTR-2)**	Y	
266	Do procedures ensure that independent replicate scans and replicate observations of the video output of the radiography process are performed under uniform conditions and procedures? Are independent replicate scans performed on one waste container per day or per testing batch of 20 samples, which ever is less frequent, by a qualified radiography operator that was not involved in the original scan of the water container? Are independent observations of one scan (not the replicate scan) performed once per day or per testing batch, which ever is less frequent, by a qualified radiography operator that was not involved in the original scan of the waste container? (Section C1-1)	CCP-TP-053, S. 4.5, 4.6 & 4.9.1	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	
267	Do procedures ensure that oversight functions include periodic audio/video media reviews of accepted waste containers, are performed by qualified radiography operators that were not involved in the original scans of the waste containers? (Section C1-1)	CCP-TP-053, S. 4.5 & 4.6	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-3 Radiography Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
268	Is the site project manager responsible for monitoring the quality of the radiography data and calling for corrective action, when necessary? (Section C1-1)	CCP-TP-001, S. 4.2 & Att. 2	Y	OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)**	Y	
	DATA VALIDATION, REVIEW, VERIFICATION AND REPORTING					
277	Do procedures ensure that all applicable data generation review verification and validation activities specified in C3-4 are followed, including all signatory releases? (Section C3-4)	CCP-TP-053, S. 4.10 & Att. 3	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	
278	Do procedures ensure that radiography tapes have been reviewed at a frequency of one waste container per day or once per testing batch, whichever is less frequent, to ensure data are correct and completed? (Section C1-1)	CCP-TP-053, S. 4.6	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001 OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**	Y	
279	Do procedures ensure that all applicable project-level signatory releases and DQOs (Section C3-3) as specified in the WAP are performed? (Section C3-4b)	CCP-TP-001, S. 4.2 & Att. 2	Y	OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)**	Y	
282	At the data generation level, do procedures ensure that all electronic and video data stored appropriately to ensure that waste container, sample, and associated QA data are readily retrievable? Are radiography tapes reviewed, at a frequency of one waste container per day or once per testing batch, whichever is less frequent, against the data reported on the radiography form? (Section C3-4a, C3-4a(1))	CCP-TP-053, S. 4.6 & 5.0	Y	RTR BDRs: OR-RTR6-0433 OR-RTR6-0437 OR-RTR6-0439 OR-RTR6-0440 OR-RTR7-0001	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-3 Radiography Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
				OR-RTR7-0003 OR-RTR7-0008 OR-RTR7-0009 **(RTR-1)**		
283	At the project level, do procedures require the Site Project Manager to certify that the radiography data are complete and acceptable based on the videotape review of at least one waste container per testing batch or daily, whichever is less frequent? (Section C3-4b(1))	CCP-TP-001, S. 4.2 & Att. 2	Y	OR-RTR6-0438, OR-RTR7-0002, OR-RTR7-0009, OR-RTR6-0435 **(GEN-1)**	Y	

1. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements is meant to ask whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C9311742A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Paint cans, metal hardware, scrap metal
AM:	
OM:	
OI:	Glass containers, absorbent
C:	
R:	
XPM:	Plastic bags, plastic caps, plastic containers
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	10.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	25.8
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	8.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	43.8

CCP Radiography Data Sheet

Waste Container ID: X10C9311742A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	
RTR Operator: Eric Lyles (Print Name) — (Signature) — 12/9/2013 (Date)	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR6-0440

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	☒ N/A
12.	Was justification made for changing the original data?	☐ NO	☐ YES	☒ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☐ YES	☒ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR6-0440

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☐ YES	☒ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Fred Overy — Printed Name

Signature

12-12-13 — Date

DIVIDER

PAGE

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR7-0001	Examination Date(s): 12/02/2013			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: X10C0000250AH NFS0389A X10C0506154G NFS0397B X10C0506153F X10C0506143M1 X10CSATN02406B X10CSATN02406C
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**			X	
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			

COPY
NTPC RECORDS ORIGINAL
DATE REC'D 12313 mw

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0001				Examination Date(s): 12/02/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**	X			
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0001	Examination Date(s): 12/02/2013			
Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.				
Daniel Wade (SPM Printed Name)	D. Wade (Signature)			12/10/2013 (Date)

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR7-0001 ☑ CH ☐ RH Date: 12/2/13

Waste Container ID Numbers	
Replicate Scan:	X10C0506154G
Independent Observation:	X10C0000250AH
1	X10C0000250AH
2	NFS0389A
3	X10C0506154G
4	NFS0397B
5	X10C0506153F
6	X10C0506143M1
7	X10CSATN02406B
8	X10CSATN02406C
9	N/A
10	N/A
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Steve Redmond — Printed Name

Signature

12/2/13 — Date

Independent Technical Reviewer:

Daphne Brothers — Printed Name

Daphne O'Brothers — Signature

12/9/13 — Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-10-2013

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR7-0001 Date: 12/2/13

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	N/A
6	CCP Independent Technical Reviewer Checklist	34

Batch Narrative
All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Steve Redmond — RTR Operator

Signature

12/2/13 — Date

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR7-0001		
Examination Date: 12/2/13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 15 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator:		
Steve Redmond (Printed Name)	Signature	12/2/13 (Date)

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0001
Examination Date:	12/2/2013
Waste Container ID:	X10C0506154G
Video/Audio Recorded Media Number:	OR-RTR7-0001 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 199.1 kg Tare Wt.: 33.2 kg Net Wt.: 165.9 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506154G

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM:

OM:

OI: Concrete

C:

R:

XPM: Plastic bags

OR:

IN:

S: Soil

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	13.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	4.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	147.4
Total WMP Weight:	165.9

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506154G

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Replicate scan agrees with the original scan.	
RTR Operator: Eric Lyles (Print Name) — Signature — 12/2/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☒ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0001
Examination Date:	12/2/2013
Waste Container ID:	X10C0000250AH
Video/Audio Recorded Media Number:	OR-RTR7-0001 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 69.4 kg Tare Wt.: 33.2 kg Net Wt.: 36.2 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 4 layer 2 EL 12/9/13 EL 12/9/13
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0000250AH

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal, metal tubing, hand tool
AM:	
OM:	
OI:	Absorbent
C:	Coveralls
R:	Rubber gloves
XPM:	Plastic bags, plastic hose, plastic sheeting
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	20.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	1.2
Cellulosics (C):	1.0
Rubber (R):	2.0
Plastics (waste materials) (XPM):	12.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	36.2

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0000250AH

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: This Independent Observation agrees with the original scan. Upon review with the operator I agree with the original operator on 2 Layers of Confinement. This attachment 2 reflects my decision. EL 12/9/13

RTR Operator:

Eric Lyles
Print Name

Signature

12/2/2013
Date 12/9/13

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0001
Examination Date:	12/2/2013
Waste Container ID:	X10C0000250AH
Video/Audio Recorded Media Number:	OR-RTR7-0001 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 69.4 kg Tare Wt.: 33.2 kg Net Wt.: 36.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0000250AH

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal, metal tubing, hand tool

AM:

OM:

OI: Absorbent

C: Tape, coveralls

R: Rubber gloves

XPM: Plastic bags, air hose with fittings, plastic buckle, plastic belt, suit

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	20.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.4
Cellulosics (C):	0.6
Rubber (R):	1.3
Plastics (waste materials) (XPM):	13.9
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	36.2

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0000250AH

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	
RTR Operator: Steve Redmond (Print Name) — Signature — 12/2/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0001
Examination Date:	12/2/2013
Waste Container ID:	NFS0389A
Video/Audio Recorded Media Number:	OR-RTR7-0001 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 211.8 kg Tare Wt.: 33.2 kg Net Wt.: 178.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0389A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Metal pipe, scrap metal, metal hardware
AM:	
OM:	
OI:	Absorbent, concrete pieces
C:	Cloth material
R:	Rubber gloves
XPM:	Plastic tubing, plastic bags
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	168.8
Cellulosics (C):	2.0
Rubber (R):	1.3
Plastics (waste materials) (XPM):	5.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	178.6

CCP Radiography Data Sheet

Waste Container ID: NFS0389A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: N/A	

RTR Operator:

Steve Redmmond		12/2/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0001
Examination Date:	12/2/2013
Waste Container ID:	X10C0506154G
Video/Audio Recorded Media Number:	OR-RTR7-0001 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 199.1 kg Tare Wt.: 33.2 kg Net Wt.: 165.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be ~~2 layers~~ 1 layer mc 12-9-13
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

Waste Container ID: X10C0506154G

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Scrap metal
AM:	
OM:	
OI:	Concrete pieces, absorbent
C:	
R:	
XPM:	Plastic bags
OR:	
IN:	
S:	Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	12.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	146.9
Total WMP Weight:	165.9

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506154G

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: ~~N/A~~ 12-9-13 AFTER review with the RTR operator I agree that there is only 1 layer of confinement for this container. 12-9-13

RTR Operator:

Steve Redmond — Print Name

Signature

12/2/2013 — Date 12-9-13

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0001
Examination Date:	12/2/2013
Waste Container ID:	NFS0397B
Video/Audio Recorded Media Number:	OR-RTR7-0001 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 215.4 kg Tare Wt.: 33.2 kg Net Wt.: 182.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

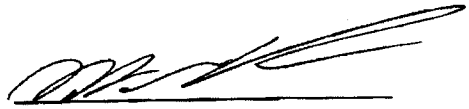
Waste Container ID: NFS0397B

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	Concrete pieces
C:	Cloth material
R:	
XPM:	Plastic bags, scrap plastic
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	16.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	158.7
Cellulosics (C):	2.0
Rubber (R):	
Plastics (waste materials) (XPM):	5.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	182.2

CCP Radiography Data Sheet

Waste Container ID: NFS0397B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments:N/A	
RTR Operator: Steve Redmond (Print Name)  (Signature) 12/2/2013 (Date)	

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0001
Examination Date:	12/2/2013
Waste Container ID:	X10C0506153F
Video/Audio Recorded Media Number:	OR-RTR7-0001 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 55.7 kg Tare Wt.: 33.2 kg Net Wt.: 22.5 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	100 %

CCP Radiography Data Sheet

Waste Container ID: X10C0506153F

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Scrap metal
AM:	
OM:	
OI:	Filter debris
C:	Cardboard, wood, filter media
R:	
XPM:	Plastic bags 12-9-13
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	4.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.1
Cellulosics (C):	13.4
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	22.5

CCP Radiography Data Sheet

Waste Container ID: X10C0506153F

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:N/A	
RTR Operator: Steve Redmond (Print Name) / Signature / 12/2/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0001
Examination Date:	12/2/2013
Waste Container ID:	X10C0506143M1
Video/Audio Recorded Media Number:	OR-RTR7-0001 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 72.8 kg Tare Wt.: 33.2 kg Net Wt.: 39.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	100 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506143M1

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Metal hardware, saw blades at 2", utility knife at 12", metal tubing, vacuum filter, vacuum

AM:

OM:

OI: Glass containers, absorbent, floor sweepings

C: Coveralls, wood

R: Rubber gloves

XPM: Plastic bags, air hose with fittings, plastic suits, plastic belt

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	15.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	9.0
Cellulosics (C):	2.0
Rubber (R):	1.3
Plastics (waste materials) (XPM):	12.3
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	39.6

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506143M1

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:N/A	
RTR Operator: Steve Redmond (Print Name) — Signature — 12/2/2013 (Date)	

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0001
Examination Date:	12/2/2013
Waste Container ID:	X10CSATN02406B
Video/Audio Recorded Media Number:	OR-RTR7-0001 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 47.1 kg Tare Wt.: 33.2 kg Net Wt.: 13.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02406B

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Metal containers, scrap metal, metal fittings

AM:

OM:

OI: Glass containers

C: Cloth material, cardboard

R:

XPM: Plastic bags, scrap plastic, manipulator boots, plastic containers, plastic tubing

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other:Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.5
Cellulosics (C):	3.4
Rubber (R):	
Plastics (waste materials) (XPM):	7.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	13.9

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02406B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:N/A	

RTR Operator:

Steve Redmond		12/2/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0001
Examination Date:	12/2/2013
Waste Container ID:	X10CSATN02406C
Video/Audio Recorded Media Number:	OR-RTR7-0001 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 46.9 kg Tare Wt.: 33.2 kg Net Wt.: 13.7 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02406C

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Metal containers, scrap metal,metal hardware

AM:

OM:

OI: Glass containers, light bulbs, absorbent

C: Cloth material, cardboard

R:

XPM: Plastic bags, plastic lid

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other:Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.2
Cellulosics (C):	4.0
Rubber (R):	
Plastics (waste materials) (XPM):	4.5
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	13.7

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02406C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:N/A	

RTR Operator:

Steve Redmond		12/2/2013
Print Name	Signature	Date

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR7-0001

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☒ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☒ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☒ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR7-0001

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☐ YES	☒ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Daphne Brothers
Printed Name

Daphne Brothers
Signature

12/9/13
Date

DIVIDER

PAGE

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR7-0003				Examination Date(s): 12/04/2013
Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: X10C0506151E X10CSATN02612H X10CSATN02612D X10CSATN02682D X10CSATN02682A
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**	X			NCR-ORNL-841-13, places an interim disposition of "hold" on container NFS0794B. NCR-ORNL-842-13, places an interim disposition of "hold" on container NFS0815.
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			Yes, except containers NFS0794B and NFS0815.

COPY

NTPC RECORDS ORIGINAL
DATE REC'D 12 31 13 mw

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0003				Examination Date(s): 12/04/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			Yes, except containers NFS0794B and NFS0815.
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**			X	No observable liquid.
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0003	Examination Date(s): 12/04/2013			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.				
Daniel Wade	Daniel Wade			12/12/2013
SPM Printed Name	Signature			Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR7-0003 ☑ CH ☐ RH Date: 12/4/13

Waste Container ID Numbers	
Replicate Scan:	X10CSATN02612H
Independent Observation:	X10C0506151E
1	NFS0794B
2	X10C0506151E
3	NFS0815
4	X10CSATN02612H
5	X10CSATN02612D
6	X10CSATN02682D
7	X10CSATN02682A
8	N/A
9	N/A
10	N/A
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Steve Redmond		12/4/13
Printed Name	Signature	Date

Independent Technical Reviewer:

Daphne Brothers		12/11/13
Printed Name	Signature	Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-11-2013

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR7-0003 Date: 12/4/13

Table Of Contents

Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	31
6	CCP Independent Technical Reviewer Checklist	37

Batch Narrative

All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Steve Redmond
RTR Operator

Signature

12/4/13
Date

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR7-0003		
Examination Date: 12/4/13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 15 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator: Steve Redmond (Printed Name) — (Signature) — 12/4/13 (Date)		

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10CSATN02612H
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 47.3 kg Tare Wt.: 33.2 kg Net Wt.: 14.1 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be ~~1~~ 2 layer EL 12/11/13 EL 12/11/13
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612H

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal, electrical equipment, paint can
AM:	
OM:	
OI:	Glass containers
C:	Cloth, cardboard
R:	
XPM:	Plastic lids, plastic containers, plastic bags, plastic sheeting, plastic caps
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	2.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.5
Cellulosics (C):	4.0
Rubber (R):	
Plastics (waste materials) (XPM):	7.1
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	14.1

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612H

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments: This Replicate scan agrees with the original scan.
after review the operator noted 1 layer of confinement. The correct layers of confinement is 2. This attachment 2 reflects my decision. EL 12/11/13

RTR Operator:

Print Name	Signature	Date
Eric Lyles		12/4/2013
		Date 12/11/13

CCP Radiography Data Sheet

Section 1: General Information	
[ ] RTR Examination [ ] RTR Replicate Scan [X] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10C0506151E
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 258.6 kg Tare Wt.: 33.2 kg Net Wt.: 225.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: X10C0506151E

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Scrap metal
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bag
OR:	
IN:	
S:	Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	223.3
Total WMP Weight:	225.4

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506151E

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: This Independent Observation agrees with the original scan.	

RTR Operator:

Eric Lyles		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	NFS0794B
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[ ] No [X] Yes NCR No.: NCR-ORNL-0841-13 NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 128.4 kg Tare Wt.: 33.2 kg Net Wt.: 95.2 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: NFS0794B

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal, utility knife, metal hardware
AM:	
OM:	
OI:	Absorbent
C:	Cloth, coveralls, tape
R:	Rubber gloves
XPM:	Plastic bags, scrap plastic, air hose
OR:	
IN:	
S:	Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	3.0
Cellulosics (C):	5.0
Rubber (R):	2.6
Plastics (waste materials) (XPM):	16.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	67.6
Total WMP Weight:	95.2

CCP Radiography Data Sheet

Waste Container ID: NFS0794B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)		
Is there observable liquid?	[X] Yes	[ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes	[X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes	[X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes	[X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes	[X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes	[X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes	[X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes	[X] No
Is there an indication of PCBs liquids?	[ ] Yes	[X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes	[X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[X] Yes	[ ] No
CH or RH TRAMPAC		
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes	[X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes	[X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes	[X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes	[X] No
Comments:NCR-ORNL-0841-13		

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10C0506151E
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 258.6 kg Tare Wt.: 33.2 kg Net Wt.: 225.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

Waste Container ID: X10C0506151E

Section 3: Container Inventory and Comments (Detailed descriptions)
IM: Scrap metal
AM:
OM:
OI:
C:
R:
XPM: Plastic bag
OR:
IN:
S: Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	224.3
Total WMP Weight:	225.4

CCP Radiography Data Sheet

Waste Container ID: X10C0506151E

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments:N/A	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	NFS0815
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[ ] No [X] Yes NCR No.: NCR-ORNL-0842-13 NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 183.0 kg Tare Wt.: 37.9 kg Net Wt.: 145.1 kg
Rigid Liner and Liner Vent Description:	Liner: [ ] No [X] Yes Lid: [ ] No [X] Yes Type: [ ] 30-mil [X] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [X] Yes [ ] N/A Punctured: [ ] No [X] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 0 layers
Volume Utilization Percentage:	75 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0815

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Scrap metal
AM:	
OM:	
OI:	Absorbent
C:	
R:	
XPM:	
OR:	
IN:	
S:	Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	30.5
Plastics (PP):	7.4
Other:	
Total Packaging Weight	37.9
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	6.5
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	138.5
Total WMP Weight:	145.1

CCP Radiography Data Sheet

Waste Container ID: NFS0815

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☒ Yes ☐ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No

Comments:NCR-ORNL-0842-13

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10CSATN02612H
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 47.3 kg Tare Wt.: 33.2 kg Net Wt.: 14.1 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612H

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal, electrical devices, metal containers

AM:

OM:

OI: Glass containers

C: Cloth, wood, cardboard

R:

XPM: Scrap plastic, rope, plastic containers, vacuum, plastic bags, plastic sheeting, plastic cap

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	3.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	0.3
Cellulosics (C):	3.5
Rubber (R):	
Plastics (waste materials) (XPM):	7.3
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	14.1

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612H

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10CSATN02612D
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 45.1 kg Tare Wt.: 33.2 kg Net Wt.: 11.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	70 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612D

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal

AM: Aluminum collar

OM:

OI: Glass containers

C: Cloth, cardboard

R:

XPM: Plastic bags, scrap plastic, plastic tubing, open plastic container, plastic caps, plastic sheeting

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	1.5
Other Metals (OM):	
Other Inorganic Materials (OI)	0.1
Cellulosics (C):	3.5
Rubber (R):	
Plastics (waste materials) (XPM):	5.8
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	11.9

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02612D

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10CSATN02682D
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 44.6 kg Tare Wt.: 33.2 kg Net Wt.: 11.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02682D

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Scrap metal, metal tubing
AM:	Aluminum collar
OM:	
OI:	
C:	Cloth, cardboard
R:	
XPM:	Plastic bags, scrap plastic, plastic tubing
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.3
Aluminum-based Metals / Alloys (AM):	1.5
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	3.5
Rubber (R):	
Plastics (waste materials) (XPM):	5.1
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	11.4

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02682D

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:N/A	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0003
Examination Date:	12/4/2013
Waste Container ID:	X10CSATN02682A
Video/Audio Recorded Media Number:	OR-RTR7-0003 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 49.3 kg Tare Wt.: 33.2 kg Net Wt.: 16.1 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 2 layers
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02682A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal, electrical device, metal tubing
AM:	
OM:	Scrap lead
OI:	Glass containers
C:	Cloth, cardboard
R:	
XPM:	Scrap plastic, plastic bag, plastic containers, plastic tubing
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.3
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	6.0
Other Inorganic Materials (OI)	0.1
Cellulosics (C):	3.3
Rubber (R):	
Plastics (waste materials) (XPM):	5.4
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	16.1

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02682A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Steve Redmond		12/4/2013
Print Name	Signature	Date

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0841-13 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR7-0003
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): NFS0794B
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text): CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [H.2] IF the waste form DOES NOT match the Waste Stream description and/or the Waste Matrix Code, THEN initiate an NCR in accordance with CCP-QP-005, AND record NCR number in Section 1 and in the comments block of Attachment 2.

7c. Actual Condition: Container(s) currently assigned to Waste Stream OR-NFS-CH-SOIL. Waste appears to be greater than 50% debris; therefore, the waste does not match the waste stream description or the waste matrix code.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Steve Redmond (printed name) _____ (signature) 12/4/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☒ YES ☐ NO ☐ INDETERMINATE

10. Trend Code: **L**	11. Responsible Manager: **Beverly Schrock**
12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaTravia Harmon (printed name) LaTravia Harmon (signature) 12/11/13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0841-13 **Revision 0**

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☐ N/A (See Final Disposition) ☒ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

1. Responsible Manager send this NCR to the AK Expert for re-evaluation in accordance with CCP-TP-005.
2. AK Expert perform the AK re-evaluation and include a copy of documented results as an attachment to this NCR.
3. SPM determine Final Disposition (block 19) based on the results of the AK Expert for re-evaluation.

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name	signature	date
Beverly Schrock	Andrew Stallings for Beverly Schrock	12/11/13

16b. QA Engineer or QA Designee:

printed name	signature	date
LaTravia Harmon	LaTravia Harmon	12/11/13

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name	signature	date

18. Interim Disposition Verified – QA Engineer:

printed name	signature	date

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0841-13 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☐ N/A for Reject, Rework, or Scrap]

☐ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☐ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

printed name _____ signature _____ date _____

21. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name _____ signature _____ date _____

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name _____ signature _____ date _____

COPY

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0842-13 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR7-0003
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): NFS0815
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text): CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [H.2] IF the waste form DOES NOT match the Waste Stream description and/or the Waste Matrix Code, THEN initiate an NCR in accordance with CCP-QP-005, AND record NCR number in Section 1 and in the comments block of Attachment 2.

7c. Actual Condition: Plastic liner bag not identified as required per AK.

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Steve Redmond (printed name) _____ (signature) 12/4/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☒ YES ☐ NO ☐ INDETERMINATE

10. Trend Code: L	11. Responsible Manager: **Beverly Schrock**
12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

LaKavia Harmon (printed name) LaKavia Harmon (signature) 12/11/13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR- ORNL-0842-13 **Revision 0**

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☐ N/A (See Final Disposition) ☒ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:
1. Responsible Manager send this NCR to the AK Expert for re-evaluation in accordance with CCP-TP-005.
2. AK Expert perform the AK re-evaluation and include a copy of documented results as an attachment to this NCR.
3. SPM determine Final Disposition (block 19) based on the results of the AK Expert for re-evaluation.

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name	signature	date
Beverly Schrock	Andrew Stallings for Beverly Schrock	12/11/13

16b. QA Engineer or QA Designee:

printed name	signature	date
LaTrania Harmon	LaTrania Harmon	12/11/13

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name	signature	date

18. Interim Disposition Verified – QA Engineer:

printed name	signature	date

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR- ORNL-0842-13 Revision 0

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☐ N/A for Reject, Rework, or Scrap]

☐ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☐ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

printed name signature date

21. QA Engineer or QA Designee:

printed name signature date

Additional Approval:

printed name signature date

Additional Approval:

printed name signature date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name signature date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name signature date

COPY

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: DR-RTR7-0003

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☒ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☒ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☒ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR7-0003

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☒ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Daphne Brothers
Printed Name

Daphne Brothers
Signature

12/11/13
Date

DIVIDER

PAGE

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR7-0008				Examination Date(s): 12/12/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: NFS0794A X10C0506142C NFS0434A
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**			X	
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			

COPY

NTPC RECORDS ORIGINAL
DATE REC'D 12.31.13 NW

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0008	Examination Date(s): 12/12/2013			
Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**	X			
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0008	Examination Date(s): 12/12/2013			
Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.				
Daniel Wade (SPM Printed Name)	Signature			12/27/2013 (Date)

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR7-0008 ☑ CH ☐ RH Date: 12/12/13

Waste Container ID Numbers	
Replicate Scan:	X10C0506142C
Independent Observation:	NFS0794A
1	NFS0794A
2	X10C0506142C
3	NFS0434A
4	N/A
5	N/A
6	N/A
7	N/A
8	N/A
9	N/A
10	N/A
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Steve Redmond		12/12/13
Printed Name	Signature	Date

Independent Technical Reviewer:

Daphne Brothers	Daphne O Brothers	12/17/13
Printed Name	Signature	Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-19-2013

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR7-0008 Date: 12/12/13

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	N/A
6	CCP Independent Technical Reviewer Checklist	19

Batch Narrative
All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Steve Redmond
RTR Operator

Signature

12/12/13
Date

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR7-0008		
Examination Date: 12/12/13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 15 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator: Steve Redmond (Printed Name)	(Signature)	12/12/13 (Date)

CCP Radiography Data Sheet

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0008
Examination Date:	12/12/2013
Waste Container ID:	X10C0506142C
Video/Audio Recorded Media Number:	OR-RTR7-0008 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 127.2 kg Tare Wt.: 33.2 kg Net Wt.: 94.0 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0506142C

Section 3: Container Inventory and Comments (Detailed descriptions)
IM: Scrap metal
AM:
OM:
OI: Concrete
C:
R:
XPM: Plastic bag
OR:
IN:
S:

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other: Cardboard Liner(CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	92.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	94.0

CCP Radiography Data Sheet

Waste Container ID: X10C0506142C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Replicate scan agrees with the original scan.	

RTR Operator:

Eric Lyles		12/12/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☒ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0008
Examination Date:	12/12/2013
Waste Container ID:	NFS0794A
Video/Audio Recorded Media Number:	OR-RTR7-0008 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 182.0 kg Tare Wt.: 33.2 kg Net Wt.: 148.8 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	65 %

CCP Radiography Data Sheet

Waste Container ID: NFS0794A

Section 3: Container Inventory and Comments (Detailed descriptions)
IM:
AM:
OM:
OI: Concrete
C: Cloth
R:
XPM: Plastic bag
OR:
IN:
S: Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	15.0
Cellulosics (C):	0.5
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	132.3
Total WMP Weight:	148.8

CCP Radiography Data Sheet

Waste Container ID: NFS0794A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: This Independent Observation agrees with the original scan.	

RTR Operator:		
Eric Lyles		12/12/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0008
Examination Date:	12/12/2013
Waste Container ID:	NFS0794A
Video/Audio Recorded Media Number:	OR-RTR7-0008 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 211
Waste Matrix Code:	S4100
Waste Stream I.D.:	OR-NFS-CH-SOIL
Waste Container Weights:	Gross Wt.: 182.0 kg Tare Wt.: 33.2 kg Net Wt.: 148.8 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	65 %

CCP Radiography Data Sheet

Waste Container ID: NFS0794A

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	
AM:	
OM:	
OI:	Absorbent, concrete pieces
C:	Cloth
R:	
XPM:	Plastic bag
OR:	
IN:	
S:	Soil

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	20.0
Cellulosics (C):	0.4
Rubber (R):	
Plastics (waste materials) (XPM):	3.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	125.4
Total WMP Weight:	148.8

CCP Radiography Data Sheet

Waste Container ID: NFS0794A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments: N/A	

RTR Operator:

Steve Redmond		12/12/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0008
Examination Date:	12/12/2013
Waste Container ID:	X10C0506142C
Video/Audio Recorded Media Number:	OR-RTR7-0008 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 127.2 kg Tare Wt.: 33.2 kg Net Wt.: 94.0 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

Waste Container ID: X10C0506142C

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Scrap metal
AM:	
OM:	
OI:	Concrete pieces
C:	
R:	
XPM:	Plastic bag
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner(CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.2
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	89.8
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	3.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	94.0

CCP Radiography Data Sheet

Waste Container ID: X10C0506142C

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments:N/A	

RTR Operator:

Steve Redmond		12/12/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0008
Examination Date:	12/12/2013
Waste Container ID:	NFS0434A
Video/Audio Recorded Media Number:	OR-RTR7-0008 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 179.6 kg Tare Wt.: 33.2 kg Net Wt.: 146.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	70 %

CCP Radiography Data Sheet

Waste Container ID: NFS0434A

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Scrap metal, metal hardware, metal tube
AM:	
OM:	
OI:	Absorbent, concrete pieces
C:	
R:	Rubber gloves
XPM:	Plastic bags, scrap plastic
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	8.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	132.8
Cellulosics (C):	
Rubber (R):	0.6
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	146.4

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: NFS0434A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	[X] Yes [ ] No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	[ ] Yes [X] No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	[ ] Yes [X] No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	[ ] Yes [X] No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	[ ] Yes [X] No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	[ ] Yes [X] No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	[ ] Yes [X] No
Is there an indication of wastes containing explosives or compressed gases?	[ ] Yes [X] No
Is there an indication of PCBs liquids?	[ ] Yes [X] No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	[ ] Yes [X] No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	[ ] Yes [X] No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	[ ] Yes [X] No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	[ ] Yes [X] No
Are there sealed containers GREATER than 4 liters?	[ ] Yes [X] No
Are there indications of inadequate protection for heavy and/or sharp objects?	[ ] Yes [X] No
Comments:N/A	
RTR Operator: Steve Redmond (Print Name) — Signature — 12/12/2013 (Date)	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR7-0008

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	☒ N/A
12.	Was justification made for changing the original data?	☐ NO	☐ YES	☒ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☐ YES	☒ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR7-0008

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☐ YES	☒ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Daphne Brothers — Printed Name

Daphne Brothers — Signature

12/17/13 — Date

DIVIDER PAGE

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: OR-RTR7-0009				Examination Date(s): 12/16/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**	X			
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**	X			
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers: NFS0117A NFS0423B NFS0404B NFS0754A X10C0402817F X10CSATN02640J X10C0402918AI X10C0402918BG X10C0402885G
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**	X			
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**	X			NCR-ORNL-0871-13 rejects container X10C0402918BN.
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**	X			
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**	X			
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**	X			Except container X10C0402918BN, an impenetrable item made this undeterminable.

COPY

NTPC RECORDS ORIGINAL
DATE REC'D 12-31-13 mw

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0009				Examination Date(s): 12/16/2013
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**	X			Except container X10C0402918BN, an impenetrable item made this undeterminable.
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**	X			Except container X10C0402918BN. This container contained an impenetrable item.
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**	X			Except container X10C0402918BN, an impenetrable item made this undeterminable.
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**			X	
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**	X			
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**	X			
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**	X			
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**	X			

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: OR-RTR7-0009	Examination Date(s): 12/16/2013			
Description of Criteria Reviewed	**Criteria Met?**			**Comments/Qualifiers**
	YES	**NO**	**NA**	
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**	X			
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**	X			
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**	X			
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**	X			
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**	X			
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**			X	Not used.
Comments: None.				
The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.				
Daniel Wade	Daniel Wade			12/27/2013
SPM Printed Name	Signature			Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 5–CCP Radiography Batch Data Report Cover Sheet

Site ID: ORNL

Batch Data Report No.: OR-RTR7-0009 ☑ CH ☐ RH Date: 12-16-13

Waste Container ID Numbers	
Replicate Scan:	X10C0402885G
Independent Observation:	NFS0117A
1	NFS0117A
2	NFS0423B
3	NFS0404B
4	NFS0754A
5	X10C0402918BN
6	X10C0402817F
7	X10CSATN02640J
8	X10C0402918AI
9	X10C0402918BG
10	X10C0402885G
11	N/A
12	N/A
13	N/A
14	N/A
15	N/A
16	N/A
17	N/A
18	N/A
19	N/A
20	N/A

RTR Operator:

Eric Lyles		12-16-13
Printed Name	Signature	Date

Independent Technical Reviewer:

Fred Owey		12-24-13
Printed Name	Signature	Date

NTPC RECORDS ORIGINAL
DATE REC'D 12-24-2013

1

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.: OR-RTR7-0009 Date: 12/16/13

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	1
2	CCP Radiography Batch Data Report Table Of Contents	2
3	CCP RTR Measurement Control Report	3
4	CCP Radiography Data Sheets	4
5	Copy of NCRs (NA, If Not Applicable)	40
6	CCP Independent Technical Reviewer Checklist	43

Batch Narrative
All Quality Checks were performed and recorded on CCP-TP-053, Rev. 14 CCP Radiography Measurement Control Report.

Eric Lyles — RTR Operator

Signature

12/16/13 — Date

Attachment 1 – CCP RTR Measurement Control Report

Site ID: ORNL		
Batch Data Report No.: OR-RTR7-0009		
Examination Date: 12/16/13		
Control Checks		
Video/Audio Recorded Media System Check	☑ SAT	☐ UNSAT
Image Test : 7 Lines (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☑ SAT	☐ UNSAT
Comments: N/A		
RTR Operator:		
Eric Lyles	[signature]	12/16/13
Printed Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
☐ RTR Examination ☒ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10C0402885G
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 67.9 kg Tare Wt.: 33.2 kg Net Wt.: 34.7 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

Waste Container ID: X10C0402885G

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal, metal containers
AM:	
OM:	
OI:	Glass containers, absorbent, glassware
C:	
R:	
XPM:	Plastic bag, plastic containers, plastic sheeting, plastic caps
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	27.2
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	4.5
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	3.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	34.7

CCP Radiography Data Sheet

Waste Container ID: X10C0402885G

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Replicate scan agrees with the original scan.	

RTR Operator:

Steve Redmond		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☒ RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	NFS0117A
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	☒ No ☐ Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 152.8 kg Tare Wt.: 33.2 kg Net Wt.: 119.6 kg
Rigid Liner and Liner Vent Description:	Liner: ☒ No ☐ Yes Lid: ☒ No ☐ Yes Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ No ☐ Yes ☒ N/A Punctured: ☒ No ☐ Yes Mechanical Vent: ☒ No ☐ Yes Fiberboard Liner: ☒ No ☐ Yes Lead Lined: ☒ No ☐ Yes
Number of Layers of Confinement:	Appears to be
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: NFS0117A

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Scrap metal
AM:	
OM:	
OI:	Broken glass, raschig rings
C:	
R:	
XPM:	Scrap plastic
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP):Liner bag	1.0
Other: Cardboard liner (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	0.1
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	116.7
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.8
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	119.6

CCP Radiography Data Sheet

Waste Container ID: NFS0117A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: This Independent Observation agrees with the original scan.	

RTR Operator:

Steve Redmond		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	NFS0117A
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 152.8 kg Tare Wt.: 33.2 kg Net Wt.: 119.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

Waste Container ID: NFS0117A

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal
AM:	
OM:	
OI:	Raschig rings, broken glass
C:	
R:	
XPM:	Plastic bag, liner lids
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	1.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	115.6
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	3.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	119.6

CCP Radiography Data Sheet

Waste Container ID: NFS0117A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	
RTR Operator: Eric Lyles (Print Name) / [signature] (Signature) / 12/16/2013 (Date)	

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	NFS0423B
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 205.8 kg Tare Wt.: 33.2 kg Net Wt.: 172.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: NFS0423B

Section 3: Container Inventory and Comments (Detailed descriptions)
IM:
AM:
OM:
OI: Broken concrete
C:
R:
XPM: Plastic bag
OR:
IN:
S:

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	171.6
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	172.6

CCP Radiography Data Sheet

Waste Container ID: NFS0423B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	NFS0404B
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-NFS-CH-HET-A
Waste Container Weights:	Gross Wt.: 162.8 kg Tare Wt.: 33.2 kg Net Wt.: 129.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: NFS0404B

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Scrap metal
AM:	
OM:	
OI:	Broken concrete
C:	
R:	
XPM:	Plastic bag, plastic sheeting, liner lid
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	15.0
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	110.6
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	4.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	129.6

CCP Radiography Data Sheet

Waste Container ID: NFS0404B

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	NFS0754A
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 227
Waste Matrix Code:	S3900
Waste Stream I.D.:	OR-NFS-CH-HOM-A
Waste Container Weights:	Gross Wt.: 48.4 kg Tare Wt.: 43.8 kg Net Wt.: 4.6 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	65 %

CCP Radiography Data Sheet

Waste Container ID: NFS0754A

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic containers
OR:	Absorbent
IN:	Homogeneous solids
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Tube Inserts (CP)	15.0
Total Packaging Weight	43.8
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.5
Organic Matrix (OR):	1.0
Inorganic Matrix (IN):	2.1
Soils (S):	
Total WMP Weight:	4.6

CCP Radiography Data Sheet

Waste Container ID: NFS0754A

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10C0402918BN
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[ ] No [X] Yes NCR No.: NCR-ORNL-0871-13 NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 167.0 kg Tare Wt.: 33.2 kg Net Wt.: 133.8 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	95 %

CCP Radiography Data Sheet

Waste Container ID: X10C0402918BN

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Paint cans, scrap metal, saw blade, electrical equipment, hand tools
AM:	
OM:	
OI:	Absorbent
C:	Cloth, wooden brush
R:	
XPM:	Plastic bags,open plastic bucket
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Insert (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	122.8
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	5.0
Rubber (R):	
Plastics (waste materials) (XPM):	4.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	133.8

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402918BN

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☐ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☐ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☐ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☐ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☐ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☐ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☐ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☐ No
Is there an indication of PCBs liquids?	☐ Yes ☐ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☐ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☐ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☐ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☐ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☐ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☐ No
Comments: Impenetrable items in the container limited the ability to complete the scan on this container. All questions in section 5 could not be answered due to this limitation. The Impenetrable condition is documented in NCR-ORNL-0871-13	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10C0402817F
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 78.6 kg Tare Wt.: 33.2 kg Net Wt.: 45.4 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	75 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402817F

Section 3: Container Inventory and Comments (Detailed descriptions)

IM: Scrap metal, paint cans, metal lids, metal pipes

AM:

OM:

OI: Glass containers

C:

R:

XPM: Plastic bags

OR:

IN:

S:

Section 4: Packaging Material and Waste Material Parameters

Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	41.4
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	2.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	2.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	45.4

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402817F

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10CSATN02640J
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 57.5 kg Tare Wt.: 33.2 kg Net Wt.: 24.3 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

Waste Container ID: X10CSATN02640J

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Paint cans, scrap metal
AM:	
OM:	
OI:	Glass containers
C:	Cardboard
R:	
XPM:	Plastic bags, open plastic container
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	16.8
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	1.0
Cellulosics (C):	2.5
Rubber (R):	
Plastics (waste materials) (XPM):	4.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	24.3

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10CSATN02640J

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10C0402918AI
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 123.7 kg Tare Wt.: 33.2 kg Net Wt.: 90.5 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	90 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402918AI

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Scrap metal, electrical equipment, hand tools, saw blades
AM:	
OM:	
OI:	
C:	
R:	
XPM:	Plastic bags, plastic hose, plastic flashlight with batteries, open plastic bucket, plastic caps
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	85.5
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	90.5

CCP Radiography Data Sheet

Waste Container ID: X10C0402918AI

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10C0402918BG
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 70.1 kg Tare Wt.: 33.2 kg Net Wt.: 36.9 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	85 %

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402918BG

Section 3: Container Inventory and Comments (Detailed descriptions)	
IM:	Scrap metal, metal pipe, electrical equipment, saw blades
AM:	
OM:	
OI:	
C:	Cardboard
R:	
XPM:	Plastic bags, plastic bucket open
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	29.4
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	
Cellulosics (C):	2.5
Rubber (R):	
Plastics (waste materials) (XPM):	5.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	36.9

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402918BG

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2

Section 1: General Information	
[X] RTR Examination [ ] RTR Replicate Scan [ ] RTR Independent Observation	
Site ID:	ORNL
Batch Number:	OR-RTR7-0009
Examination Date:	12/16/2013
Waste Container ID:	X10C0402885G
Video/Audio Recorded Media Number:	OR-RTR7-0009 A&B
Procedure and Revision No.:	CCP-TP-053 Rev. 14
NCR(s) associated with the container? (e.g., Prohibited Items)	[X] No [ ] Yes NCR No.: N/A NCR No.: N/A

Section 2: Waste Container Data	
Container Type:	55 Gallon Drum
TRUCON Code:	OR 225
Waste Matrix Code:	S5400
Waste Stream I.D.:	OR-REDC-CH-HET
Waste Container Weights:	Gross Wt.: 67.9 kg Tare Wt.: 33.2 kg Net Wt.: 34.7 kg
Rigid Liner and Liner Vent Description:	Liner: [X] No [ ] Yes Lid: [X] No [ ] Yes Type: [ ] 30-mil [ ] 90-mil [ ] 110-mil [ ] 125-mil Vented: [ ] No [ ] Yes [X] N/A Punctured: [X] No [ ] Yes Mechanical Vent: [X] No [ ] Yes Fiberboard Liner: [X] No [ ] Yes Lead Lined: [X] No [ ] Yes
Number of Layers of Confinement:	Appears to be 1 layer
Volume Utilization Percentage:	80 %

CCP Radiography Data Sheet

Waste Container ID: X10C0402885G

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	Paint cans, metal lids, scrap metal, electrical equipment
AM:	
OM:	
OI:	Glass containers, absorbent, broken glass
C:	
R:	
XPM:	Plastic container
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	**Estimated Weight (kg)**
Steel (ST):	27.8
Plastics (PP): Liner Bag	1.0
Other: Cardboard Liner Inserts (CP)	4.4
Total Packaging Weight	33.2
Waste Material Parameter:	**Estimated Weight (kg)**
Iron-based Metal / Alloys (IM):	30.7
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI)	3.0
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	1.0
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	34.7

CCP Radiography Data Sheet

CCP-TP-053 Attachment 2 (continued)

Waste Container ID: X10C0402885G

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☒ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☒ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☒ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☒ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☒ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☒ No
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ Yes ☒ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☒ No
Is there an indication of PCBs liquids?	☐ Yes ☒ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☒ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☒ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☒ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☒ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☒ No
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ Yes ☒ No
Comments: N/A	

RTR Operator:

Eric Lyles		12/16/2013
Print Name	Signature	Date

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-ORNL-0871-13 **Revision 0**

1. Lot No., Heat No., or Serial No. (if applicable): N/A	2. Process (e.g., NDA, NDE, VE, Other): NDE	3. Batch Data Report #(s): OR-RTR7-0009
4. Order/Work Order/Job Control Number (if applicable): N/A	5. PO # (if applicable): N/A	Container #(s): X10C0402918BN
	6. Supplier (if applicable): N/A	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☒ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text): CCP-TP-053, Standard Real Time Radiography (RTR) Inspection Procedure, Rev. 14, Section 4.4.2 [B] states in part "IF a container is identified in the S5000 summary category group that CAN NOT be penetrated by the RTR method because of the presence of lead, or other shielding, THEN initiate a NCR..."

7c. Actual Condition: impenetrable item(s).

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☒ YES ☐ NO If no is checked, explain:

8. NCR Originator:

Eric Lyles (printed name) _____ (signature) 12/16/13 (date)

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☒ NO ☐ INDETERMINATE

10. Trend Code: **K**

11. Responsible Manager: **Fred Oney**

12. Significant Condition? ☐ YES ☒ NO (If Yes, enter CAR No.):

13. Recurring Condition? ☐ YES ☒ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

Steve Redmond (printed name) _____ (signature) 12-17-13 (date)

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0871-13 **Revision 0**

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☒ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name _____ signature _____ date _____

16b. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name _____ signature _____ date _____

18. Interim Disposition Verified – QA Engineer:

printed name _____ signature _____ date _____

COPY

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR-ORNL-0871-13 **Revision 0**

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification–Required for Use-As-Is or Repair dispositions. [☒ N/A for Reject, Rework, or Scrap]

☒ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion–Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]
Send to CH VE

19c. Corrective Actions (Actions to Prevent Recurrence–For Repair or Rework, if applicable.
[☒ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

Fred Oney	[signature]	12-17-13
printed name	signature	date

21. QA Engineer or QA Designee:

Steve Redmond	[signature]	12-17-13
printed name	signature	date

Additional Approval:

printed name	signature	date

Additional Approval:

printed name	signature	date

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name	signature	date

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified–NCR Closed QA Engineer:

printed name	signature	date

COPY

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: OR-RTR7-0009

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☒ YES	
2.	Was the correct revision of the procedure used? Procedure: CCP-TP-053 Rev.: 14	☐ NO	☒ YES	
3.	Are the WMPs entered correctly?	☐ NO	☒ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☒ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☒ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☒ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☒ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☒ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☒ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	☒ N/A
12.	Was justification made for changing the original data?	☐ NO	☐ YES	☒ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☐ YES	☒ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☒ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☒ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☒ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☒ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.: OR-RTR7-0009

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☒ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☒ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☒ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☒ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☒ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☒ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☒ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☒ YES	

Comments: N/A

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Fred Overy — Printed Name

[signature] — Signature

12-24-13 — Date

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RTR2

National TRU Program Certification — RTR-02, Rev. 5
Effective Date: 10/07/2013 — Page 1 of 7

Real-Time Radiography (RTR) Operator/Independent Technical Reviewer (ITR) Qualification Card

Name: Robert Steve Redmond

Education/Experience		
Resume documenting education on file with National TRU Program Certification (NTPC) Training.		Cheryl Hengst 11-18-13 NTPC Training — Date
National Standard Requirements		
SNT-TC-1A Requirements	1. Certificate from an approved vendor stating the individual operator is a qualified Real-Time Radiography (RTR) operator Level II SNT-TC-1A *(Always Required)*	Cheryl Hengst 11-18-13 NTPC Training — Date
	2. Eye Examination: *(Always Required)* Jaeger Test (J-2) Date: 11-18-13 Color Vision or Gray Scale Test Date: 11-18-13	Cheryl Hengst 11-18-13 NTPC Training — Date
Job Specific Training		
☐ Initial Qualification ☑ Requalification ☐ Full Requalification		
Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the Site Project Manager (SPM) or the Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the Manager Responsible for Training. The candidate must successfully complete the entire qualification card to reestablish qualification.	
Requalification Requirements	Items required for requalification are identified by text.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Robert Steve Redmond

Initial/Indoctrination
(Required at Initial Qualification and Full Requalification)

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. WP 15-GM1002, *Issues Management Processing of WIPP Forms*
3. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
4. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
5. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
6. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (TRAMPAC)*
7. CCP-PO-005, *CCP Conduct of Operations*
8. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control*
9. CCP-QP-002, *CCP Training and Qualification Plan*
10. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
11. CCP-QP-008, *CCP Records Management*
12. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
13. CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	Steve Redmond 10-14-13 Trainee Date

Document	Additional Training Requirements	
CCP-PO-001	1. WAP/QAPjP Briefing & Exam *(One-time Requirement)*	Cheryl Almaguer 11-18-13 NTPC Training Date
CCP-RTR-101	2. Real-Time Radiography (RTR) TRU Waste Characterization Briefing. *(Always Required)*	Cheryl Almaguer 11-18-13 NTPC Training Date
CCP-QP-002	3. RTR Comprehensive Exam *(Always Required)*	Cheryl Almaguer 11-18-13 NPTC Training Date
	4. Test Drum (WAC) *(Always Required)*	Cheryl Almaguer 11-18-13 NTPC Training Date
	5. Training Container[1] *(Always Required)*	Cheryl Almaguer 11-18-13 NTPC Training Date

[1] The Training Container meets the requirements of the Test Drum defined in the WCPIP.

Real-Time Radiography (RTR) Operator/Independent Technical Reviewer (ITR) Qualification Card

Name: Robert Steve Redmond

Formal Training	On-the-Job Training (OJT) Knowledge Requirements (Required at Initial Qualification and Full Requalification)	Satisfactory Report (SME)/OJT Signature/Date
CCP-PO-001	1. List the Quality Assurance Objectives (QAOs) validated by RTR.	Fred Ong 10-15-13
CCP-PO-001	2. List the Data Quality Objectives (DQOs) of RTR.	Fred Ong 10-15-13
CCP-QP-002	3. State the purpose of the List of Qualified Individuals (LOQI).	Fred Ong 10-15-13
	4. State the requirements for performing the Test demonstration.	Fred Ong 10-15-13
	5. State the requirements for performing the Training Demonstration.	Fred Ong 10-15-13
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	Fred Ong 10-15-13
	7. Describe how nonconforming items are documented.	Fred Ong 10-15-13
	8. Describe how nonconforming items are controlled to prevent their use.	Fred Ong 10-15-13
	9. State who has the responsibility to validate the NCR once initiated.	Fred Ong 10-15-13
	10. Describe how to revise an NCR.	Fred Ong 10-15-13
	11. Describe how to void an NCR.	Fred Ong 10-15-13
WP 15-GM1002	12. Describe the purpose of the WIPP Form process.	Fred Ong 10-15-13
	13. State the person responsible for originating a WIPP Form.	Fred Ong 10-15-13
	14. Describe how WIPP Forms are documented.	Fred Ong 10-15-13
	15. Describe who has responsibility for processing WIPP Forms, approving Corrective Action Plans, and approving closure of WIPP Forms.	Fred Ong 10-15-13
	16. Describe actions personnel may take when conditions adverse to quality are discovered.	Fred Ong 10-15-13

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Robert Steve Redmond

CCP-QP-008	17. List the responsibilities of record generators.	Fred Carey 10-15-13
	18. State the storage and control requirements for records.	Fred Carey 10-15-13
	19. Explain the process and proper method to make corrections or revisions to records.	Fred Carey 10-15-13
CCP-QP-010	20. State the importance of using approved documents.	Fred Carey 10-15-13
	21. State when to verify a document revision.	Fred Carey 10-15-13
CCP-TP-053/ CCP-RTR-101 Briefing	22. Explain the purpose of RTR.	Fred Carey 10-15-13
	23. State the required information on the video/audio recording media labels.	Fred Carey 10-15-13
	24. Explain when the image test pattern/lines-pairs resolution test and checking the audio recording must be performed.	Fred Carey 10-15-13
	25. State the passing requirements for the lines-pair resolution test.	Fred Carey 10-15-13
	26. Describe the unit of measurement for weights to be recorded for RTR.	Fred Carey 10-15-13
	27. Describe where to obtain the tare weight of a waste container.	Fred Carey 10-15-13
	28. Describe where to obtain the gross weight of a waste container.	Fred Carey 10-15-13
	29. Describe how to determine the Volume Utilization Percentage (VUP).	Fred Carey 10-15-13
	30. Define the increments in which the fill percent are recorded.	Fred Carey 10-15-13
	31. State the percentage of the container volume that must be examined.	Fred Carey 10-15-13
	32. State the waste material parameters (WMP).	Fred Carey 10-15-13
	33. Define "layers of confinement".	Fred Carey 10-15-13

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Robert Steve Redmond

	34. Describe acceptable liquids.	Fred Ong 10-15-13
	35. State the total volume of acceptable liquid that must not be exceeded in the characterized container.	Fred Ong 10-15-13
	36. Describe the actions taken if prohibited items are found.	Fred Ong 10-15-13
	37. Describe the information that should be recorded when describing waste items.	Fred Ong 10-15-13
	38. Discuss the requirements for packaging of sharp or heavy objects.	Fred Ong 10-15-13
	39. State when an unvented, unpunctured, internal container is allowed.	Fred Ong 10-15-13
	40. State the number of waste containers allowed per Batch Data Report (BDR).	Fred Ong 10-15-13
	41. State when the replicate scan occurs and who performs it.	Fred Ong 10-15-13
	42. State when the independent observation occurs and who performs it.	Fred Ong 10-15-13
	43. State the responsibilities and function of the Independent Technical Reviewer (ITR).	Fred Ong 10-15-13
	44. Explain who is allowed to make data changes on data sheets.	Fred Ong 10-15-13
	45. Describe what constitutes a data affecting change.	Fred Ong 10-15-13

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Robert Steve Redmond

Formal Training	OJT Practical Requirements (Observe Required)	SME/OJT Signature/Date
CCP-TP-053	1. Perform image test pattern/lines-pair resolution test.	11/12/13
	2. Perform an RTR examination.	11/12/13
	3. Determine the VUP.	11/12/13
	4. Determine layers of confinement.	11/12/13
	5. Determine WMP.	11/12/13
	6. Estimate weight of each WMP.	11/12/13
	7. Verify the physical form of the waste matches the waste description.	11/12/13
	8. Complete an RTR data sheet.	11/12/13
	9. Perform an independent observation.	11/12/13
	10. Assemble a Batch Data Report (BDR).	11/12/13
	11. Complete an ITR review.	11/13/13
	12. Demonstrate how to make changes/corrections to a BDR.	11/13/13

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Robert Steve Redmond

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RTR Operator/ITR.	Steve Redmond 11-14-13 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RTR Operator/ITR. *(Validation by the SME/OJT instructor(s) involved in the training of this individual).*	FRED ONEY 11-14-13 SME/OJT Instructor *(printed name and signature)* Date Eric Lykes 11/14/13 SME/OJT Instructor *(printed name and signature)* Date
I have evaluated the training documentation and determined this individual meets the requirements for certification as an RTR Operator/ITR.	Andrew O. Stallings, 11/18/13 Cognizant Engineer *(printed name and signature)* Date
I approve this employee to perform the duties of a RTR Operator/ITR.	BSSchrock BSSchrock 11/18/13 SPM *(printed name and signature)* Date

Approved for Content & Format: **Kenneth Dale Simpson *(Approval on File)*** **10/07/2013**
SME/OJT Date

Approved for Applicability, Content & Format: **Andrew Stallings *(Approval on File)*** **10/07/2013**
Cognizant Engineer Date

Approved for Content: **Richard Kantrowitz *(Approval on File)*** **10/07/2013**
SPM Date

Approved for Applicability, Content, Format, & Use: **A.J. Fisher *(Approval on File)*** **10/07/2013**
Manager Responsible for Training Date

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Central Characterization Project (CCP) Effective Date: 4/4/2012	RTR-02, Rev. 1 Page 1 of 6

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney
Email Address: [redacted]

Education/Experience		
Resume documenting education on file with Central Characterization Project (CCP) Training.		CCP Training 4/26/12 Date
National Standard Requirements		
SNT-TC-1A Requirements	1. Certificate from an approved vendor stating the individual operator is a qualified Real-Time Radiography (RTR) operator Level II SNT-TC-1A. *(Required every three (3) years minimum)*	CCP Training 4/26/12 Date
	2. Eye Examination: *(Annual requirement)* Jaeger Test (J-2) Date: 12/8/11 Color Vision or Gray Scale Test Date: 12/8/11	CCP Training 4/26/12 Date
Job Specific Training		
☐ **Initial Qualification** ☑ **Requalification** ☐ **Full Requalification**		
Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the CCP Lead Site Project Manager (SPM) or the CCP Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the CCP Manager Responsible for Training. The candidate must successfully complete the entire CCP qualification card to reestablish qualification.	
Requalification Requirements	Items required for requalification are identified by text.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney

Email Address: [redacted]

Indoctrination
(Required at initial qualification and full requalification)

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
3. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
4. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (TRAMPAC)*
5. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control*
6. CCP-QP-002, *CCP Training and Qualification Plan*
7. CCP-QP-004, *CCP Corrective Action Management*
8. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
9. CCP-QP-006, *CCP Corrective Action Reporting and Control*
10. CCP-QP-008, *CCP Records Management*
11. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
12. CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*

I have read the listed initial/indoctrination reading and understand my responsibilities as applicable to the procedures above.	N/A	
	Trainee	Date

Document	Additional Training Requirements		
CCP-PO-001	1. WAP/QAPjP Briefing and Test. *(One-time requirement)*	[signature]	4/26/12
		CCP Training	Date
CCP-RTR-101	2. Real-Time Radiography (RTR) TRU Waste Characterization Briefing. *(Required at qualification and at each requalification)*	[signature]	4/26/12
		CCP Training	Date
CCP-PO-002	3. RTR Comprehensive Exam (score 80% or higher), administered by CCP Training. *(To be administered at each requalification)*	[signature]	4/26/12
		CCP Training	Date
CCP-QP-002	4. Test Drum (WAC): *(Required at qualification and at each requalification)*	[signature]	5/1/12
		CCP Training	Date
CCP-QP-002	5. Training Container[1]: *(Required at qualification, bi-annually, and at each requalification)*	[signature]	5/1/12
		CCP Training	Date

[1] The Training Container meets the requirements of the Test Drum defined in the WCPIP.

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney

Email Address: [redacted]

Formal Training	On-the-Job Training (OJT) Knowledge Requirements *(Required at initial qualification and full requalification)*	Subject Matter Expert (SME)/OJT Signature/Date
CCP-PO-001	1. List the Quality Assurance Objectives (QAOs) validated by RTR.	
CCP-PO-001	2. List the Data Quality Objectives (DQOs) of RTR.	
CCP-QP-002	3. State the purpose of the List of Qualified Individuals (LOQI).	
	4. State the requirements for performing the Test demonstration.	
	5. State the requirements for performing the Training Demonstration.	
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	
	7. Describe how nonconforming items are documented.	
	8. Describe how nonconforming items are controlled to prevent their use.	
	9. State who has the responsibility to validate the NCR once initiated.	
	10. Describe how to revise an NCR.	
	11. Describe how to void an NCR.	
CCP-QP-006	12. Describe the purpose of the corrective action report (CAR) process.	
	13. State the person responsible for originating a CAR.	
	14. Describe how corrective actions are documented.	
	15. State who has the responsibility to validate the CAR once initiated.	
	16. Describe actions CCP personnel may take when conditions adverse to quality are discovered.	
CCP-QP-008	17. List the responsibilities of record generators.	
	18. State the storage and control requirements for CCP records.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney
Email Address: [redacted]

CCP-QP-010	19. Explain the process and proper method to make corrections or revisions to CCP records.	
	20. State the importance of using approved documents.	
	21. State when to verify a document revision.	
CCP-TP-053/ CCP-RTR-101 Briefing	22. Explain the purpose of RTR.	
	23. State the required information on the video/audio recording media labels.	
	24. Explain when the image test pattern/lines-pairs resolution test and checking the audio recording must be performed.	
	25. State the passing requirements for the lines-pair resolution test.	
	26. Describe the unit of measurement for weights to be recorded for RTR.	
	27. Describe where to obtain the tare weight of a waste container.	
	28. Describe where to obtain the gross weight of a waste container.	
	29. Describe how to determine the Volume Utilization Percentage (VUP).	
	30. Define the increments in which the fill percent are recorded.	
	31. State the percentage of the container volume that must be examined.	
	32. State the waste material parameters (WMP).	
	33. Define "layers of confinement".	
	34. Describe acceptable liquids.	
	35. State the total volume of acceptable liquid that must not be exceeded in the characterized container.	
	36. Describe the actions taken if prohibited items are found.	
	37. Describe the information that should be recorded when describing waste items.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney
Email Address: [redacted]

	38. Discuss the requirements for packaging of sharp or heavy objects.	
	39. State when an unvented, unpunctured, internal container is allowed.	
	40. State the number of waste containers allowed per Batch Data Report (BDR).	
	41. State when the replicate scan occurs and who performs it.	
	42. State when the independent observation occurs and who performs it.	
	43. State the responsibilities and function of the Independent Technical Reviewer (ITR).	4-24-12
	44. Explain who is allowed to make data changes on data sheets.	
	45. Describe what constitutes a data affecting change.	
Formal Training	**OJT Practical Requirements** *(Required at initial qualification, requalification, and full requalification)*	**SME/OJT Signature/Date**
CCP-TP-053	1. Perform image test pattern/lines-pair resolution test.	Jerry Bowden 4-11-12
	2. Perform an RTR examination.	Jerry Bowden 4-11-12
	3. Determine the VUP.	Jerry Bowden 4-11-12
	4. Determine layers of confinement.	Jerry Bowden 4-11-12
	5. Determine WMP.	Jerry Bowden 4-11-12
	6. Estimate weight of each WMP.	Jerry Bowden 4-11-12
	7. Verify the physical form of the waste matches the waste description.	Jerry Bowden 4-11-12
	8. Complete an RTR data sheet.	Jerry Bowden 4-11-12
	9. Perform an independent observation.	Jerry Bowden 4-11-12
	10. Assemble a Batch Data Report (BDR).	Jerry Bowden 4-11-12
	11. Complete an ITR review.	Jerry Bowden 4-11-12
	12. Demonstrate how to make changes/corrections to a BDR.	Jerry Bowden 4-11-12

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Fred Oney
Email Address: [redacted]

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RTR Operator/ITR.	FRED ONEY 4-26-12 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RTR Operator/ITR. *(Validation by the SME/OJT instructor(s) involved in the training of this individual).*	JERRY BOWDEN 4-26-12 SME/OJT Instructor *(printed name and signature)* Date N/A 4-26-12 SME/OJT Instructor *(printed name and signature)* Date
I approve this employee to perform the duties of a RTR Operator/ITR.	Barbara Broomfield 5/01/12 CCP Lead or Alternate SPM *(printed name and signature)* Date

Approved for Content & Format: **Steve Ewing (Approval on file)** **4/4/2012**
SME/OJT Date

Approved for Content & Format: **Andrew Stallings (Approval on file)** **4/4/2012**
Cognizant Engineer Date

Approved for Content: **Richard Kantrowitz (Approval on file)** **4/4/2012**
CCP Lead or Alternate SPM Date

Approved for Use: **AJ Fisher (Approval on file)** **4/4/2012**
CCP Manager Responsible for Training Date

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National TRU Program Certification
Effective Date: 10/07/2013

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Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Daphne Brothers

Education/Experience			
Resume documenting education on file with National TRU Program Certification (NTPC) Training.		Michele Bellett NTPC Training	11/25/13 Date
Initial Qualification Requirements			
SNT-TC-1A Requirements	1. Certificate from an approved vendor stating the individual operator is a qualified Real-Time Radiography (RTR) operator Level II SNT-TC-1A *(Always Required)*	Michele Bellett NTPC Training	11/25/13 Date
	2. Eye Examination: *(Always Required)* Jaeger Test (J-2) Date: 11-18-13 Color Vision or Gray Scale Test Date: 11-18-13	Cheryl Hamm NTPC Training	11-18-13 Date
Job Specific Training			
☐ Initial Qualification	☑ Requalification BSD 11/25/13	☑ Full Requalification BSD 11/25/13	
Qualification Limit	This qualification is valid for two (2) years. If necessary, additional training may be required by the Site Project Manager (SPM) or the Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the Manager Responsible for Training. The candidate must successfully complete the entire qualification card to reestablish qualification.		
Requalification Requirements	Items required for requalification are identified by text.		

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Daphne Brothers

(Required Initial Qualification and Annual Requalification)

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. WP 15-GM1002, *Issues Management Processing of WIPP Forms*
3. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
4. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
5. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
6. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (TRAMPAC)*
7. CCP-PO-005, *CCP Conduct of Operations*
8. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control*
9. CCP-QP-002, *CCP Training and Qualification Plan*
10. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
11. CCP-QP-008, *CCP Records Management*
12. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
13. CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	Daphne Brothers	10-13-13
	Trainee	Date

Requirement	Additional Training Requirements	
CCP-PO-001	1. WAP/QAPjP Briefing & Exam *(One-time Requirement)*	NTPC Training 11-18-13 Date
CCP-RTR-101	2. Real-Time Radiography (RTR) TRU Waste Characterization Briefing. *(Always Required)*	Michele Billett 11/25/13 NTPC Training Date
CCP-QP-002	3. RTR Comprehensive Exam *(Always Required)*	NPTC Training 11-18-13 Date
	4. Test Drum (WAC) *(Always Required)*	NTPC Training 11-18-13 Date
	5. Training Container[1] *(Always Required)*	NTPC Training 11-18-13 Date

[1] The Training Container meets the requirements of the Test Drum defined in the WCPIP.

Real-Time Radiography (RTR)
Operating/Independent Technical Reviewer (ITR)
Qualification Card

Name: Daphne Brothers

Formal Training	On-the-Job Training (OJT) Knowledge Items (Required of ITR Qualification and Requalification)	Subject Matter Expert (SME)/OJT Signature/Date
CCP-PO-001	1. List the Quality Assurance Objectives (QAOs) validated by RTR.	Fred Cruz 10-15-13
CCP-PO-001	2. List the Data Quality Objectives (DQOs) of RTR.	Fred Cruz 10-15-13
CCP-QP-002	3. State the purpose of the List of Qualified Individuals (LOQI).	Fred Cruz 10-15-13
	4. State the requirements for performing the Test demonstration.	Fred Cruz 10-15-13
	5. State the requirements for performing the Training Demonstration.	Fred Cruz 10-15-13
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	Fred Cruz 10-15-13
	7. Describe how nonconforming items are documented.	Fred Cruz 10-15-13
	8. Describe how nonconforming items are controlled to prevent their use.	Fred Cruz 10-15-13
	9. State who has the responsibility to validate the NCR once initiated.	Fred Cruz 10-15-13
	10. Describe how to revise an NCR.	Fred Cruz 10-15-13
	11. Describe how to void an NCR.	Fred Cruz 10-15-13
WP 15-GM1002	12. Describe the purpose of the WIPP Form process.	Fred Cruz 10-15-13
	13. State the person responsible for originating a WIPP Form.	Fred Cruz 10-15-13
	14. Describe how WIPP Forms are documented.	Fred Cruz 10-15-13
	15. Describe who has responsibility for processing WIPP Forms, approving Corrective Action Plans, and approving closure of WIPP Forms.	Fred Cruz 10-15-13
	16. Describe actions personnel may take when conditions adverse to quality are discovered.	Fred Cruz 10-15-13

Real Time Radiography (RTR)
Operator/Independent Technical Reviewer (RTR)
Qualification Card

Name: Daphne Brothers

CCP-QP-008	17. List the responsibilities of record generators.	Fred Ong 10-15-13
	18. State the storage and control requirements for records.	Fred Ong 10-15-13
	19. Explain the process and proper method to make corrections or revisions to records.	Fred Ong 10-15-13
CCP-QP-010	20. State the importance of using approved documents.	Fred Ong 10-15-13
	21. State when to verify a document revision.	Fred Ong 10-15-13
CCP-TP-053/ CCP-RTR-101 Briefing	22. Explain the purpose of RTR.	Fred Ong 10-15-13
	23. State the required information on the video/audio recording media labels.	Fred Ong 10-15-13
	24. Explain when the image test pattern/lines-pairs resolution test and checking the audio recording must be performed.	Fred Ong 10-15-13
	25. State the passing requirements for the lines-pair resolution test.	Fred Ong 10-15-13
	26. Describe the unit of measurement for weights to be recorded for RTR.	Fred Ong 10-15-13
	27. Describe where to obtain the tare weight of a waste container.	Fred Ong 10-15-13
	28. Describe where to obtain the gross weight of a waste container.	Fred Ong 10-15-13
	29. Describe how to determine the Volume Utilization Percentage (VUP).	Fred Ong 10-15-13
	30. Define the increments in which the fill percent are recorded.	Fred Ong 10-15-13
	31. State the percentage of the container volume that must be examined.	Fred Ong 10-15-13
	32. State the waste material parameters (WMP).	Fred Ong 10-15-13
	33. Define "layers of confinement".	Fred Ong 10-15-13

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Daphne Brodnax

	34. Describe acceptable liquids.	Fred Carey 10-15-13
	35. State the total volume of acceptable liquid that must not be exceeded in the characterized container.	Fred Carey 10-15-13
	36. Describe the actions taken if prohibited items are found.	Fred Carey 10-15-13
	37. Describe the information that should be recorded when describing waste items.	Fred Carey 10-15-13
	38. Discuss the requirements for packaging of sharp or heavy objects.	Fred Carey 10-15-13
	39. State when an unvented, unpunctured, internal container is allowed.	Fred Carey 10-15-13
	40. State the number of waste containers allowed per Batch Data Report (BDR).	Fred Carey 10-15-13
	41. State when the replicate scan occurs and who performs it.	Fred Carey 10-15-13
	42. State when the independent observation occurs and who performs it.	Fred Carey 10-15-13
	43. State the responsibilities and function of the Independent Technical Reviewer (ITR).	Fred Carey 10-15-13
	44. Explain who is allowed to make data changes on data sheets.	Fred Carey 10-15-13
	45. Describe what constitutes a data affecting change.	Fred Carey 10-15-13

Real-Time Radiography (RTR) Operator/Independent Technical Reviewer (ITR) Qualification Card

Name: Daphne Brothers

Formal Training	OJT Practical Requirements (Always Required)	FMT/OJT Signature/Date
CCP-TP-053	1. Perform image test pattern/lines-pair resolution test.	11/12/13
	2. Perform an RTR examination.	11/12/13
	3. Determine the VUP.	11/12/13
	4. Determine layers of confinement.	11/12/13
	5. Determine WMP.	11/12/13
	6. Estimate weight of each WMP.	11/12/13
	7. Verify the physical form of the waste matches the waste description.	11/12/13
	8. Complete an RTR data sheet.	11/12/13
	9. Perform an independent observation.	11/12/13
	10. Assemble a Batch Data Report (BDR).	11/12/13
	11. Complete an ITR review.	11/13/13
	12. Demonstrate how to make changes/corrections to a BDR.	11/13/13

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Daphne Brothers

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RTR Operator/ITR.	Daphne Brothers 11-14-13 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RTR Operator/ITR. *(Validation by the SME/OJT instructor(s) involved in the training of this individual).*	FRED ONEY 11-14-13 SME/OJT Instructor *(printed name and signature)* Date
	Eric Lykes 11/14/13 SME/OJT Instructor *(printed name and signature)* Date
I have evaluated the training documentation and determined this individual meets the requirements for certification as an RTR Operator/ITR.	Andrew O. Stallings 11/18/13 Cognizant Engineer *(printed name and signature)* Date
I approve this employee to perform the duties of a RTR Operator/ITR.	BSSchuck BSSchuck 11/25/13 SPM *(printed name and signature)* Date

Approved for Content & Format: **Kenneth Dale Simpson *(Approval on File)*** **10/07/2013**
SME/OJT — Date

Approved for Applicability, Content & Format: **Andrew Stallings *(Approval on File)*** **10/07/2013**
Cognizant Engineer — Date

Approved for Content: **Richard Kantrowitz *(Approval on File)*** **10/07/2013**
SPM — Date

Approved for Applicability, Content, Format, & Use: **A.J. Fisher *(Approval on File)*** **10/07/2013**
Manager Responsible for Training — Date

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Central Characterization Project	**RTR-02, Rev. 0**
Effective Date: 3/22/2011	**Page 1 of 8**

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles	**Badge Number:** [redacted]
Email Address: [redacted]	

Education/Experience		
Resume documenting education on file with Central Characterization Project (CCP) Training.		1/30/12 CCP Training Date
National Standard Requirements		
SNT-TC-1A Requirements	1. Certificate from an approved vendor stating the individual operator is a qualified Real-Time Radiography (RTR) operator Level II SNT-TC-1A. *(Required every three (3) years minimum)*	1/30/12 CCP Training Date
	2. Eye Examination: *(Annual requirement)* Jaeger Test (J-2) Date: 1/11/12 Color Vision or Gray Scale Test Date: 1/11/12	1/30/12 CCP Training Date
Job Specific Training		
☐ **Initial Qualification**		☑ **Requalification**
Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the CCP Lead Site Project Manager (SPM) or the CCP Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the CCP Manager Responsible for Training. The candidate must successfully complete the entire CCP qualification card to reestablish qualification.	
Requalification Requirements	Items required for requalification are identified by text.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles	Badge Number: [redacted]
Email Address: [redacted]	

Indoctrination
(Required at initial qualification, or in the event of requalification after disqualification only)

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
3. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
4. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (TRAMPAC)*
5. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control*
6. CCP-QP-002, *CCP Training and Qualification Plan*
7. CCP-QP-004, *CCP Corrective Action Management*
8. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
9. CCP-QP-006, *CCP Corrective Action Reporting and Control*
10. CCP-QP-008, *CCP Records Management*
11. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
12. CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*

I have read the listed initial/indoctrination reading and understand my responsibilities as applicable to the procedures above.	Trainee	1/25/12 Date

Document	Additional Training Requirements		
CCP-PO-001	1. WAP/QAPjP Briefing and Test. *(One-time requirement)*	CCP Training	1/30/12 Date
CCP-RTR-101	2. Real-Time Radiography (RTR) TRU Waste Characterization Briefing. *(Required at qualification and at each requalification)*	CCP Training	1/30/12 Date
CCP-PO-002	3. RTR Comprehensive Exam (score 80% or higher), administered by CCP Training. *(To be administered at each requalification)*	CCP Training	1/30/12 Date
CCP-QP-002	4. Test Drum (WAC): *(Required at qualification and at each requalification)*	CCP Training	2/29/12 Date
CCP-QP-002	5. Training Container[1]: *(Required at qualification, bi-annually, and at each requalification)*	CCP Training	2/29/12 Date

[1] The Training Container meets the requirements of the Test Drum defined in the WCPIP.

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles	**Badge Number:** [redacted]
Email Address: [redacted]	

Formal Training	On-the-Job Training (OJT) Knowledge Requirements *(Required at initial qualification, or in the event of requalification after disqualification only.)*	Subject Matter Expert (SME) Signature/Date
CCP-PO-001	1. List the Quality Assurance Objectives (QAOs) validated by RTR.	
CCP-PO-001	2. List the Data Quality Objectives (DQOs) of RTR.	
CCP-QP-002	3. State the purpose of the List of Qualified Individuals (LOQI).	
	4. State the requirements for performing the Test demonstration.	
	5. State the requirements for performing the Training Demonstration.	
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	N/A
	7. Describe how nonconforming items are documented.	
	8. Describe how nonconforming items are controlled to prevent their use.	
	9. State who has the responsibility to validate the NCR once initiated.	
	10. Describe how to revise an NCR.	
	11. Describe how to void an NCR.	
CCP-QP-006	12. Describe the purpose of the corrective action report (CAR) process.	
	13. State the person responsible for originating a CAR.	
	14. Describe how corrective actions are documented.	
	15. State who has the responsibility to validate the CAR once initiated.	
	16. Describe actions CCP personnel may take when conditions adverse to quality are discovered.	
CCP-QP-008	17. List the responsibilities of record generators.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles **Badge Number:** [redacted]

Email Address: [redacted]

CCP-QP-010	18. State the storage and control requirements for CCP records.	
	19. Explain the process and proper method to make corrections or revisions to CCP records.	
	20. State the importance of using approved documents.	
	21. State when to verify a document revision.	
CCP-TP-053/ CCP-RTR-101 Briefing	22. Explain the purpose of RTR.	
	23. State the required information on the video/audio recording media labels.	
	24. Explain when the image test pattern/lines-pairs resolution test and checking the audio recording must be performed.	N/A
	25. State the passing requirements for the lines-pair resolution test.	
	26. Describe the unit of measurement for weights to be recorded for RTR.	
	27. Describe where to obtain the tare weight of a waste container.	
	28. Describe where to obtain the gross weight of a waste container.	
	29. Describe how to determine the Volume Utilization Percentage (VUP).	
	30. Define the increments in which the fill percent are recorded.	
	31. State the percentage of the container volume that must be examined.	
	32. State the waste material parameters (WMP).	
	33. Define "layers of confinement".	
	34. Describe acceptable liquids.	
	35. State the total volume of acceptable liquid that must not be exceeded in the characterized container.	
	36. Describe the actions taken if prohibited items are found.	

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles **Badge Number:** [redacted]

Email Address: [redacted]

	37. Describe the information that should be recorded when describing waste items.	
	38. Discuss the requirements for packaging of sharp or heavy objects.	
	39. State when an unvented, unpunctured, internal container is allowed.	
	40. State the number of waste containers allowed per Batch Data Report (BDR).	N/A
	41. State when the replicate scan occurs and who performs it.	
	42. State when the independent observation occurs and who performs it.	
	43. State the responsibilities and function of the Independent Technical Reviewer (ITR).	
	44. Explain who is allowed to make data changes on data sheets.	
	45. Describe what constitutes a data affecting change.	
Formal Training	**OJT Practical Requirements** *(Required at initial qualification and at requalification)*	**SME Signature/Date**
CCP-TP-053	1. Perform image test pattern/lines-pair resolution test. LA-HGRTR-12-0007	[signature] 1-25-12
	2. Perform an RTR examination. LA-HGRTR-12-0007	[signature] 1-25-12
	3. Determine the VUP. LA-HGRTR-12-0007	[signature] 1-25-12
	4. Determine layers of confinement. LA-HGRTR-12-0007	[signature] 1-25-12
	5. Determine WMP. LA-HGRTR-12-0007	[signature] 1-25-12
	6. Estimate weight of each WMP. LA-HGRTR-12-0007	[signature] 1-25-12
	7. Verify the physical form of the waste matches the waste description. LA-HGRTR-12-0007	[signature] 1-25-12
	8. Complete an RTR data sheet. LA-HGRTR-12-0007	[signature] 1-25-12
	9. Perform an independent observation. LA-RTR2-12-0012	[signature] 1-25-12

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles	Badge Number: [redacted]
Email Address: [redacted]	

	10. Assemble a Batch Data Report (BDR). LA-HERTR-12-0007	[signature]	1-25-12
	11. Complete an ITR review. LA-HERTR-12-0004	[signature]	1-25-12
	12. Demonstrate how to make changes/corrections to a BDR.	[signature]	1-25-12

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles **Badge Number:** [redacted]

Email Address: [redacted]

Approvals		
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RTR Operator/ITR.	Eric Lyles	1/25/12
	Trainee *(printed name and signature)*	Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RTR Operator/ITR. *(Signature validation by the SME/OJT instructor(s) involved in the training of this individual).*	Kenneth Simpson	1-25-12
	SME/OJT Instructor *(printed name and signature)*	Date
	N/A	
	SME/OJT Instructor *(printed name and signature)*	Date
I approve this employee to perform the duties of a RTR Operator/ITR.	Richard Kantrowitz	2/27/12
	CCP Lead or Alternate SPM *(printed name and signature)*	Date

Approved for Content & Format: **Steve Ewing (Approval on file)** **3/22/2011**
RTR SME/OJT *(printed name and signature)* Date

Approved for Content & Format: **Larry Porter (Approval on file)** **3/22/2011**
Cognizant Engineer *(printed name and signature)* Date

Approved for Content: **Richard Kantrowitz (Approval on file)** **3/22/2011**
CCP Lead or Alternate SPM *(printed name and signature)* Date

Approved for Use: **AJ Fisher (Approval on file)** **3/22/2011**
CCP Manager Responsible for Training *(printed name and signature)* Date

Real-Time Radiography (RTR)
Operator/Independent Technical Reviewer (ITR)
Qualification Card

Name: Eric Lyles	Badge Number: [redacted] RA 1/31/12
Email Address: [redacted]	

Site: LANL

List of applicable Waste Streams (Based on applicable Acceptable Knowledge Reports read):*	
N/A EL 1/31/12	

*For use with Initial and Additional Sites. (To be completed for each site the trainee is qualifying)

I have read the applicable Acceptable Knowledge Reports for this site. I understand my responsibilities regarding the waste streams listed above.

Eric Lyles 1/31/12

Trainee *(printed name and signature)* Date

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Central Characterization Project
Non-Destructive Examination (NDE)
List of Applicable Waste Streams Qualified

Name: Eric Lyles	Site: ORNL

Applicable Waste Streams: *(based on applicable Acceptable Knowledge Reports read)* *For use with Initial and Additional Sites. (To be completed for each site the trainee is qualifying)*		
OR-NFS-CH-HET-A		
OR-NFS-CH-SOIL		
OR-REDC-CH-HET		
OR-ISTP-CH-HET		
		N/A
N/A		

I have read the applicable Acceptable Knowledge Reports for this site. I understand my responsibilities regarding the waste streams listed above.

Eric Lyles — Trainee *(printed name and signature)* — 11/7/13 — Date — EL 11/7/13

I approve this employee to perform NDE duties with the above waste streams.

MIKE RAMIREZ — Site Project Manager *(printed name and signature)* — 11-7-13 — Date

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CCP TRAINING ATTENDANCE SHEET

COURSE NAME: CCP-AK-ORNL-001, Revision 8 **DATE:** 12/13/13 (16 BSS 12/16/13)

LOCATION: Teleconference

	NAME (PRINT LEGIBLY)	POSITION	SIGNATURE
1.	Eric Lyles	RTR/NDE	
2.	Fred Ondy	RTR/LO	
3.	Chuck Wallace	VEO/VE	
4.	Steve Redmond	RTR Operator	
5.	Jason Cofer	VEO/VE	
6.	Derek Matheny	VEO/VE	
7.	Anthony Harley	VEE	
8.	Daphne Brothers	RTR Operator	
9.			
10.			
11.			
12.			

N/A

Beverly S. Schrock — BSSchrock — 12/16/13

Instructor Name (Print) *Signature* *Date*

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TEEP ATTENDANCE SHEET

COURSE NAME: CCP-AK-ORNL-008, Revision 1 DATE: 1/09/14

LOCATION: Teleconference

	NAME (PRINT)	TELEPOSITION	SIGNATURE
1.	Anthony Harley	VEE	
2.	Steve Redmond	RTR operator	
3.	Fred Day	RTR/LO	
4.	Eric Lyles	RTR/hOE	
5.	Derek Matheny	VEO	
6.	Andrew Stallings	VPM	
7.			
8.		N/A	
9.			
10.			
11.			
12.			

Beverly S. Schrock — Instructor Name (Print)

BSSchrock — Signature

1/13/14 — Date

COPY

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CCP ATTENDANCE SHEET

COURSE NAME: CCP-AK-ORNL-008, Revision 1 **DATE:** ~~1/09/14~~ 1-13-14 As 1-13-14

LOCATION: ~~Teleconference~~ AS 1-13-14 Read and Signed

	NAME (PRINT NAME)	TITLE/POSITION	SIGNATURE
1.	Daphne Brothers	RTR operator	
2.	Jason Cofer	VEO	
3.	Chuck Wallace	VEO	
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

A
N

Beverly S. Schrock — *Instructor Name (Print)*

BSSchrock — *Signature*

1/13/14 — *Date*

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CGP ATTENDANCE SHEET

COURSE NAME: CCP-AK-ORNL-008, Revision 0 **DATE:** 11/14/13

LOCATION: Teleconference

	NAME (PRINT NAME)	TITLE/FUNCTION	SIGNATURE
1.	Jason Carter	VE	
2.	Chuck Wallace	VE	
3.	Daphne Brothers	RTR	
4.	Derek Matheny	VE	
5.	LaTeare Harris	QA	
6.	Anthony Harley	VEE	
7.	Eric Lyles	RTR/NDE	
8.	Steve Redmond	RTR Oper.	
9.	Fred Ivey	RTR	
10.	Carmel Byrd	FGA Operator	
11.	Jeremy Robinson	FGA	
12.	James Davis	FGA ITR	

Beverly S. Schrock — *Instructor Name (Print)*

BSSchrock — *Signature*

11/18/13 — *Date*

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CCP ATTENDANCE SHEET

COURSE NAME: CCP-AK-ORNL-001, Revision 7 DATE: 11/14/13

LOCATION: Teleconference

	PRINT NAME	DESCRIPTION	SIGNATURE
1.	Chuck Wallace	VE	
2.	Jason Cofer	VE	
3.	Daphne Brothers	RTR	
4.	LaTravis Hamm	QA	
5.	Anthony Harley	VE E	
6.	Derek Matheny	VE	
7.	Eric Lyles	RTR/NDE	
8.	Fred Carey	RTR	
9.	Simon Redyard	RTR/Log.	
10.	Carmel Byrd	FQA	
11.	Jerry Robinson	FCA	
12.	JAMES DAVIS	FQA/ETR	

Beverly S. Schrock — Instructor Name (Print)

BSSchrock — Signature

11/18/13 — Date

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CCP ATTENDANCE SHEET

COURSE NAME: CCP-AK-ORNL-002, Revision 2 DATE: 11/14/13

LOCATION: Teleconference

	NAME (PRINT NAME)	TITLE/POSITION	SIGNATURE
1.	Jason Cafer	VE	
2.	Chuck Wallace	VE	
3.	Daphne Brouthers	RTR	
4.	LaTedria Harris	QA	
5.	Anthony Harley	VEE	
6.	Steve Redmond	RTR/Oper	
7.	Fred Olney	RTR	
8.	Eric Lyles	ATR/NDE	
9.	Derek Matheny	VE	
10.	Carmel Byrd	FGA	
11.	Jeremy Robinson	FGA	
12.	JAMES DAVIS	FGA / ITR	

Beverly S. Schrock — Instructor Name (Print)

BSSchrock — Signature

11/18/13 — Date

Table C6-4 Visual Examination (VE) Checklist
ORNL/CCP Audit A-14-03
January 14-16, 2014

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Visual Examination (VE) Checklist

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-4 Visual Examination (VE) Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	TRAINING					
296	Is there documentation which shows that a standardized training program for visual examination operators has been developed? Is it specific to the site and include the various waste configurations generated/stored at the site? (Section C1-2)	CCP-QP-002 S. 4.1.2 & 4.3.6 CCP-TP-500 S. 2.2.1	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** VE TRAINING RECORDS; 3 OPERATORS **(VE-2)**	Y	
297	Is there documentation which shows that the visual examination operators receive training on the specific waste generating processes, typical packaging configurations, and waste material parameters expected to be found in each Waste Matrix Code at the site? (Section C1-2)	CCP-QP-002 S. 4.1.2 & 4.3.6 CCP-TP-500 S. 2.2.1	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** VE TRAINING RECORDS; 3 OPERATORS **(VE-2)**	Y	
298	Are the visual examination personnel requalified once every two years? (Section C1-2)	CCP-QP-002 S. 4.1.2 & 4.3.6 CCP-TP-500 S. 2.2.1	Y	VE TRAINING RECORDS; 3 OPERATORS **(VE-2)**	Y	
298a	Does the training include the following regardless of Summary Category Group? • Identifying and describing the contents of a waste container by examining all items in waste containers of previously packaged waste. • Identifying when VE cannot be used to meet the DQOs. (Section C1-2)	CCP-QP-002 S. 4.1.2 & 4.3.6 CCP-TP-500 S. 1.1	Y	VE TRAINING RECORDS; 3 OPERATORS **(VE-2)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-4 Visual Examination (VE) Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	VISUAL EXAMINATION EXPERT REQUIREMENTS					
300	Does documentation ensure that the site has designated a visual examination expert? Is the visual examination expert familiar with the waste generating processes that have taken place at the site? Is the visual examination expert familiar with all of the types of waste being characterized at that site? (Section C1-2)	CCP-QP-002 S. 3.1.6, 4.2, & 4.4.1 CCP-TP-500 S. 3.3	Y	VE TRAINING RECORDS; 3 OPERATORS **(VE-2)** VEE APPOINTMENT LETTER **(VE-3)**	Y	
301	Does documentation ensure that the visual examination expert shall be responsible for the overall direction and implementation of the visual examination aspects of the program? Does the site's QAPjP specify the selection, qualification, and training requirements of the visual examination expert? (Section C1-2)	CCP-TP-500 S. 3.3.1 CCP-PO-001 S. C1-2	Y	VE TRAINING RECORDS; 3 OPERATORS **(VE-2)** VEE APPOINTMENT LETTER **(VE-3)**	Y	
	VISUAL EXAMINATION PROCEDURES					
304	Do procedures indicate that all visual examination activities are documented on video/audio media or VE performed by using a second operator to provide additional verification by reviewing the contents of the waste container to ensure correct reporting? (Section C1-2)	CCP-TP-500 S. 1.1 & Att. 1	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)**	Y	
304a	Are procedures in place to ensure that when VE is performed using a second operator, each operator performing VE shall observe for themselves the waste being placed in the container or the contents within the examined waste container when waste is not removed? (Section C1-2)	CCP-TP-500 S. 4.0 (Note) & Att. 1	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)**	Y	
313	Do site procedures ensure that when liquid is found, the non-transparent internal container holding the liquid will be assumed to be filled with liquid and this volume will be added to the total liquid in the container being characterized using VE? The container being characterized using VE would then be rejected and/or repackaged to exclude the internal container if it is over the TSDF-WAC limits. (Section C-3b)	CCP-TP-500 Att. 1 & Table 1	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)**	Y	

	WAP Requirement[1] CCP/ORNL Audit A-14-03 Table C6-4 Visual Examination (VE) Checklist	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why)	Item Reviewed	Adequate? Y/N	
	QUALITY ASSURANCE OBJECTIVES					
314	Are process procedures in place to meet the following Quality Assurance Objectives? Precision • Precision is maintained by reconciling any discrepancies between the operator and the independent technical reviewer with regard to identification of waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases. Accuracy • Accuracy is maintained by requiring operators to pass a comprehensive examination and demonstrate satisfactory performance in the presence of the VE expert during their initial qualification and subsequent requalification. Completeness • A validated VE data form will be obtained for 100 percent of the waste containers subject to VE. Comparability • The comparability of VE data from different operators shall be enhanced by using standardized VE procedures and operator qualifications. (Section C3-2b)	Bullet 1 CCP-TP-500 Att. 1 & 2 Bullet 2 CCP-QP-002 S. 4.3.6 Bullet 3 CCP-TP-500 Att. 1 Bullet 4 CCP-QP-002 (ALL) CCP-TP-500 (ALL)	Y	BDRs ORNLRHVE13001 ORNLRHVE13002 ORNLRHVE13003 ORNLRHVE13004 ORNLRHVE13005 ORNLRHVE13006 **(VE-1)** VE TRAINIG REORDS FOR 3 OPERATORS **(VE-2)**	Y	

1. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements is meant to ask whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.

Attachment 3 – Visual Examination Site Project Manager Checklist

Batch Data Report No.: ORNLRHVE13001

1. Has all the data received an independent technical review as evidenced by a completed checklist (Attachment 2) and the appropriate ITR signature?		☐ NO	☒ YES
2. Are BDR contents complete and match the Visual Examination Batch Data Report Table of Contents?		☐ NO	☒ YES
3. Is the BDR complete (appropriately filled in forms for each container)?		☐ NO	☒ YES
4. Have the RH Quality Assurance Objectives (QAOs) for VE been met? Precision – reconciled discrepancies between operators Accuracy – trained operators Representativeness – description of container contents Completeness – completed data form and/or recording Comparability – proper training and adequate AK for unopened containers		☐ NO ☐ NO ☐ NO ☐ NO ☐ NO ☐ NO	☒ YES ☒ YES ☒ YES ☒ YES ☒ YES ☒ YES
5. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments

No NCRs

SPM:

Laura Nelson
Printed Name

Laura Nelson
Signature

12/30/13
Date

COPY

NTPC RECORDS ORIGINAL
DATE REC'D 12-30-13 GL

Attachment 4 – Visual Examination Batch Data Report Cover Sheet

Batch Data Report No.: ORNLRHVE13001 Date: 12-10-13

	Waste Container ID Number:
1	ORRH00678
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N/A JC 12-10-13

NTPC RECORDS ORIGINAL
DATE REC'D 12-18-2013

Attachment 5 – Visual Examination Batch Data Report Table of Contents

Batch Data Report No.: ORNLRHVE13001 Date: 12-10-13

1	Visual Examination Batch Data Report Cover Sheet (Attachment 4)	1
2	Visual Examination Batch Data Report Table of Contents (Attachment 5)	2
3	Visual Examination Data Forms (Attachment 1)	3
4	Visual Examination Independent Technical Reviewer Checklist (Attachment 2)	5
5	Copy of NCRs (N/A [if not applicable])	N/A

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12-10-13		Batch Number: ORNLRHVE 13001	
Procedure #: CCP-TP-500		Revision #: 13	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☑N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☑ N/A		**Final Container** ☐ N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00678	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: 55400	
Waste Stream:		Waste Stream: OR-REDC-RH-HET	
		Rigid Liner: ☐Y ☑N Type:	Rigid Liner Lid: ☐Y ☑N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 80
Layers of Confinement:	Closure Method:	Layers of Confinement: 0 +12-16-13 JC	Closure Method: 12/16-13 JC Lock & Lever

Comments (e.g., filter information, NCRs):
Cask # X10C9600188
NucFil-019DS #FK732
N/A

Waste Description:

Plastic Lids (P)
Melted Plastic (P)
Plastic Bags (P)
Tape (P)
Plastic Buckets (P)
Metal Cans (IM)
Bottles (OIM)
Floor Sweepings (P) (IM) (OIM)
Nylon Supersack (C)
Fiber Board (C)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00678

Prohibited Item(s) Summary	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☒	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☒	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☒	
Does the container have observable liquid containing PCBs?	☐	☒	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☒	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☒	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☒	
Is there an indication of wastes containing explosives or compressed gases?	☐	☒	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☒	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☒	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☒	
RH TRU Criteria			
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☒	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	☒	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☒	
Is the waste consistent with the TRUCON Code?	☒	☐	

Comments: N/A

Visual Examination Operator 1:
Jason Cofer
Print Name

Signature

12-16-13
Date 12-16-13

Visual Examination Operator 2:
Anthony Hadley
Print Name

Signature

12-10-13
Date
12-16-13

Attachment 2 – Visual Examination Independent Technical Reviewer Checklist

Batch Data Report No.: ORNLRHVE13001

1. Were data generation and reduction conducted in a technically correct manner in accordance with the methods (procedure) used?	☐ NO	☒ YES	☐ N/A
2. Was the correct revision of the operating procedure used?	☐ NO	☒ YES	☐ N/A
3. Were all the transcription errors corrected?	☐ NO	☐ YES	☒ N/A
4. Are BDR contents complete and match the Visual Examination Batch Data report Table of Contents?	☐ NO	☒ YES	☐ N/A
5. Does the BDR include VE for no more than 20 containers?	☐ NO	☒ YES	☐ N/A
6. Is all data recorded signed and dated in reproducible ink?	☐ NO	☒ YES	☐ N/A
7. Is all raw data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	☐ N/A
8. Are all changes to original data lined out, initialed and dated by the individual making the changes or an individual authorized to make the change?	☐ NO	☒ YES	☐ N/A
9. Is there an adequate written description of the contents?	☐ NO	☒ YES	☐ N/A
10. Were the recording equipment checks satisfactory?	☐ NO	☐ YES	☒ N/A
11. Has each container in this BDR been evaluated for the presence of prohibited wastes?	☐ NO	☒ YES	☐ N/A
12. Has the physical waste form in each container in this BDR been evaluated against the Waste Stream Description and the Waste Matrix Code?	☐ NO	☒ YES	☐ N/A
13. Have the RH Quality Assurance Objectives (QAOs) for VE been met?	☐ NO	☒ YES	☐ N/A
Precision – reconciled discrepancies between operators or between the operator and ITR.	☐	☒	☐
Accuracy – trained operators	☐	☒	☐
Representativeness – description of container contents	☐	☒	☐
Completeness – completed data form and/or recording	☐	☒	☐
Comparability – proper training and adequate AK source documents are available for unopened containers.	☐	☒	☐
14. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments: N/A

Independent Technical Reviewer:

Chuck Wallace
Printed Name

Signature

12/11/13
Date

Chuck Wallace

12/16/13

DIVIDER

PAGE

Attachment 3 – Visual Examination Site Project Manager Checklist

Batch Data Report No.: ORNLRHVE13002

1. Has all the data received an independent technical review as evidenced by a completed checklist (Attachment 2) and the appropriate ITR signature?		☐ NO	☒ YES
2. Are BDR contents complete and match the Visual Examination Batch Data Report Table of Contents?		☐ NO	☒ YES
3. Is the BDR complete (appropriately filled in forms for each container)?		☐ NO	☒ YES
4. Have the RH Quality Assurance Objectives (QAOs) for VE been met?			
Precision – reconciled discrepancies between operators		☐ NO	☒ YES
Accuracy – trained operators		☐ NO	☒ YES
Representativeness – description of container contents		☐ NO	☒ YES
Completeness – completed data form and/or recording		☐ NO	☒ YES
Comparability – proper training and adequate AK for unopened containers		☐ NO	☒ YES
5. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A
Comments No NCRs			

SPM:

Laura Nelson
Printed Name

Laura Nelson
Signature

12/30/13
Date

COPY NTPC RECORDS ORIGINAL DATE REC'D 12-30-13 GL

Attachment 4 – Visual Examination Batch Data Report Cover Sheet

Batch Data Report No.: ORNLRHVE13002 Date: 12/11/13

	Waste Container ID Number:
1	ORRH00679
2	
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N/A CW 12/11/13

NTPC RECORDS ORIGINAL
DATE REC'D 12-18-2013

Attachment 5 – Visual Examination Batch Data Report Table of Contents

Batch Data Report No.: ORNLRHVE13002 Date: 12/11/13

1	Visual Examination Batch Data Report Cover Sheet (Attachment 4)	1
2	Visual Examination Batch Data Report Table of Contents (Attachment 5)	2
3	Visual Examination Data Forms (Attachment 1)	3
4	Visual Examination Independent Technical Reviewer Checklist (Attachment 2)	5
5	Copy of NCRs (N/A [if not applicable])	N/A

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12/11/13		Batch Number: ORNLRHVE13002	
Procedure #: CCP-TP-500		Revision #: 1.3	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☒N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☒ N/A		Final Container ☐ N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00679	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: 35400	
Waste Stream:		Waste Stream: OR-REDC-RH-HET	
		Rigid Liner: ☐Y ☒N Type:	Rigid Liner Lid: ☐Y ☒N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 80
Layers of Confinement:	Closure Method:	Layers of Confinement: 1 CW 12/16/13 0	Closure Method: N/A Lock and Lever CW 12/16/13
Comments (e.g., filter information, NCRs): Cask Number X10C9600188 Nucfil-019DS Number FK806			

Waste Description:

Plastic Bags (P)
Tape (P)
Plastic Lids (P)
Broken Glass (OIM)
Nylon Rope (P)
Metal Cans (IM)
Floor Sweepings (C)(P)(R)(IM)
Metal Tools (IM)
Metal Wire (IM)
Plastic Bottle (P)
Nylon Supersack (C)
Fiber board (C)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00679

	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☒	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☒	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☒	
Does the container have observable liquid containing PCBs?	☐	☒	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☒	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☒	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☒	
Is there an indication of wastes containing explosives or compressed gases?	☐	☒	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☒	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☒	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☒	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☒	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	☒	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☒	
Is the waste consistent with the TRUCON Code?	☒	☐	

Comments: N/A

Visual Examination Operator 1:
Chuck Wallace (Print Name) — Signature — 12/11/13 (Date) / 12/16/13

Visual Examination Operator 2:
Anthony Harley (Print Name) — Signature — 12-11-13 (Date) / 12-16-13

Attachment 2 – Visual Examination Independent Technical Reviewer Checklist

Batch Data Report No.: ORNLRHVE 13002

1. Were data generation and reduction conducted in a technically correct manner in accordance with the methods (procedure) used?	☐ NO	☒ YES	☐ N/A
2. Was the correct revision of the operating procedure used?	☐ NO	☒ YES	☐ N/A
3. Were all the transcription errors corrected?	☐ NO	☐ YES	☒ N/A
4. Are BDR contents complete and match the Visual Examination Batch Data report Table of Contents?	☐ NO	☒ YES	☐ N/A
5. Does the BDR include VE for no more than 20 containers?	☐ NO	☒ YES	☐ N/A
6. Is all data recorded signed and dated in reproducible ink?	☐ NO	☒ YES	☐ N/A
7. Is all raw data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	☐ N/A
8. Are all changes to original data lined out, initialed and dated by the individual making the changes or an individual authorized to make the change?	☐ NO	☒ YES	☐ N/A
9. Is there an adequate written description of the contents?	☐ NO	☒ YES	☐ N/A
10. Were the recording equipment checks satisfactory?	☐ NO	☐ YES	☒ N/A
11. Has each container in this BDR been evaluated for the presence of prohibited wastes?	☐ NO	☒ YES	☐ N/A
12. Has the physical waste form in each container in this BDR been evaluated against the Waste Stream Description and the Waste Matrix Code?	☐ NO	☒ YES	☐ N/A
13. Have the RH Quality Assurance Objectives (QAOs) for VE been met?	☐ NO	☒ YES	☐ N/A
Precision – reconciled discrepancies between operators or between the operator and ITR.	☐	☒	☐
Accuracy – trained operators	☐	☒	☐
Representativeness – description of container contents	☐	☒	☐
Completeness – completed data form and/or recording	☐	☒	☐
Comparability – proper training and adequate AK source documents are available for unopened containers.	☐	☒	☐
14. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A
Comments: N/A			

Independent Technical Reviewer:

Jason Cofer
Printed Name

Signature

12-1-13
Date

12-16-13

DIVIDER PAGE

Attachment 3 – Visual Examination Site Project Manager Checklist

Batch Data Report No.: ORNLRHVE13003

1.	Has all the data received an independent technical review as evidenced by a completed checklist (Attachment 2) and the appropriate ITR signature?		☐ NO	☒ YES
2.	Are BDR contents complete and match the Visual Examination Batch Data Report Table of Contents?		☐ NO	☒ YES
3.	Is the BDR complete (appropriately filled in forms for each container)?		☐ NO	☒ YES
4.	Have the RH Quality Assurance Objectives (QAOs) for VE been met?			
	Precision – reconciled discrepancies between operators		☐ NO	☒ YES
	Accuracy – trained operators		☐ NO	☒ YES
	Representativeness – description of container contents		☐ NO	☒ YES
	Completeness – completed data form and/or recording		☐ NO	☒ YES
	Comparability – proper training and adequate AK for unopened containers		☐ NO	☒ YES
5.	Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments

No NCRs

SPM:

Laura Nelson
Printed Name

Laura Nelson
Signature

12/30/13
Date

COPY NRPC RECORDS ORIGINAL
DATE REC'D 12-30-13 GL

Attachment 4 – Visual Examination Batch Data Report Cover Sheet

Batch Data Report No.: ORNLRHVE13003 Date: 12-12-13

	Waste Container ID Number:
1	ORRH00680
2	
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9	N/A
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NTPC RECORDS ORIGINAL
DATE REC'D 12-18-2013

Attachment 5 – Visual Examination Batch Data Report Table of Contents

Batch Data Report No.: ORNLRHVE13003 Date: 12-12-13

Item	Description	Page No.
1	Visual Examination Batch Data Report Cover Sheet (Attachment 4)	1
2	Visual Examination Batch Data Report Table of Contents (Attachment 5)	2
3	Visual Examination Data Forms (Attachment 1)	3
4	Visual Examination Independent Technical Reviewer Checklist (Attachment 2)	5
5	Copy of NCRs (N/A [if not applicable])	N/A

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12-12-13		Batch Number: ORNLRHVE 13003	
Procedure #: CCP-TP-500		Revision #: 13	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☑N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☑N/A		**Final Container** ☐N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00680	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: S5400	
Waste Stream:		Waste Stream: OR-REDC-RH-MET	
		Rigid Liner: ☐Y ☑N Type:	Rigid Liner Lid: ☐Y ☑N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 90
Layers of Confinement:	Closure Method:	Layers of Confinement: 0 12-16-13 JC	Closure Method: N/A Lock & Leaver 12-16-13 JC

Comments (e.g., filter information, NCRs):
Cask # X10C9600188
NucFil-0190S # FK809

Waste Description:

Nylon Cord (P)
Floor Sweepings (C)(P)(IM)
Plastic Bags (P)
Tape (P)
Plastic Lids (P)
Manipulator Sleeves (P)(IM)(OIM)
Melted Plastics (P)
Electrical Cords (OM)(R)
Metal Pieces (IM)
Poly Drum Cap (P)
Nylon String (P)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00680

	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☒	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☒	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☒	
Does the container have observable liquid containing PCBs?	☐	☒	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☒	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☒	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☒	
Is there an indication of wastes containing explosives or compressed gases?	☐	☒	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☒	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☒	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☒	
TRUCON Code			
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☒	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	☒	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☒	
Is the waste consistent with the TRUCON Code?	☒	☐	

Comments: N/A

Visual Examination Operator 1:
Jason Cofer
Print Name

Signature

12-12-13
Date 12-16-13

Visual Examination Operator 2:
Anthony Harley
Print Name

Signature

12-12-13
Date

12-16-13

Attachment 2 – Visual Examination Independent Technical Reviewer Checklist

Batch Data Report No.: ORNLRHVE13003

1. Were data generation and reduction conducted in a technically correct manner in accordance with the methods (procedure) used?	☐ NO	☒ YES	☐ N/A
2. Was the correct revision of the operating procedure used?	☐ NO	☒ YES	☐ N/A
3. Were all the transcription errors corrected?	☐ NO	☐ YES	☒ N/A
4. Are BDR contents complete and match the Visual Examination Batch Data report Table of Contents?	☐ NO	☒ YES	☐ N/A
5. Does the BDR include VE for no more than 20 containers?	☐ NO	☒ YES	☐ N/A
6. Is all data recorded signed and dated in reproducible ink?	☐ NO	☒ YES	☐ N/A
7. Is all raw data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	☐ N/A
8. Are all changes to original data lined out, initialed and dated by the individual making the changes or an individual authorized to make the change?	☐ NO	☒ YES	☐ N/A
9. Is there an adequate written description of the contents?	☐ NO	☒ YES	☐ N/A
10. Were the recording equipment checks satisfactory?	☐ NO	☐ YES	☒ N/A
11. Has each container in this BDR been evaluated for the presence of prohibited wastes?	☐ NO	☒ YES	☐ N/A
12. Has the physical waste form in each container in this BDR been evaluated against the Waste Stream Description and the Waste Matrix Code?	☐ NO	☒ YES	☐ N/A
13. Have the RH Quality Assurance Objectives (QAOs) for VE been met?	☐ NO	☒ YES	☐ N/A
Precision – reconciled discrepancies between operators or between the operator and ITR.	☐	☒	☐
Accuracy – trained operators	☐	☒	☐
Representativeness – description of container contents	☐	☒	☐
Completeness – completed data form and/or recording	☐	☒	☐
Comparability – proper training and adequate AK source documents are available for unopened containers.	☐	☒	☐
14. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments: N/A

Independent Technical Reviewer:

Chuck Wallace
Printed Name

Signature

12/12/13
Date

12/16/13

DIVIDER PAGE

Attachment 3 – Visual Examination Site Project Manager Checklist

Batch Data Report No.: ORNLRHVE13004

1. Has all the data received an independent technical review as evidenced by a completed checklist (Attachment 2) and the appropriate ITR signature?		☐ NO	☒ YES
2. Are BDR contents complete and match the Visual Examination Batch Data Report Table of Contents?		☐ NO	☒ YES
3. Is the BDR complete (appropriately filled in forms for each container)?		☐ NO	☒ YES
4. Have the RH Quality Assurance Objectives (QAOs) for VE been met?			
Precision – reconciled discrepancies between operators		☐ NO	☒ YES
Accuracy – trained operators		☐ NO	☒ YES
Representativeness – description of container contents		☐ NO	☒ YES
Completeness – completed data form and/or recording		☐ NO	☒ YES
Comparability – proper training and adequate AK for unopened containers		☐ NO	☒ YES
5. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments

No NCRs

SPM:

Laura Nelson
Printed Name

Laura Nelson
Signature

12/30/13
Date

COPY CCP RECORDS ORIGINAL
DATE REC'D 1/7/14
bh

Attachment 4 – Visual Examination Batch Data Report Cover Sheet

Batch Data Report No.: ORNLRHVE13004 Date: 12/13/13

	Waste Container ID Number:
1	ORRH00681
2	ORRH00682
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9	N/A CW 12/13/13
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NTPC RECORDS ORIGINAL
DATE REC'D 12-13-2013

Attachment 5 – Visual Examination Batch Data Report Table of Contents

Batch Data Report No.: ORNLRHVE13004 Date: 12/13/13

1	Visual Examination Batch Data Report Cover Sheet (Attachment 4)	1
2	Visual Examination Batch Data Report Table of Contents (Attachment 5)	2
3	Visual Examination Data Forms (Attachment 1)	3
4	Visual Examination Independent Technical Reviewer Checklist (Attachment 2)	7
5	Copy of NCRs (N/A [if not applicable])	N/A

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12/13/13		Batch Number: ORNLRHVE13004	
Procedure #: CCP-TP-500		Revision #: 13	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☒N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☒N/A		**Final Container** ☐N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00681	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: S5400	
Waste Stream:		Waste Stream: OR-REDC-RH-HET	
		Rigid Liner: ☐Y ☒N Type:	Rigid Liner Lid: ☐Y ☒N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 80
Layers of Confinement:	Closure Method:	Layers of Confinement: 0	Closure Method: N/A

Comments (e.g., filter information, NCRs):
CASK NUMBER X10C9600188
NucFil-019DS NUMBER CK694

Waste Description:

Plastic Bags (P)
Plastic Tape (P)
Manipulator Boot (IM)(P)
Glass (OIM)
Cheesecloth (C)
Plastic Lids (P)
Floor Sweepings (OIM)(P)(IM)(C)(R)
Metal Cans (IM)
Nylon Cord (P)
Glass Bottles (OIM)
Metal Pieces (OM)
Plastic Tubing (P)
Aluminum Pieces (AM)
Ceramic Pieces (OIM)
Metal Tools (IM)
Electrical Wire (OM)
Wire Brush (IM)(C)
Melted Plastic (P)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00681

	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☒	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☒	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☒	
Does the container have observable liquid containing PCBs?	☐	☒	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☒	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☒	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☒	
Is there an indication of wastes containing explosives or compressed gases?	☐	☒	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☒	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☒	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☒	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☒	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	☒	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☒	
Is the waste consistent with the TRUCON Code?	☒	☐	

Comments: N/A

Visual Examination Operator 1:
Chuck Wallace (Print Name) — Chuck Wallace (Signature) — 12/13/13 (Date)

Visual Examination Operator 2:
Anthony Harley (Print Name) — (Signature) — 12-13-13 (Date)

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12/13/13		Batch Number: ORNLRHVE13004	
Procedure #: CCP-TP-500		Revision #: 13	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☒N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container: ☒N/A		Final Container: ☐N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00682	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: S5400	
Waste Stream:		Waste Stream: OR-REDC-RH-MET	
		Rigid Liner: ☐Y ☒N Type:	Rigid Liner Lid: ☐Y ☒N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 90
Layers of Confinement:	Closure Method:	Layers of Confinement: 0	Closure Method: N/A

Comments (e.g., filter information, NCRs):
CASK NUMBER X10C9600188
Nucfil-019DS Number FK785

Waste Description:

Nochar absorbant (C)
Plastic Bags (P)
Plastic Tape (P)
Plastic Lids (P)
Plastic Buckets (P)
Sweepings, Debris, Dust (C)(P)(OIM)(OM)(Q)
Metal Lids (IM)
Electrical Cord (OM)
Cheesecloth (C)
Metal Can (IM)
Manipulator Finger (AM)
Pipette (OIM)
Metal Tool (IM)
Glass (OIM)
Leather Work Glove (C)
Wire Brush (OM)(C)
Melted Plastic (P)
Ceramic Pieces (OIM)
Glass Bottle (OIM)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00682

	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☒	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☒	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☒	
Does the container have observable liquid containing PCBs?	☐	☒	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☒	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☒	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☒	
Is there an indication of wastes containing explosives or compressed gases?	☐	☒	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☒	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☒	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☒	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☒	
Are there sealed containers GREATER than 4 liters or heat sealed bags NOT defined in the applicable TRUCON Code?	☐	☒	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☒	
Is the waste consistent with the TRUCON Code?	☒	☐	

Comments: N/A

Visual Examination Operator 1:
Print Name: Chuck Wallace
Signature: Chuck Wallace
Date: 12/13/13

Visual Examination Operator 2:
Print Name: Anthony Harley
Signature:
Date: 12-13-13

Attachment 2 – Visual Examination Independent Technical Reviewer Checklist

Batch Data Report No.: ORNLRHVE13004

1. Were data generation and reduction conducted in a technically correct manner in accordance with the methods (procedure) used?	☐ NO	☒ YES	☐ N/A
2. Was the correct revision of the operating procedure used?	☐ NO	☒ YES	☐ N/A
3. Were all the transcription errors corrected?	☐ NO	☐ YES	☒ N/A
4. Are BDR contents complete and match the Visual Examination Batch Data report Table of Contents?	☐ NO	☒ YES	☐ N/A
5. Does the BDR include VE for no more than 20 containers?	☐ NO	☒ YES	☐ N/A
6. Is all data recorded signed and dated in reproducible ink?	☐ NO	☒ YES	☐ N/A
7. Is all raw data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	☐ N/A
8. Are all changes to original data lined out, initialed and dated by the individual making the changes or an individual authorized to make the change?	☐ NO	☐ YES	☒ N/A
9. Is there an adequate written description of the contents?	☐ NO	☒ YES	☐ N/A
10. Were the recording equipment checks satisfactory?	☐ NO	☐ YES	☒ N/A
11. Has each container in this BDR been evaluated for the presence of prohibited wastes?	☐ NO	☒ YES	☐ N/A
12. Has the physical waste form in each container in this BDR been evaluated against the Waste Stream Description and the Waste Matrix Code?	☐ NO	☒ YES	☐ N/A
13. Have the RH Quality Assurance Objectives (QAOs) for VE been met?	☐ NO	☒ YES	☐ N/A
Precision – reconciled discrepancies between operators or between the operator and ITR.	☐	☒	☐
Accuracy – trained operators	☐	☒	☐
Representativeness – description of container contents	☐	☒	☐
Completeness – completed data form and/or recording	☐	☒	☐
Comparability – proper training and adequate AK source documents are available for unopened containers.	☐	☒	☐
14. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments: N/A

Independent Technical Reviewer:

Jason Cofer
Printed Name

Signature

12-16-13
Date

DIVIDER

PAGE

Attachment 3 – Visual Examination Site Project Manager Checklist

Batch Data Report No.: ORNLRHVE13005

1. Has all the data received an independent technical review as evidenced by a completed checklist (Attachment 2) and the appropriate ITR signature?		☐ NO	☒ YES
2. Are BDR contents complete and match the Visual Examination Batch Data Report Table of Contents?		☐ NO	☒ YES
3. Is the BDR complete (appropriately filled in forms for each container)?		☐ NO	☒ YES
4. Have the RH Quality Assurance Objectives (QAOs) for VE been met?			
Precision – reconciled discrepancies between operators		☐ NO	☒ YES
Accuracy – trained operators		☐ NO	☒ YES
Representativeness – description of container contents		☐ NO	☒ YES
Completeness – completed data form and/or recording		☐ NO	☒ YES
Comparability – proper training and adequate AK for unopened containers		☐ NO	☒ YES
5. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A
Comments			
No NCRs			

SPM:

Laura Nelson
Printed Name

Laura Nelson
Signature

12/30/13
Date

COPY NTPC RECORDS ORIGINAL
DATE REC'D 12-30-13 GL

Attachment 4 – Visual Examination Batch Data Report Cover Sheet

Batch Data Report No.: ORNLRHVE13005 Date: 12-16-13

	Waste Container ID Number:
1	ORRH00683
2	
3	
4	
5	
6	
7	
8	N/A
9	
10	JC 12-16-13
11	
12	
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19	
20	

NTPC RECORDS ORIGINAL
DATE REC'D 12-18-2013

Attachment 5 – Visual Examination Batch Data Report Table of Contents

Batch Data Report No.: ORNLRHVE 13005 Date: 12-16-13

1	Visual Examination Batch Data Report Cover Sheet (Attachment 4)	1
2	Visual Examination Batch Data Report Table of Contents (Attachment 5)	2
3	Visual Examination Data Forms (Attachment 1)	3
4	Visual Examination Independent Technical Reviewer Checklist (Attachment 2)	5
5	Copy of NCRs (N/A [if not applicable])	N/A

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12-16-13		Batch Number: ORNLRHVE13005	
Procedure #: CCP-TP-500		Revision #: 13	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☑N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☑N/A		**Final Container** ☐ N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00683	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: S5400	
Waste Stream:		Waste Stream: OR-2EDC-RH-HET	
		Rigid Liner: ☐Y ☑N Type:	Rigid Liner Lid: ☐ Y ☑N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 90
Layers of Confinement:	Closure Method:	Layers of Confinement: 0	Closure Method: N/A

Comments (e.g., filter information, NCRs):
Cask # X10C9600188
NUCFIL-0195 # FK839

Waste Description:

Metal Cans (IM)
Metal Pieces (IM)
Cheese cloth (C)
Plastic Pieces (P)
Glass (OIM)
Plastic Bags (P)
Melted Plastic (P)
Glass Viles (OIM)
Rubber Gaskets (R)
Metal Valve (IM)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00683

	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	X	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	X	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	X	
Does the container have observable liquid containing PCBs?	☐	X	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	X	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	X	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	X	
Is there an indication of wastes containing explosives or compressed gases?	☐	X	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	X	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	X	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	X	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	X	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	X	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	X	
Is the waste consistent with the TRUCON Code?	X	☐	

Comments: N/A

Visual Examination Operator 1:
Jason Cofer
Print Name

Signature

12-16-13
Date

Visual Examination Operator 2:
Anthony Harley
Print Name

Signature

12-16-13
Date

Attachment 2 – Visual Examination Independent Technical Reviewer Checklist

Batch Data Report No.: ORNLRHVE13005

1. Were data generation and reduction conducted in a technically correct manner in accordance with the methods (procedure) used?	☐ NO	☒ YES	☐ N/A
2. Was the correct revision of the operating procedure used?	☐ NO	☒ YES	☐ N/A
3. Were all the transcription errors corrected?	☐ NO	☐ YES	☒ N/A
4. Are BDR contents complete and match the Visual Examination Batch Data report Table of Contents?	☐ NO	☒ YES	☐ N/A
5. Does the BDR include VE for no more than 20 containers?	☐ NO	☒ YES	☐ N/A
6. Is all data recorded signed and dated in reproducible ink?	☐ NO	☒ YES	☐ N/A
7. Is all raw data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	☐ N/A
8. Are all changes to original data lined out, initialed and dated by the individual making the changes or an individual authorized to make the change?	☐ NO	☐ YES	☒ N/A
9. Is there an adequate written description of the contents?	☐ NO	☒ YES	☐ N/A
10. Were the recording equipment checks satisfactory?	☐ NO	☐ YES	☒ N/A
11. Has each container in this BDR been evaluated for the presence of prohibited wastes?	☐ NO	☒ YES	☐ N/A
12. Has the physical waste form in each container in this BDR been evaluated against the Waste Stream Description and the Waste Matrix Code?	☐ NO	☒ YES	☐ N/A
13. Have the RH Quality Assurance Objectives (QAOs) for VE been met?	☐ NO	☒ YES	☐ N/A
Precision – reconciled discrepancies between operators or between the operator and ITR.	☐	☒	☐
Accuracy – trained operators	☐	☒	☐
Representativeness – description of container contents	☐	☒	☐
Completeness – completed data form and/or recording	☐	☒	☐
Comparability – proper training and adequate AK source documents are available for unopened containers.	☐	☒	☐
14. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments:
N/A

Independent Technical Reviewer:

Chuck Wallace
Printed Name

Signature

12/16/13
Date

DIVIDER

PAGE

Attachment 3 – Visual Examination Site Project Manager Checklist

Batch Data Report No.: ORNLRHVE13006

1. Has all the data received an independent technical review as evidenced by a completed checklist (Attachment 2) and the appropriate ITR signature?		☐ NO	☒ YES
2. Are BDR contents complete and match the Visual Examination Batch Data Report Table of Contents?		☐ NO	☒ YES
3. Is the BDR complete (appropriately filled in forms for each container)?		☐ NO	☒ YES
4. Have the RH Quality Assurance Objectives (QAOs) for VE been met?			
Precision – reconciled discrepancies between operators		☐ NO	☒ YES
Accuracy – trained operators		☐ NO	☒ YES
Representativeness – description of container contents		☐ NO	☒ YES
Completeness – completed data form and/or recording		☐ NO	☒ YES
Comparability – proper training and adequate AK for unopened containers		☐ NO	☒ YES
5. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments

No NCRs

SPM:

Laura Nelson
Printed Name

Laura Nelson
Signature

11/6/14
Date

COPY

CCP RECORDS ORIGINAL
DATE REC'D 11/6/14

Attachment 4 – Visual Examination Batch Data Report Cover Sheet

Batch Data Report No.: ORNLRHVE130016 Date: 12/19/13

	Waste Container ID Number:
1	ORRH00684
2	
3	
4	
5	
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8	N/A CW 12/19/13
9	
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NTPC RECORDS ORIGINAL
DATE REC'D 12-27-2013

Attachment 5 – Visual Examination Batch Data Report Table of Contents

Batch Data Report No.: ~~ORNLRHVE006~~ ORNLRHVE13006 R.H. 1-6-14 Date: 12/19/13

1	Visual Examination Batch Data Report Cover Sheet (Attachment 4)	1
2	Visual Examination Batch Data Report Table of Contents (Attachment 5)	2
3	Visual Examination Data Forms (Attachment 1)	3
4	Visual Examination Independent Technical Reviewer Checklist (Attachment 2)	5
5	Copy of NCRs (N/A [if not applicable])	N/A

Attachment 1 – Visual Examination Data Form

Site ID: ORNL			
Examination Date: 12/19/13		Batch Number: ORNLRHVE13006	
Procedure #: CCP-TP-500		Revision #: 13	Video Number: N/A
Recording Equipment Check: ☐SAT ☐UNSAT ☑N/A		Recording Start: N/A	Recording Stop: N/A
Initial Container ☑N/A		**Final Container** ☐ N/A	
Container or Package ID Number:		Container or Package ID Number: ORRH00684	
Container Type:		Container Type: 55 Gallon Drum	
Waste Matrix Code:		Waste Matrix Code: S5400	
Waste Stream:		Waste Stream: OR-REDC-RH-HET	
		Rigid Liner: ☐Y ☑N Type:	Rigid Liner Lid: ☐ Y ☑N
		Rigid Liner Vented or Hole Size: N/A	
Percent Fill:	Percent Organic Waste:	Percent Fill: 100	Percent Organic Waste: 60
Layers of Confinement:	Closure Method:	Layers of Confinement: 0	Closure Method: N/A

Comments (e.g., filter information, NCRs):
CASK NUMBER X10C96 00188
NucFil-019DS FK828

Waste Description:

Rubber Gaskets (R)
Plastic Buckets (P)
Nylon Rope (P)
Cheesecloth (C)
Metal Lid (IM)
Metal Handle (IM)
Metal Pieces (OM)
Glass Bottles (OIM)
Glass Pipettes (OIM)
Cardboard (C)
Metal Cans (IM)
Sweepings (P)(OIM)(R)(C)
Broken Glass (OIM)
Melted Plastic (P)
Plastic Lids (P)
Metal Equipment (OM)
Plastic Tape (P)

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number ORRH00684

	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☒	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☒	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☒	
Does the container have observable liquid containing PCBs?	☐	☒	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☒	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☒	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☒	
Is there an indication of wastes containing explosives or compressed gases?	☐	☒	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☒	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☒	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☒	
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☒	
Are there sealed containers GREATER than 4 liters or heat sealed bags NOT defined in the applicable TRUCON Code?	☐	☒	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☒	
Is the waste consistent with the TRUCON Code?	☒	☐	

Comments:
N/A

Visual Examination Operator 1:
Chuck Wallace (Print Name) — Signature — 12/19/13 (Date)

Visual Examination Operator 2:
Anthony Harley (Print Name) — Signature — 12-19-13 (Date)

Attachment 2 – Visual Examination Independent Technical Reviewer Checklist

Batch Data Report No.: ORNLRHVE13006

1. Were data generation and reduction conducted in a technically correct manner in accordance with the methods (procedure) used?	☐ NO	☒ YES	☐ N/A
2. Was the correct revision of the operating procedure used?	☐ NO	☒ YES	☐ N/A
3. Were all the transcription errors corrected?	☐ NO	☐ YES	☒ N/A
4. Are BDR contents complete and match the Visual Examination Batch Data report Table of Contents?	☐ NO	☒ YES	☐ N/A
5. Does the BDR include VE for no more than 20 containers?	☐ NO	☒ YES	☐ N/A
6. Is all data recorded signed and dated in reproducible ink?	☐ NO	☒ YES	☐ N/A
7. Is all raw data recorded clearly, legibly, and accurately?	☐ NO	☒ YES	☐ N/A
8. Are all changes to original data lined out, initialed and dated by the individual making the changes or an individual authorized to make the change?	☐ NO	☐ YES	☒ N/A
9. Is there an adequate written description of the contents?	☐ NO	☒ YES	☐ N/A
10. Were the recording equipment checks satisfactory?	☐ NO	☐ YES	☒ N/A
11. Has each container in this BDR been evaluated for the presence of prohibited wastes?	☐ NO	☒ YES	☐ N/A
12. Has the physical waste form in each container in this BDR been evaluated against the Waste Stream Description and the Waste Matrix Code?	☐ NO	☒ YES	☐ N/A
13. Have the RH Quality Assurance Objectives (QAOs) for VE been met?	☐ NO	☒ YES	☐ N/A
Precision – reconciled discrepancies between operators or between the operator and ITR.	☐	☒	☐
Accuracy – trained operators	☐	☒	☐
Representativeness – description of container contents	☐	☒	☐
Completeness – completed data form and/or recording	☐	☒	☐
Comparability – proper training and adequate AK source documents are available for unopened containers.	☐	☒	☐
14. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☒ N/A

Comments: N/A

Independent Technical Reviewer:

Jason Cofer
Printed Name

Jason Cofer
Signature

12-19-13
Date

COPY

VE2

Visual Examination (VE)
Operator/Independent Technical Reviewer (ITR)
for Remote-Handled (RH) Waste
Qualification Card

Name: Anthony Harley

Education/Experience

Resume documenting education and experience on file with National TRU Program Certification (NTPC) Training.	NTPC Training — Date: 06-06-13

Job Specific Training

☐ Initial Qualification ☑ Requalification ☐ Full Requalification

Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the Site Project Manager (SPM) or the Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the Manager Responsible for Training. The candidate must successfully complete the entire qualification card to reestablish qualification.
Requalification Requirements	Items required for requalification are identified by text.

Indoctrination

(Required at Initial Qualification and Full Requalification)

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
3. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
4. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
5. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
6. CCP-QP-002, *CCP Training and Qualification Plan*
7. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
8. CCP-QP-008, *CCP Records Management*
9. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
10. CCP-QP-016, *CCP Control of Measuring and Testing Equipment*
11. CCP-QP-023, *CCP Handling, Storage, and Shipping*
12. CCP-QP-029, *CCP Corrective Action Management*
13. CCP-TP-163, *CCP Evaluation of Waste Packaging Records for Visual Examination of Records*
14. CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*
15. CCP-TP-513, *CCP Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of Remote-Handled Transuranic Waste*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	NA Trainee — Date

COPY

Visual Examination (VE)
Operator/Independent Technical Reviewer (ITR)
for Remote-Handled (RH) Waste
Qualification Card

Name: Anthony Harley

Additional Training Requirements	
1. WAP/QAPjP Briefing & Exam *(One-time Requirement)*	Cheryl Munoz NTPC Training — 06-06-13 Date
2. CCP-VE-101, *Visual Examination (VE) TRU Waste Characterization Briefing (Always Required)*	Cheryl Munoz NTPC Training — 06-06-13 Date
3. VE Comprehensive Exam *(Always Required)*	Cheryl Munoz NTPC Training — 06-06-13 Date

Formal Training	On-the-Job Training (OJT) Knowledge Requirements *(Required at Initial Qualification and Full Requalification)*	Visual Examination Expert (VEE) Subject Matter Expert (SME)/OJT Signature/Date
CCP-PO-001	1. List the VE Quality Assurance Objectives (QAOs) per the WAP.	5-30-13
	2. List the VE Data Quality Objectives (DQOs) per the WAP.	5-30-13
DOE/WIPP 02-3214	3. List the VE QAOs per the PIP.	5-30-13
	4. List the VE DQOs per the PIP.	5-30-13
CCP-QP-002	5. State the purpose of the List of Qualified Individuals (LOQI).	5-8-13
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	5-8-13
	7. Describe how nonconforming items are documented.	5-8-13
	8. Describe how nonconforming items are controlled to prevent their use.	5-8-13
	9. State who has the responsibility to validate the NCR once initiated.	5-8-13
	10. Describe how to revise a NCR. Jm 5-8-13	5-8-13
	11. Describe how to void a NCR.	5-8-13
CCP-QP-029	12. Describe the purpose of the corrective action report (CAR) process.	5-8-13

Visual Examination (VE) Operator/Independent Technical Reviewer (ITR) for Remote-Handled (RH) Waste Qualification Card

Name: Anthony Harley

CCP-QP-008	13. State the person responsible for originating a CAR.	5-8-13 5-8-13 5-8-13
	14. Describe how corrective actions are documented.	5-8-13
	15. State who has the responsibility to validate the CAR once initiated.	5-8-13
	16. Describe actions personnel may take when conditions adverse to quality are discovered.	5-8-13
	17. List the responsibilities of record generators.	5-8-13
	18. State the storage and control requirements for records.	5-8-13
	19. Explain the process and proper method to make corrections or revisions to records.	5-8-13
CCP-QP-010	20. State the importance of using approved documents.	5-30-13
	21. State when to verify a document revision.	5-30-13
CCP-QP-016	22. List the Measuring & Testing Equipment (M&TE) items used during VE.	5-30-13
CCP-TP-500/ CCP-VE-101 Briefing	23. Explain the purpose of VE and the roles and responsibilities of the VE Operator.	5-30-13
	24. Identify who is responsible for overall direction and implementation of the VE of that facility.	5-30-13
	25. Define the two phases of VE technique for remote-handled waste.	5-30-13
	26. State the number of waste containers allowed per Batch Data Report (BDR).	5-30-13
	27. Define "layers of confinement."	5-30-13
	28. State the authorized methods to close a liner bag.	5-30-13
	29. State the action to be taken if a condition adverse to quality arises.	5-30-13
	30. State the waste material parameters (WMP).	5-30-13
	31. Describe the information that should be recorded when describing waste items.	5-30-13
	32. State five (5) examples of prohibited items.	5-30-13

Visual Examination (VE)
Operator/Independent Technical Reviewer (ITR)
for Remote-Handled (RH) Waste
Qualification Card

Name: Anthony Harley

	33. Describe how a non-transparent container is handled when liquid is suspected.			5-30-13
	34. State the acceptable liquid limits in a characterized container.			5-30-13
	35. Explain the responsibilities and functions of the Independent Technical Review (ITR).			5-30-13
	36. Define layers of confinement.			N/A
	37. Describe how to determine Volume Utilization Percentage (VUP).			5-30-13
	38. State the allowable fill percent increments.			5-30-13
Formal Training	**OJT Practical Requirements[1]** *(This section must be performed in the presence of a VEE)* *(Always Required)*			**VEE SME/OJT Signature/Date**
CCP-TP-500	1. Prepare the recording equipment. *(This activity is at the discretion of the SME instructor)*	P	S	5-30-13
	2. Complete CCP-TP-500 Attachment 1.	P	S	5-30-13
	3. Prepare a BDR.	P	S	5-30-13
	4. Determine the VUP.	P	S	5-30-13
	5. Complete an ITR.	P	S	5-30-13
	6. Determine Waste Material Parameter (WMP).	P	S	5-30-13
	7. Verify the physical form of the waste matches the waste stream ID.	P	S	5-30-13
CCP-TP-513	8. Perform a dimensional or gravimetric measurement and determine the measurement acceptability[2].	P	S	5-30-13

[1] For simulated steps that involve the recording of information, the steps can be satisfied by the trainee's ability to identify the specific location in the correct record form where actual data would be entered, and explain where the information would be obtained. All required calculations will actually be performed: for simulations, representative data will be used in lieu of actual data. Circle "P" if actually performed or "S" if requirement was simulated.

[2] Procedure CCP-TP-513 is not applicable at all sites. The OJT Practical Requirement for this procedure is only required if the procedure is invoked.

Visual Examination (VE)
Operator/Independent Technical Reviewer (ITR)
for Remote-Handled (RH) Waste
Qualification Card

Name: Anthony Harley

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RH VE Operator/ITR.	Anthony Harley 5-30-13 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RH VE Operator/ITR. *(Validation by the RH VEE SME/OJT instructor(s) involved in the training of this individual).*	Tommy Mojica 5-30-13 RH VEE SME/OJT Instructor *(printed name and signature)* Date NA RH VEE SME/OJT Instructor *(printed name and signature)* Date
I approve this employee to perform the duties of a RH VE Operator/ITR.	Richard Kantrowitz 6/6/13 SPM *(printed name and signature)* Date

Approved for Content & Format: **Wes Root *(Approval on File)*** **03/13/2013**
SME/OJT Date

Approved for Applicability, Content & Format: **Andrew Stallings *(Approval on File)*** **03/13/2013**
Cognizant Engineer Date

Approved for Content: **Irene Joo *(Approval on File)*** **03/13/2013**
SPM Date

Approved for Applicability, Content, Format, & Use: **A.J. Fisher *(Approval on File)*** **03/13/2013**
Manager Responsible for Training Date

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Resume documenting education and experience on file with National TRU Program Certification (NTPC) Training.	NTPC Training 11-14-13 Date

☑ Initial Qualification ☐ Requalification ☐ Full Requalification

Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the Site Project Manager (SPM) or the Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the Manager Responsible for Training. The candidate must successfully complete the entire qualification card to reestablish qualification.
Requalification Requirements	Items required for requalification are identified by text.

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. WP 15-GM1002, *Issues Management Processing of WIPP Forms*
3. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
4. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
5. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
6. CCP-PO-005, *CCP Conduct of Operations*
7. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
8. CCP-QP-002, *CCP Training and Qualification Plan*
9. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
10. CCP-QP-008, *CCP Records Management*
11. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
12. CCP-QP-016, *CCP Control of Measuring and Testing Equipment*
13. CCP-QP-023, *CCP Handling, Storage, and Shipping*
14. CCP-TP-163, *CCP Evaluation of Waste Packaging Records for Visual Examination of Records*
15. CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*
16. CCP-TP-513, *CCP Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of Remote-Handled Transuranic Waste*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	Trainee 10-28-13 Date

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[redacted]

[redacted]

1. WAP/QAPjP Briefing & Exam *(One-time Requirement)*	NTPC Training	11-14-13 Date
2. CCP-VE-101, *Visual Examination (VE) TRU Waste Characterization Briefing* *(Always Required)*	NTPC Training	11-18-13 Date
3. VE Comprehensive Exam *(Always Required)*	NTPC Training	11-14-13 Date

[redacted]

CCP-PO-001	1. List the VE Quality Assurance Objectives (QAOs) per the WAP.	10-23-13
	2. List the VE Data Quality Objectives (DQOs) per the WAP.	10-23-13
DOE/WIPP 02-3214	3. List the VE QAOs per the PIP.	10-23-13
	4. List the VE DQOs per the PIP.	10-23-13
CCP-QP-002	5. State the purpose of the List of Qualified Individuals (LOQI).	10-23-13
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	10-23-13
	7. Describe how nonconforming items are documented.	10-23-13
	8. Describe how nonconforming items are controlled to prevent their use.	10-23-13
	9. State who has the responsibility to validate the NCR once initiated.	10-23-13
	10. Describe how to revise a NCR.	10-23-13
	11. Describe how to void a NCR.	10-23-13
WP 15-GM1002	12. Describe the purpose of the WIPP Form process.	10-23-13

[redacted]

[redacted]

	13. State the person responsible for originating a WIPP Form.	[redacted] 10-23-13
	14. Describe how WIPP Forms are documented.	[redacted] 10-23-13
	15. Describe who has responsibility for processing WIPP Forms, approving Corrective Action Plans, and approving closure of WIPP Forms.	[redacted] 10-23-13
	16. Describe actions personnel may take when conditions adverse to quality are discovered.	[redacted] 10-23-13
CCP-QP-008	17. List the responsibilities of record generators.	[redacted] 10-23-13
	18. State the storage and control requirements for records.	[redacted] 10-23-13
	19. Explain the process and proper method to make corrections or revisions to records.	[redacted] 10-23-13
CCP-QP-010	20. State the importance of using approved documents.	[redacted] 10-23-13
	21. State when to verify a document revision.	[redacted] 10-23-13
CCP-QP-016	22. List the Measuring & Testing Equipment (M&TE) items used during VE.	[redacted] 10-23-13
CCP-TP-500/ CCP-VE-101 Briefing	23. Explain the purpose of VE and the roles and responsibilities of the VE Operator.	[redacted] 10-23-13
	24. Identify who is responsible for overall direction and implementation of the VE of that facility.	[redacted] 10-23-13
	25. Define the two phases of VE technique for remote-handled waste.	[redacted] 10-23-13
	26. State the number of waste containers allowed per Batch Data Report (BDR).	[redacted] 10-23-13
	27. Define "layers of confinement."	[redacted] 10-23-13
	28. State the authorized methods to close a liner bag.	[redacted] 10-23-13
	29. State the action to be taken if a condition adverse to quality arises.	[redacted] 10-23-13
	30. State the waste material parameters (WMP).	[redacted] 10-23-13
	31. Describe the information that should be recorded when describing waste items.	[redacted] 10-23-13
	32. State five (5) examples of prohibited items.	[redacted] 10-23-13

Visual Examination (VE) Operator/Independent Technical Reviewer (ITR) for Remote-Handled (RH) Waste Qualification Card

Name: Jason [illegible]

	33. Describe how a non-transparent container is handled when liquid is suspected.			[signature] 10-23-13
	34. State the acceptable liquid limits in a characterized container.			[signature] 10-23-13
	35. Explain the responsibilities and functions of the Independent Technical Review (ITR).			[signature] 10-23-13
	36. Define layers of confinement.			[signature] 10-23-13
	37. Describe how to determine Volume Utilization Percentage (VUP).			[signature] 10-23-13
	38. State the allowable fill percent increments.			[signature] 10-23-13
[illegible]	OJT Practical Requirements [illegible] (Circle P or S)			[illegible] Signature/Date
CCP-TP-500	1. Prepare the recording equipment. *(This activity is at the discretion of the SME instructor)*	P	S	N/A [signature] 11-14-13
	2. Complete CCP-TP-500 Attachment 1.	(P) circled	S	[signature] 11-14-13
	3. Prepare a BDR.	(P) circled	S	[signature] 11-14-13
	4. Determine the VUP.	(P) circled	S	[signature] 11-14-13
	5. Complete an ITR.	(P) circled	S	[signature] 11-14-13
	6. Determine Waste Material Parameter (WMP).	(P) circled	S	[signature] 11-14-13
	7. Verify the physical form of the waste matches the waste stream ID.	(P) circled	S	[signature] 11-14-13
CCP-TP-513	8. Perform a dimensional or gravimetric measurement and determine the measurement acceptability[2].	P	S	N/A [signature] 11-14-13

[1] For simulated steps that involve the recording of information, the steps can be satisfied by the trainee's ability to identify the specific location in the correct record form where actual data would be entered, and explain where the information would be obtained. All required calculations will actually be performed; for simulations, representative data will be used in lieu of actual data. Circle "P" if actually performed or "S" if requirement was simulated.

[2] Procedure CCP-TP-513 is not applicable at all sites. The OJT Practical Requirement for this procedure is only required if the procedure is invoked.

[redacted]

[redacted] Jason Cofer

Approvals	
I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RH VE Operator/ITR.	Jason Cofer — 11-14-13 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RH VE Operator/ITR. *(Validation by the RH VEE SME/OJT instructor(s) involved in the training of this individual).*	Anthony Harley — 11-14-13 RH VEE SME/OJT Instructor *(printed name and signature)* Date
	NA RH VEE SME/OJT Instructor *(printed name and signature)* Date
I approve this employee to perform the duties of a RH VE Operator/ITR.	Richard Kantrowitz — 11/18/13 SPM *(printed name and signature)* Date

Approved for Content & Format:	**Wes Root *(Approval on File)***	**10/07/2013**
	SME/OJT	Date
Approved for Applicability, Content & Format:	**Andrew Stallings *(Approval on File)***	**10/07/2013**
	Cognizant Engineer	Date
Approved for Content:	**Irene Joo *(Approval on File)***	**10/07/2013**
	SPM	Date
Approved for Applicability, Content, Format, & Use:	**A.J. Fisher *(Approval on File)***	**10/07/2013**
	Manager Responsible for Training	Date

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Name: [redacted]

Education/Experience	
Resume documenting education and experience on file with National TRU Program Certification (NTPC) Training.	Cheryl Amyx 11-14-13 NTPC Training Date

[redacted]

☑ Initial Qualification ☐ Requalification ☐ Full Requalification

Qualification Limit	**This qualification is valid for two (2) years.** If necessary, additional training may be required by the Site Project Manager (SPM) or the Manager Responsible for Training. Unsatisfactory performance will result in disqualification by the Manager Responsible for Training. The candidate must successfully complete the entire qualification card to reestablish qualification.
Requalification Requirements	Items required for requalification are identified by text.

[redacted]

Initial/Indoctrination Reading:

1. DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
2. WP 15-GM1002, *Issues Management Processing of WIPP Forms*
3. CCP-HSP-014, *Health and Safety Program Implementation for CCP*
4. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
5. CCP-PO-002, *CCP Transuranic Waste Certification Plan*
6. CCP-PO-005, *CCP Conduct of Operations*
7. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
8. CCP-QP-002, *CCP Training and Qualification Plan*
9. CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
10. CCP-QP-008, *CCP Records Management*
11. CCP-QP-010, *CCP Document Preparation, Approval, and Control*
12. CCP-QP-016, *CCP Control of Measuring and Testing Equipment*
13. CCP-QP-023, *CCP Handling, Storage, and Shipping*
14. CCP-TP-163, *CCP Evaluation of Waste Packaging Records for Visual Examination of Records*
15. CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*
16. CCP-TP-513, *CCP Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of Remote-Handled Transuranic Waste*

I have read the listed Initial/Indoctrination Reading and understand my responsibilities as applicable to the procedures above.	[redacted] 10/25/13 Trainee Date

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[redacted]

Name: Chuck Wallace

Additional Training Requirements		
1. WAP/QAPjP Briefing & Exam *(One-time Requirement)*	Cheryl Hruz NTPC Training	11-14-13 Date
2. CCP-VE-101, *Visual Examination (VE) TRU Waste Characterization Briefing* *(Always Required)*	Cheryl Hruz NTPC Training	11-18-13 Date
3. VE Comprehensive Exam *(Always Required)*	Cheryl Hruz NTPC Training	11-14-13 Date

Required Training	[redacted]	[redacted] Date
CCP-PO-001	1. List the VE Quality Assurance Objectives (QAOs) per the WAP.	10-23-13
	2. List the VE Data Quality Objectives (DQOs) per the WAP.	10-23-13
DOE/WIPP 02-3214	3. List the VE QAOs per the PIP.	10-23-13
	4. List the VE DQOs per the PIP.	10-23-13
CCP-QP-002	5. State the purpose of the List of Qualified Individuals (LOQI).	10-23-13
CCP-QP-005	6. State when a nonconformance report (NCR) should be prepared and who is responsible to initiate it.	10-23-13
	7. Describe how nonconforming items are documented.	10-23-13
	8. Describe how nonconforming items are controlled to prevent their use.	10-23-13
	9. State who has the responsibility to validate the NCR once initiated.	10-23-13
	10. Describe how to revise a NCR.	10-23-13
	11. Describe how to void a NCR.	10-23-13
WP 15-GM1002	12. Describe the purpose of the WIPP Form process.	10-23-13

Visual Examination (VE)
Operator/Independent Verifier (IV)
Remote-Handled (RH) Waste
Qualification Card

Name: Chuck Wa[illegible]

	13. State the person responsible for originating a WIPP Form.	10-23-13
	14. Describe how WIPP Forms are documented.	10-23-13
	15. Describe who has responsibility for processing WIPP Forms, approving Corrective Action Plans, and approving closure of WIPP Forms.	10-23-13
	16. Describe actions personnel may take when conditions adverse to quality are discovered.	10-23-13
CCP-QP-008	17. List the responsibilities of record generators.	10-23-13
	18. State the storage and control requirements for records.	10-23-13
	19. Explain the process and proper method to make corrections or revisions to records.	10-23-13
CCP-QP-010	20. State the importance of using approved documents.	10-23-13
	21. State when to verify a document revision.	10-23-13
CCP-QP-016	22. List the Measuring & Testing Equipment (M&TE) items used during VE.	10-23-13
CCP-TP-500/ CCP-VE-101 Briefing	23. Explain the purpose of VE and the roles and responsibilities of the VE Operator.	10-23-13
	24. Identify who is responsible for overall direction and implementation of the VE of that facility.	10-23-13
	25. Define the two phases of VE technique for remote-handled waste.	10-23-13
	26. State the number of waste containers allowed per Batch Data Report (BDR).	10-23-13
	27. Define "layers of confinement."	10-23-13
	28. State the authorized methods to close a liner bag.	10-23-13
	29. State the action to be taken if a condition adverse to quality arises.	10-23-13
	30. State the waste material parameters (WMP).	10-23-13
	31. Describe the information that should be recorded when describing waste items.	10-23-13
	32. State five (5) examples of prohibited items.	10-23-13

Visual Examination (VE)
Operator/Independent Technical Reviewer (ITR)
for Remote-Handled (RH) Waste
Qualification Card

Name: Chuck Wallace

	33. Describe how a non-transparent container is handled when liquid is suspected.			[signature] 10-23-13
	34. State the acceptable liquid limits in a characterized container.			[signature] 10-23-13
	35. Explain the responsibilities and functions of the Independent Technical Review (ITR).			[signature] 10-23-13
	36. Define layers of confinement.			[signature] 10-23-13
	37. Describe how to determine Volume Utilization Percentage (VUP).			[signature] 10-23-13
	38. State the allowable fill percent increments.			[signature] 10-23-13
Formal Training	**OJT Practical Requirements[1]** *(This section must be completed for Operator of a Field ... [illegible])*			**VE SME/OJT Signature/Date**
CCP-TP-500	1. Prepare the recording equipment. *(This activity is at the discretion of the SME instructor)*	P	S	N/A [signature] 11-14-13
	2. Complete CCP-TP-500 Attachment 1.	(P)	S	[signature] 11-14-13
	3. Prepare a BDR.	(P)	S	[signature] 11-14-13
	4. Determine the VUP.	(P)	S	[signature] 11-14-13
	5. Complete an ITR.	(P)	S	[signature] 11-14-13
	6. Determine Waste Material Parameter (WMP).	(P)	S	[signature] 11-14-13
	7. Verify the physical form of the waste matches the waste stream ID.	(P)	S	[signature] 11-14-13
CCP-TP-513	8. Perform a dimensional or gravimetric measurement and determine the measurement acceptability[2].	P	S	N/A [signature] 11-14-13

[1] For simulated steps that involve the recording of information, the steps can be satisfied by the trainee's ability to identify the specific location in the correct record form where actual data would be entered, and explain where the information would be obtained. All required calculations will actually be performed: for simulations, representative data will be used in lieu of actual data. Circle "P" if actually performed or "S" if requirement was simulated.

[2] Procedure CCP-TP-513 is not applicable at all sites. The OJT Practical Requirement for this procedure is only required if the procedure is invoked.

[redacted]

[redacted]

I have completed formal training and received OJT for this position. I fully understand my responsibilities as a RH VE Operator/ITR.	Chuck Wallace 11-14-13 Trainee *(printed name and signature)* Date
I have monitored the training of this individual and believe they are ready to perform the duties of a RH VE Operator/ITR. *(Validation by the RH VEE SME/OJT instructor(s) involved in the training of this individual).*	Anthony Hadley 11-14-13 RH VEE SME/OJT Instructor *(printed name and signature)* Date NA RH VEE SME/OJT Instructor *(printed name and signature)* Date
I approve this employee to perform the duties of a RH VE Operator/ITR.	Richard Kantrowitz 11/18/13 SPM *(printed name and signature)* Date

Approved for Content & Format:	**Wes Root *(Approval on File)***	**10/07/2013**
	SME/OJT	Date
Approved for Applicability, Content & Format:	**Andrew Stallings *(Approval on File)***	**10/07/2013**
	Cognizant Engineer	Date
Approved for Content:	**Irene Joo *(Approval on File)***	**10/07/2013**
	SPM	Date
Approved for Applicability, Content, Format, & Use:	**A.J. Fisher *(Approval on File)***	**10/07/2013**
	Manager Responsible for Training	Date

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Central Characterization Project
Non-Destructive Examination (NDE)
List of Applicable Waste Streams Qualified

Name: Anthony Harley **Site:** ORNL

Applicable Waste Streams: *(based on applicable Acceptable Knowledge Reports read)*
For use with Initial and Additional Sites. (To be completed for each site the trainee is qualifying)

CCP-AK-ORNL-500 rev. 2	– OR-REDC-RH-HET	

10/A 10/10/13

I have read the applicable Acceptable Knowledge Reports for this site. I understand my responsibilities regarding the waste streams listed above.

Trainee *(printed name and signature)* — Date 10/10/13

I approve this employee to perform NDE duties with the above waste streams.

Irene Joo Irene Joo 10/10/13
Site Project Manager *(printed name and signature)* Date

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Central Characterization Project
Non-Destructive Examination (NDE)
List of Applicable Waste Streams Qualified

Name: Anthony Harley **Site:** ORNL

Applicable Waste Streams: *(based on applicable Acceptable Knowledge Reports read)*
For use with Initial and Additional Sites. (To be completed for each site the trainee is qualifying)

CCP-AK-ORNL-500 rev. 2	– OR-REDC-RH-HET	

10/A 10/10/13

I have read the applicable Acceptable Knowledge Reports for this site. I understand my responsibilities regarding the waste streams listed above.

Trainee *(printed name and signature)* — Date 10/10/13

I approve this employee to perform NDE duties with the above waste streams.

Irene Joo — Date 10/10/13

Site Project Manager *(printed name and signature)*

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Central Characterization Project
Non-Destructive Examination (NDE)
List of Applicable Waste Streams Qualified

Name: Chuck Wallace	**Site:** ORNL

Applicable Waste Streams: ***(based on applicable Acceptable Knowledge Reports read)***
For use with Initial and Additional Sites. (To be completed for each site the trainee is qualifying)

OR-REDC-RH-HET	Waste stream OR-REDC-RH-HET	
	N/A CJ 10/22/13	

I have read the applicable Acceptable Knowledge Reports for this site. I understand my responsibilities regarding the waste streams listed above.

Chuck Wallace, Chuck Wallace 10/22/13
Trainee *(printed name and signature)* Date

I approve this employee to perform NDE duties with the above waste streams.

Irene Tso Irene Tso 10/22/13
Site Project Manager *(printed name and signature)* Date

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Central Characterization Project
Non-Destructive Examination (NDE)
List of Applicable Waste Streams Qualified

Name: JASON Cofer **Site:** ORNL

Applicable Waste Streams: *(based on applicable Acceptable Knowledge Reports read)*
For use with Initial and Additional Sites. (To be completed for each site the trainee is qualifying)

OR-REDC-RH-HET Waste Stream	OR-REDC-RH-HET	
	W/A J 10/22/13	

I have read the applicable Acceptable Knowledge Reports for this site. I understand my responsibilities regarding the waste streams listed above.

Jason Cofer Jason E Cofer 10-22-13
Trainee *(printed name and signature)* Date

I approve this employee to perform NDE duties with the above waste streams.

Irene Joo Irene Joo 10/22/13
Site Project Manager *(printed name and signature)* Date

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Armijo, Cheryl - Stoller

From: Joo, Irene - NWP
Sent: Friday, October 11, 2013 10:07 AM
To: Billett, Michele - Stoller; Armijo, Cheryl - Stoller
Subject: VEE appointment Anthony Harley - RH ORNL

Mr. Anthony Harley is appointed as the Visual Examination Expert (VEE) for the CCP ORNL RH project at the TWPC Process Building. Mr. Harley has served as a Visual Examination Operator at multiple host sites processing RH waste since 2009. Mr. Harley's experience of four years performing Visual Examination on various RH waste streams provides the experience and qualification to perform the VEE duties at ORNL TWPC facility.

Please place a copy of this email in the applicable training records.

Thank you,

Irene Joo

RH PM

Nuclear Waste Partnership LLC

Contractor for U.S. Department of Energy Contractor to the Department of Energy

(720)982-7174

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TABLE OF AUDITED DOCUMENTS

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NUMBER	PROCEDURE NUMBER	REV	PROCEDURE TITLE
1.	CCP-PO-001	21	CCP Transuranic Waste Characterization Quality Assurance Project Plan
2.	CCP-PO-002	27	CCP Transuranic Waste Certification Plan
3.	CCP-QP-002	35	CCP Training and Qualification Plan
4.	CCP-QP-005	23	CCP TRU Nonconforming Item Reporting and Control
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8.	CCP-TP-001	21	CCP Project Level Data Validation and Verification
9.	CCP-TP-002	26	CCP Reconciliation of DQOs and Reporting Characterization Data
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11.	CCP-TP-028	8	CCP Radiographic Test Drum and Training Container Construction
12.	CCP-TP-030	33	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
13.	CCP-TP-033	20	CCP Shipping of CH TRU Waste
14.	CCP-TP-053	14	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
15.	CCP-TP-068	11	CCP Standardized Container Management
16.	CCP-TP-164	0	CCP Real-Time Radiography #7 Operating Procedure
17.	CCP-TP-165	3	CCP Real-Time Radiography #6 Operating Procedure
18.	CCP-TP-500	13	CCP Remote-Handled Waste Visual Examination
19.	CCP-TP-506	4	CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report
20.	CCP-TP-507	8	CCP Shipping of Remote-Handled Transuranic Waste
21.	CCP-TP-530	11	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
22.	WP 13-QA.03	22	Quality Assurance Independent Assessment Program

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Effective Date: MAY 3 1 2013

CCP-PO-001
Revision 21

CCP Transuranic Waste Characterization Quality Assurance Project Plan

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RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
3	01/14/2002	Added Tables B-9, B-10, and B-11; Revised the CCP Organization Chart, Figure A-1; and made numerous editorial corrections.
4	05/31/2002	Revised the CCP Organization Chart, Figure A-1 and added 3 new positions in the responsibilities Section A-4; corrected an error in Table B3-1; revised Section B4-2; revised Sections B3-10, B3-12,B-4, and subsections, and revised Tables B3-11, B3-12, and B3-13 to reflect the current WAP.
5	02/05/2003	Revised the CCP Organization Chart, Figure A-1 and section A-4c to update to the Vice President of National TRU Program Division title. Changes made to implement the Drum Age Criteria (DAC) permit Modification.
6	06/11/2003	Updated to Revision 5 of the QAPD.
7	01/08/2004	Added procedures to Table B-9 and Table B-11.
8	03/15/2004	Added procedures to Table B-9, Table B-10 and Table B-11. Modified Site Project Quality Assurance Officer description and CCP Organization chart. Updated Table B1-2, Table B3-3, Section B3-5 to reflect the WAP. Updated Table B3-6, Table B4, Table B1-4, Section B-3a(2), B-3d(1)(a), Table B-1, and Table B-8 to delete PCBs. Section B-1c, 6th bullet revised to reflect the language of the WAP.
9	01/14/05	Revised to add procedures to Table B-9, Table B-10, and Table B-11. Incorporated CBFO DRR comments.
10	02/24/05	Revised to add procedure to table B-11, to incorporate LANL Off-Site Recovery Program Project Scope.
11	03/10/2005	Revised to add procedures to Section B1-2a and Table B-11. Added new table, Table B-9A, Solids Sampling Procedures Used by CCP.
12	03/22/2006	Revised procedures tables, Added new Table B-9, Listing of Permitted hazardous waste numbers and updated responsibilities.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
13	11/16/2006	Revised to implement changes to the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/RH PMR.
14	03/28/2007	Revised procedure tables to add references to sections implemented by the procedure, and to align the wording of Section B7-2 with the wording in the permit.
15	08/10/2007	Revised to remove Visual Examination (VE) Expert decisions and signature and date from Table B3-11, Testing Batch Data Report Contents. Added the Idaho National Laboratory (INL) procedures to Attachment 1, Implementing Procedures.
16	10/31/2007	Revised to incorporate statistical terminology and text changes included in September 2007 Class 1 Permit Notifications and update Attachment 1, Implementing Procedures.
17	06/23/2009	Updated to agree with the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit Class 1 Modification dated July 2008.
18	06/30/2010	Revised to incorporate modifications to the Hazardous Waste Facility Permit. To make editorial changes that are needed and to change the Waste Isolation Pilot Plant (WIPP), Waste Information System (WWIS) to WWIS/Waste Data System (WDS).
19	12/29/2010	Revised to include changes from Permit Renewal.
20	06/16/2011	Revised to incorporate Class 2 Permit Modification (Transuranic Package Transporter Model III and Standard Large Box 2).
21	05/31/2013	Revised to clarify hierarchy of documents, adding Nuclear Waste Partnership (NWP) LLC, 13-1, *Quality Assurance Program Description*, also revised due to the Class 2 permit modification request (PMR) to the Waste Isolation Pilot Plant (WIPP) Permit, and made other administrative changes as needed.

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A INTRODUCTION

The Central Characterization Program (CCP) is tasked with characterizing and certifying transuranic (TRU) waste for disposal at the Waste Isolation Pilot Plant (WIPP). Characterization consists of acceptable knowledge (AK), radiography and visual examination (VE). This work is conducted in accordance with the Nuclear Waste Partnership, LLC (NWP), *Quality Assurance Program Description* (QAPD) and this Quality Assurance Project Plan (QAPjP).

This QAPjP describes how waste characterization and certification by the CCP comply with NM 4890139088-TSDF, *Waste Isolation Pilot Plant Hazardous Waste Facility Permit* (HWFP), Attachment C - C6, *Waste Analysis Plan* (WAP) (New Mexico Environment Department [NMED]) and WP 13-1, the NWP QAPD. The format of this QAPjP parallels that of the WAP.

NOTE

Throughout this document, there are references to procedures that implement the requirements. These references appear as a letter and one to three digits in parenthesis where the requirement is stated. Document users should then be able to refer to Attachment 1, Implementing Procedures, where these references list the procedure number and title.

A-1 Background

The WAP is organized such that it specifies that the generator/storage sites (hereinafter referred to as “sites”) conduct their own TRU waste characterization and certification, including their own data generation level and project level data validation and verification. However, some sites (typically small quantity sites) do not have the resources necessary to characterize and certify their TRU waste. Additionally, other sites have expressed interest in using subcontractors to augment their existing capabilities. The CCP was established to assist these sites as well as to provide cost-effective TRU waste characterization, confirmation, and certification, including data generation level and project level data validation and verification.

The CCP may provide its services to a site by contracting directly with that site. If this is the case, the scope of services provided by CCP are specified in a Statement of Work (SOW) issued by the site. The SOW also specifies health and safety requirements, quality requirements, and other requirements specific to that site. A site-specific interface document may also be prepared which provides more detail on the site-CCP interface.

The site has general management oversight responsibility for work performed by the CCP at the site. The site is responsible for ensuring that CCP conducts its activities in compliance with site requirements.

A-2 Scope

This QAPjP specifies quality requirements, management activities, and procedures necessary to meet the specific data quality objectives (DQOs) for TRU waste characterization as defined in the WAP and QAPD. Only TRU waste that has been characterized and certified in accordance with the WAP is shipped to the WIPP facility. TRU waste characterization and certification activities conducted by the CCP are performed in accordance with the requirements and implementing procedures identified in this QAPjP. In some cases, some characterization or certification activities are shared between the CCP and the Host site. The applicable implementing site documentation is specified in a SOW and supplemented by a site interface document, if required.

This QAPjP meets WAP characterization and certification requirements for contact-handled (CH) and remote-handled (RH) TRU waste. As used in this document, the term TRU waste includes TRU and TRU-mixed wastes. The term “characterization” is used where applicable to indicate the entire characterization process. Additionally, the WAP allows waste streams to be divided into waste stream lots. Therefore, the term waste stream may be used to indicate waste stream lots.

B PROJECT DESCRIPTION

Consistent with requirements in the WAP, CCP uses AK to initially characterize TRU waste. Section C4 of this QAPjP outlines the process used to characterize TRU waste using AK. AK documentation provides the basis for identifying the TRU waste eligible for WIPP disposal. The characterization process is based on the following:

- Waste considered for characterization is defense-related and has a TRU alpha activity greater than 100 nanocuries (nCi) per gram (g)
- Resource Conservation and Recovery Act (RCRA) hazardous waste determinations are made initially using AK for TRU waste streams

AK information for each waste stream is compiled in AK reports and supporting documentation. Based on AK, waste streams are delineated according to Summary Category Group, and waste matrix codes are assigned to each waste stream.

The CCP evaluates the characterization necessary to certify a particular waste stream. If additional characterization is needed to supplement site capabilities, the CCP uses mobile characterization facilities to perform characterization activities. Mobile characterization support is provided in accordance with this QAPjP. The CCP has the option to use data or transportation services from established TRU waste characterization activities at a U.S. Department of Energy (DOE)-Carlsbad Field Office (CBFO)-certified site.

B-1 Central Characterization Program Organization and Responsibilities

The CCP organization is shown in Figure B-1, CCP Organization, and responsibilities are described in the following sections. Figure B-1 includes generic CCP positions. More specific positions are described in the SOW or site interface plan.

B-2 Central Characterization Program (CCP) Manager

The CCP Manager is responsible for the day-to-day management and direction of CCP activities related to the characterization, certification, transportation, and disposal of TRU waste for DOE-CBFO. The CCP Manager is responsible for the following:

- Ensuring successful CCP/site interface
- Ensuring CCP plans and operations are coordinated, integrated, and consistent with DOE-CBFO programs, policies, and guidance
- Coordinating CCP activities and functioning as principal point of contact with DOE-CBFO and other regulating agencies
- Reviewing and approving this QAPjP

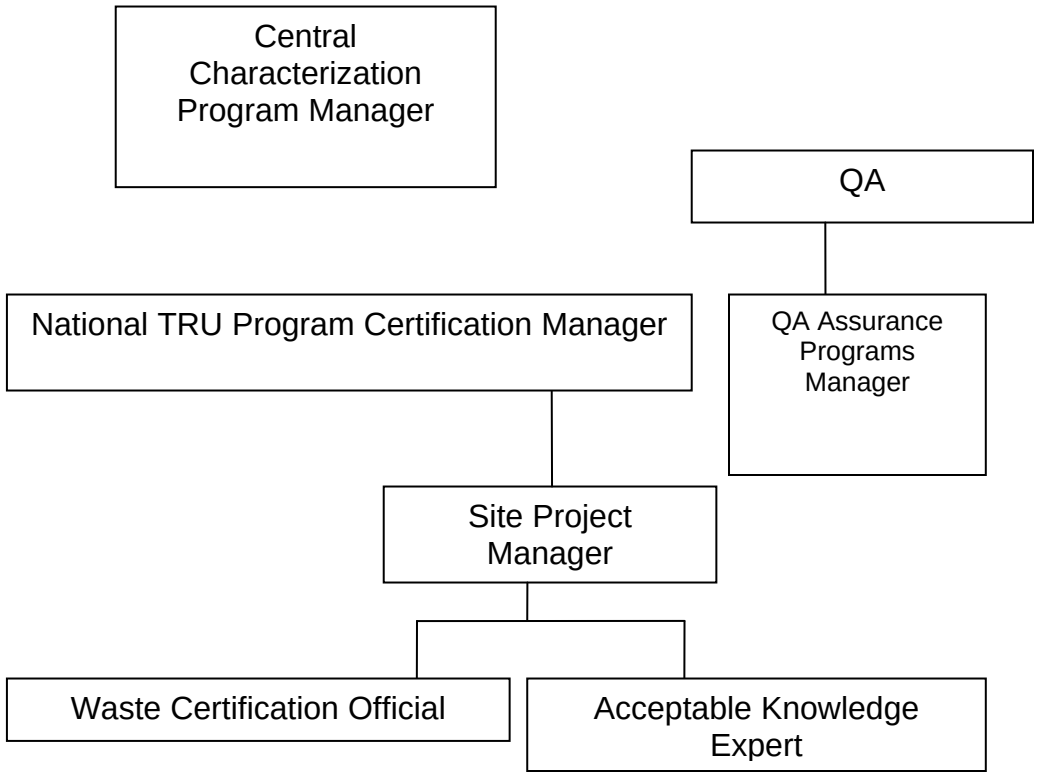
B-3 Site Project Manager

The Site Project Manager (SPM) oversees TRU waste characterization and certification activities and is responsible for the following:

- Developing, maintaining, reviewing, approving, and implementing CCP procedures and plans
- Scheduling revisions and distribution of CCP procedures and plans and forwarding these documents (if significantly revised) to DOE-CBFO for review and approval before implementation
- Reviewing and approving site interface documents (if used)
- Participating in internal audits and assessments
- Assisting Quality Assurance (QA) in developing project assessment criteria and responses to deficiency reports
- Halting characterization or certification activities if problems affecting the quality of the certification or work processes exist

- Ensuring CCP personnel receive appropriate training and orientation and maintain proficiency in work assignments
- Evaluating AK reports
- Reconciling AK information with characterization data
- Reconciling verified data with DQOs
- Ensuring that conditions adverse to quality are resolved and that corrective actions are implemented in a timely manner
- Preparing and submitting SPM Data Validation Summaries, Waste Stream Profile Forms (WSPFs), Characterization Information Summaries, and Waste Stream Characterization Packages (if requested by DOE-CBFO)
- Reviewing semi-annual QA/Quality Control (QC) summary reports and forwarding them and comments to the DOE-CBFO

Figure B-1. CCP Organization



C WASTE ANALYSIS PLAN

C-0 Introduction and Attachment Highlights

This QAPjP has been prepared for waste characterization activities to be conducted to meet requirements set forth in 20.4.1.500 New Mexico Administrative Code (NMAC) (incorporating 40 Code of Federal Regulation [CFR] §264.13) for waste disposal at the WIPP. This QAPjP includes test methods for complying with the general waste analysis requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.13), and a description of the QA/QC program. Before the CCP offers waste for shipment to the WIPP, the CCP implements the applicable requirements of this QAPjP.

TRU waste contains TRU radioactive components and may contain hazardous components, as defined in the New Mexico Hazardous Waste Act (HWA) and 20.4.1.200 NMAC (incorporating 40 CFR, §268.35. TRU waste is designated and separately packaged as either CH or RH, based on the radiological dose rate at the surface of the waste container.

The hazardous components of the TRU waste to be managed at the WIPP facility are designated in Table C-5, Listing of Permitted Hazardous Waste Numbers. Some of the waste is also identified by unique state hazardous waste numbers and is certified by the CCP if it meets the conditions of the WIPP Hazardous Waste Permit, Part 2, Table 2.3.4. This document describes the measures that will be taken to ensure that the TRU mixed wastes received at the WIPP facility are within the scope of Table C-5 as established by 20.4.1.500 NMAC (incorporating 40 CFR §264), and that they comply with unit-specific requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.600), Miscellaneous Units.

The CCP has developed this QAPjP to comply with the requirements of the WAP for characterizing CH TRU wastes. The hazardous components of the TRU waste disposed at the WIPP facility are described on a WSPF for each waste stream (T2). TRU waste that may be certified by the CCP are generated at DOE facilities by defense activities, including the following:

- Production of nuclear products
- Plutonium recovery
- Research and development
- Decontamination and decommissioning

Some TRU waste is retrievably stored at the DOE sites. Additional TRU waste is generated and packaged into containers at these sites. Retrievably stored waste is defined as TRU waste generated after 1970 and before NMED notifies the Permittees, by approval of the final audit report, that the characterization requirements of the WAP

at a site have been implemented. Newly-generated waste is defined as TRU waste generated after NMED approves the final audit report for a site. Waste characterization of retrievably stored TRU waste is performed on an ongoing basis, as the waste is retrieved. AK information is assembled for both the retrievably stored and newly generated waste. Waste characterization of newly generated TRU waste is performed as it is generated, although some characterization occurs post-generation.

Waste characterization is defined in Part 1 as the activities performed by the waste generator to satisfy the general waste analysis requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.13[a]) before waste containers have been certified for disposal at WIPP. The characterization process for WIPP waste is presented in Figure C-2, Waste Characterization Process. CCP waste characterization programs are first audited by DOE, with the NMED approving the final audit report. After this, CCP determines whether AK alone is sufficient for characterization, or whether a radiography or VE in conjunction with AK is necessary to adequately characterize wastes. If an AK Sufficiency Determination is sought, information is provided to the Permittees for their review and DOE's provisional approval; NMED determination of adequacy of the AK information is required before final approval by DOE. If the radiography or VE route is chosen, sites proceed to perform radiography or VE in conjunction with AK and in accordance with this QAPjP. Once an AK Sufficiency Determination is obtained, or when required radiography or VE data are obtained, sites would then prepare and submit the WSPF for DOE's approval. Once the WSPF is approved, CCP may ship waste to WIPP. The Permittees will perform waste confirmation prior to shipment of the waste from the generator/storage site to WIPP pursuant to Section C7, performing radiography or VE of a representative subpopulation of certified waste containers, to ensure that the wastes meet the applicable requirements of the *Treatment, Storage, and Disposal Facility Waste Acceptance Criteria* (TSDF-WAC).

C-0a Waste Characterization

Characterization requirements for individual containers of TRU waste are specified on a waste stream basis. The WAP defines a waste stream as waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. Waste streams are grouped by waste matrix code groups related to the physical and chemical properties of the waste (DOE 1995b). The CCP uses the characterization techniques described in this QAPjP to assign the appropriate waste matrix code groups to waste streams for WIPP disposal. The waste matrix code groups are solidified inorganics, solidified organics, salt waste, soils, lead/cadmium metal, inorganic nonmetal waste, combustible waste, graphite, filters, heterogeneous debris waste, and uncategorized metal. Waste matrix code groups are grouped into three Summary Category Groups: Homogeneous Solids (Summary Category Group S3000), Soil/Gravel (Summary Category Group S4000), and Debris Waste (Summary Category Group S5000).

TRU wastes are initially categorized into the three broad Summary Category Groups that are related to the final physical form of the wastes. This categorization is based on the Summary Category Group constituting the greatest volume of waste for a waste stream. Waste characterization requirements for these groups are specified in Section C-2. Each of the three groups is described below.

S3000 - Homogeneous Solids

Homogeneous solids, are defined as solid materials, excluding soil, that do not meet the NMED criteria for classification as debris (20.4.1.800 NMAC [incorporating 40 CFR §268.2(g) and (h)]). Included in the series of homogeneous solids are inorganic process residues, inorganic sludges, salt waste, and pyrochemical salt waste. Other waste streams are included in this Summary Category Group based on the specific waste stream types and final waste form. This Summary Category Group is expected to contain toxic metals and spent solvents. This category includes wastes that are at least 50 percent by volume homogeneous solids.

S4000 - Soils/Gravel

This Summary Category Group includes S4000 waste streams that are at least 50 percent by volume soil/gravel. This Summary Category Group is expected to contain toxic metals.

S5000 - Debris Wastes

This Summary Category Group includes heterogenous waste that is at least 50 percent by volume materials that meet the criteria specified in 20.4.1.800 NMAC (incorporating 40 CFR §268.2 [g]). Debris means solid material exceeding a 2.36 inch (in.) (60 millimeter [mm]) particle size that is intended for disposal and that is:

1. a manufactured object, or

2. plant or animal matter, or

3. natural geologic material.

Particles smaller than 2.36 inches in size may be considered debris if the debris is a manufactured object and if it is not a particle of S3000 or S4000 material.

The most common hazardous constituents in the TRU waste to be managed in the WIPP facility consist of the following:

Metals

Some of the TRU waste to be emplaced in the WIPP facility contains metals for which 20.4.1.200 NMAC (incorporating 40 CFR §261.24), toxicity characteristics were established (EPA Hazardous Waste Numbers D004 through D011). Cadmium, chromium, lead, mercury, selenium, and silver are present in discarded tools and equipment, solidified sludges, cemented laboratory liquids, and waste from decontamination and decommissioning activities. A large percentage of the waste consists of lead-lined gloveboxes, leaded rubber gloves and aprons, lead bricks and piping, lead tape, and other lead items. Lead, because of its radiation-shielding applications, is the most prevalent toxicity-characteristic metal present.

Halogenated Volatile Organic Compounds

Some of the TRU waste to be emplaced in the WIPP facility contains spent halogenated volatile organic compound (VOC) solvents identified in 20.4.1.200 NMAC (incorporating 40 CFR §261.31) (EPA Hazardous Waste Numbers F001 through F005). Tetrachloroethylene; trichloroethylene; methylene chloride; carbon tetrachloride; 1,1,1-trichloroethane; and 1,2-trichloro-1,2,2,-trifluoroethane (EPA Hazardous Waste Numbers F001 and F002) are the most prevalent halogenated organic compounds identified in TRU waste that may be managed at the WIPP facility during the Disposal Phase. These compounds are commonly used to clean metal surfaces prior to plating, polishing, or fabrication; to dissolve other compounds; or as coolants. Because they are highly volatile, only small amounts typically remain on equipment after cleaning or, in the case of treated waste waters, in the sludges after clarification and flocculation. Radiolysis may also generate halogenated volatile organic compounds.

Nonhalogenated Volatile Organic Compounds

Xylene, methanol, and n-butanol are the most prevalent nonhalogenated VOCs in TRU waste that may be managed at the WIPP facility during the Disposal Phase. Like the halogenated VOCs, they are used as degreasers and solvents and are similarly volatile. The same analytical methods that are used for halogenated VOCs are used to detect the presence of nonhalogenated VOCs. Radiolysis may also generate non-halogenated volatile organic compounds.

The CCP will characterize waste in accordance with this QAPjP, and ensure that waste proposed for storage and disposal at WIPP meets the applicable requirements of the

TSDF-WAC in Part 2. The CCP will assemble the AK information in an auditable record[1] for the waste stream as described in Section C4. For those waste streams with an approved AK Sufficiency Determination (see below), radiography or VE per the methods described in Section C1 are not required.

All waste characterization activities specified in this QAPjP and associated attachments shall be carried out at generator/storage sites and DOE approved laboratories in accordance with this QAPjP. The DOE will audit the CCP waste characterization programs and activities as described in Section C-3. Waste characterization activities at the generator/storage sites include the following, although not all these techniques will be used on each container, as discussed in Section C-3:

- Radiography, an x-ray technique used to determine the physical contents of containers.
- VE of the contents of opened containers as an alternative way to determine their physical contents.
- Compilation of AK documentation into an auditable record.

C-0b AK Sufficiency Determination

CCP may submit a request to the Permittees for an AK Sufficiency Determination (Determination Request) to be exempt from the requirement to perform radiography or VE based on AK(T5). The contents of the Determination Request are specified in Section C4-3d.

The Permittees shall evaluate the Determination Request for completeness and technical adequacy. This evaluation shall include, but not be limited to whether the Determination Request is technically sufficient for the following:

[1]"Auditable records" means those records which allow the Permittees to conduct a systematic assessment, analysis, and evaluation of the Permittees' compliance with the WAP and the Permit.

- The Determination Request must include all information specified in Section C4-3d.
- The AK Summary must identify relevant hazardous constituents, and must correctly identify all toxicity characteristic and listed hazardous waste numbers.
- All hazardous waste number assignments must be substantiated by supporting data and, if not, whether this lack of substantiation comprises the interpretation.
- Resolution of data discrepancies between different AK sources must be technically correct and documented.
- The AK Summary must include all the identification of waste material parameter weights by percentage of the material in the waste stream, and determinations must be technically correct and substantiated by supporting information.
- All prohibited items specified in the TSDF-WAC should be addressed and conclusions drawn and must be substantiated by supporting information.
- If the AK record includes process control information specified in Section C4-3b, the information should include procedures, waste manifests, or other documentation demonstrating that the controls were adequate and sufficient.
- The site must provide the supporting information necessary to substantiate technical conclusions with the Determination Request, and this information must be correctly interpreted.

The Permittees will review the Determination Request for technical adequacy and compliance with the requirements of the Permit, using trained and qualified individuals in accordance with standard operating procedures that shall, at a minimum, address all of the technical and procedural requirements listed above. The Permittees shall resolve comments with the CCP.

If DOE determines that the AK is sufficient, it shall inform the public of the Determination Request, the Permittees' evaluation of it, and the date and time of a public meeting to provide information to and solicit comments from interested members of the public regarding the Determination Request. Notice of the meeting and comment period shall be provided by the following methods:

1. Written notice to all individuals on the facility mailing list;
2. Public notice in area newspapers, including the Carlsbad Current-Argus, Albuquerque Journal, and Santa Fe New Mexican;

3. Notice on the WIPP Home Page;

4. E-mail notification as specified In Permit Section 1.11.

DOE shall take written comment on the Determination Request for at least 30 days following the public meeting. DOE shall compile all such comments, including any disagreement between the DOE and commenters.

If DOE provisionally approves the Determination Request, it may forward it along with all relevant information submitted with the Determination Request to NMED for an evaluation that the provisional approval made by the DOE is adequate. DOE shall also provide to NMED, as a separate appendix to the Determination Request, the compilation of all comments and DOE's response to each comment. After submitting a Determination Request to NMED, the Permittees will post a link to the transmittal letter to NMED on the WIPP Home Page and inform those on the e-mail notification list as specified in Permit Section 1.11. Based on the results of NMED's evaluation, the Permittees will notify the CCP whether the AK information is sufficient and the Determination Request is approved. The DOE will not approve a Determination Request that NMED has determined to be inadequate unless the CCP resolves the inadequacies and provides the resolution to NMED for evaluation of adequacy. Should the inadequacies not be resolved to NMED's satisfaction, the DOE shall not submit a Determination Request for the same waste stream at a later date. DOE shall not submit a Determination Request, if a previous Determination Request is pending evaluation by NMED.

In the event the DOE disagrees, in whole or in part, with an evaluation performed by NMED resulting in a determination by NMED that the DOE's provisional approval for a particular waste stream is inadequate, the DOE may seek dispute resolution. The dispute resolution process is specified in Part 1. The Secretary's final decision under Permit Section 1.16.4 shall constitute a final agency action.

By July 1 of each year, the Permittees shall submit to NMED a list of waste streams the Permittees may submit for an AK Sufficiency Determination during the upcoming federal fiscal year. The Permittees will post a link to the transmittal letter to NMED and announce a public meeting to discuss the list with interested members of the public on the WIPP Home Page and inform those on the e-mail notification list as specified in Permit Section 1.11.

If the CCP does not submit a Determination Request, or if the DOE does not approve a Determination Request, or if NMED finds that the DOE's provisional approval of a Determination Request is inadequate, the CCP shall perform radiography or VE on 100 percent of the containers in a waste stream.

If the CCP submits a Determination Request, the DOE provisionally approves the Determination Request and NMED finds that the DOE's provisional approval is adequate, neither radiography nor VE of the waste stream is required.

C-0c Waste Stream Profile Form Completion

After a complete AK record has been compiled and either a Determination Request has been approved by the DOE or the CCP has completed the applicable representative testing requirements specified in Section C1, the CCP will complete a WSPF and Characterization Information Summary (CIS) (T2). The requirements for the completion of a WSPF and a CIS are specified in Sections C3-6b(1) and C3-6b(2) respectively.

The WSPF and the CIS for the waste stream resulting from waste characterization activities are transmitted to the Permittees, who shall review them for completeness, and screen them for acceptance before the CCP proceeds with payload assembly of TRU waste into the CH or RH Packaging. The review and approval process will ensure that the submitted waste analysis information is sufficient to meet the DQOs for AK in Section C-4a(1) and allow the Permittees to demonstrate compliance with the requirements of the WIPP-WAP. Only TRU waste that meets the characterization requirements of the WAP is certified by the CCP. Only waste certified to meet the TSDF-WAC, specified in the WAP, is accepted at the WIPP facility for disposal in the permitted Underground Hazardous Waste Disposal Unit (HWDU). DOE will approve and provide NMED with copies of the approved WSPF and accompanying CIS prior to waste stream shipment. Upon notification of DOE's approval of the WSPF, the CCP may be authorized to ship waste to WIPP.

In the event that the Permittees request detailed information on a waste stream, the CCP provides a Waste Stream Characterization Package, as described in Section C3-6b(3). For each waste stream, this package will include the WSPF, the CIS, and the AK summary. The Waste Stream Characterization Package will also include specific Batch Data Reports (BDRs), and raw data associated with waste container characterization as requested by the Permittees.

C-0d Waste Confirmation

The Permittees will perform waste confirmation on a representative subpopulation of each waste stream shipment after certification and prior to shipment pursuant to Section C7. The Permittees will use radiography, review of radiography audio/video recordings, VE, or review of VE records (e.g., VE data sheets or packaging logs) to examine at least 7 percent of each waste stream shipment to confirm that the waste does not contain ignitable, corrosive, or reactive waste. Waste confirmation will be performed by the Permittees prior to shipment of the waste from the generator/storage site to WIPP.

C-1 Identification of TRU Waste to be Managed at the WIPP Facility

C-1a Waste Stream Identification

TRU waste destined for disposal at WIPP is characterized on a waste stream basis. The waste streams are delineated using AK. Required AK is specified in Section C-3a and Section C-4 of this QAPjP.

C-1b Waste Summary Category Groups and Hazardous Waste Accepted at the WIPP Facility

Once a waste stream is delineated, a waste matrix code is assigned to the waste stream based on its physical form. Waste streams are then assigned to one of the Summary Category Groups; S3000-Homogeneous Solids, S4000-Soils/Gravel, and S5000-Debris Wastes. These Summary Category Groups are then used to determine further characterization requirements.

The CCP considers only those TRU waste streams that are assigned EPA hazardous waste numbers listed in Table C-5. Waste identified by unique state hazardous waste numbers is acceptable at WIPP provided they meet the requirements of the TSDF-WAC. The CCP performs characterization of all waste streams as required by the WAP. If during the characterization process, new hazardous waste numbers are identified, those wastes are prohibited for disposal at the WIPP facility until a permit modification has been submitted and approved by NMED.

C-1c Waste Prohibited at the WIPP Facility

The following TRU wastes are prohibited for disposal at the WIPP facility:

- Liquid waste is not acceptable at WIPP. Liquid in the quantities delineated below is acceptable.
  - Observable liquid shall be no more than 1 percent by volume of the outermost container at the time of radiography or visual examination
  - Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited
  - Containers with hazardous waste number U134 assigned shall have no observable liquid
  - Overpacking the outermost container that was examined during radiography or VE or redistributing untreated liquid within the container shall not be used to meet the volume limits

- Non-radionuclide pyrophoric materials, such as elemental potassium.
- Hazardous wastes not occurring as co-contaminants with TRU waste (non-mixed hazardous waste).
- Wastes incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes.
- Wastes containing explosives or compressed gases.
- Wastes with polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization.
- Wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (Hazardous Waste Numbers D001, D002, or D003).
- Any waste container from a waste stream (or waste stream lot) that has not undergone either radiographic or VE of a statistically representative subpopulation of the waste stream in each shipment, pursuant to Section C7.
- Any waste container from a waste stream which has not been preceded by an appropriate, certified WSPF (see Section C-1d).
- Waste that has ever been managed as high-level waste and waste from tanks specified in Table C-4, Waste Tanks Subject to Exclusion, unless specifically approved through a Class 3 permit modification.

Before accepting a container holding TRU waste, the Permittees will perform waste confirmation activities pursuant to Section C7 on each waste stream shipped to confirm that the waste does not contain ignitable, corrosive, or reactive waste and the assigned EPA hazardous waste numbers are allowed for storage and disposal by this QAPjP. Waste confirmation activities will be performed on at least 7 percent of each waste stream shipment. If a waste stream shipment contains fewer than 14 containers, one container will be examined to satisfy waste confirmation requirements. Section C-4 and Section C7 include descriptions of the waste confirmation processes that the Permittees will conduct prior to receiving a shipment at the WIPP facility.

Containers are vented through filters allowing any gases that are generated by radiolytic and microbial processes within a waste container to escape, thereby preventing over pressurization or development of conditions within the container that would lead to the formation of ignitable, corrosive, reactive, or other characteristic wastes. To ensure the integrity of the WIPP facility, waste streams identified to contain incompatible materials or materials incompatible with waste containers are not shipped to WIPP unless they are treated to remove the incompatibility. The CCP does not certify waste streams

identified to contain incompatible materials or materials incompatible with waste containers or backfill.

C-1d Control of Waste Acceptance

The CCP will provide a WSPF and CIS to the Permittee for each waste stream prior to shipment of the waste (T2). The WSPF and CIS elements are found in Section C3-6b(1) and Section C3-6b(2). The CCP will provide the WSPF to the Permittees for each waste stream prior to its acceptance for disposal at WIPP. The WSPF and the CIS will be transmitted to the Permittees for each waste stream. After WSPF submittal, if continued waste characterization activities reveal discrepancies that identify different hazardous waste numbers or indicate that the waste belongs to a different waste stream, the waste is redefined to a separate waste stream and a new WSPF is submitted.

The Permittees are responsible for the review of the WSPF and CISs to verify compliance with the restrictions on TRU wastes for WIPP disposal. Waste characterization data ensures the absence of prohibited items specified in Section C-1c. CCP determines by procedure the specific circumstances under which a WSPF is to be revised versus when a new WSPF is required.

The CCP provides a Waste Stream Characterization Package (as described in Section C3-6b(3)) to the Permittees upon request. The option for the Permittees to request additional information ensures that the waste being offered for disposal is adequately characterized and accurately described on the WSPF.

C-1e Waste Generating Processes at the WIPP Facility

Not applicable. This section applies to the Permittee.

C-2 Waste Characterization Program Requirements and Waste Characterization Parameters

The CCP has developed the procedures which specify the programmatic waste characterization requirements (Q10). DOE will evaluate the procedures during audits and as part of the review and approve of the WSPF.

CCP must notify the Permittees and obtain DOE approval prior to making data-affecting modifications to procedures (Q10). Program procedures shall address the following minimum elements:

- Waste characterization and certification procedures for retrievably stored and newly generated wastes to be sent to the WIPP facility.

- Methods used to ensure prohibited items are documented and managed. These will include procedures for performing radiography, VE, or treatment, if these methods are used to ensure prohibited items are not present in the waste prior to shipment of the waste to WIPP.

- Identify the organization(s) responsible for compliance with waste characterization and certification procedures.

- Identify the oversight procedures and frequency of actions to verify compliance with waste characterization and certification procedures.

- Develop training specific to waste characterization and certification procedures.

- Ensure that personnel may stop work if noncompliance with waste characterization or certification procedures is identified.

- Develop a nonconformance process that complies with the requirements in Section C3 to document and establish corrective actions.

- As part of the corrective action process, assess the potential time frame of the noncompliance, the potentially affected waste population(s), and the reassessment and recertification of those wastes.

- A listing of all approved hazardous waste numbers which are acceptable at WIPP are included in Table C-5.

For those waste streams or containers that are not amenable to radiography (e.g., RH TRU waste, direct loaded ten-drum overpacks [TDOPs]) for waste confirmation by the Permittees pursuant to Section C7, CCP VE data may be used for waste acceptance. In those cases, the Permittees will review the CCP VE procedures to ensure that data sufficient for the Permittees' waste acceptance activities pursuant to Section C7 will be obtained and the procedures meet the minimum requirements for VE specified in Section C1-1.

The following waste characterization parameters are obtained from the CCP prior to waste certification:

- Determination whether TRU waste streams comply with the applicable provisions of the TSDF-WAC.

- Determination whether TRU mixed wastes exhibit a hazardous characteristic (20.4.1.200 NMAC, incorporating 40 CFR §261 Subpart C).

- Determination whether TRU mixed wastes are listed (20.4.1.200 NMAC, incorporating 40 CFR §261 Subpart D).

- Estimation of waste material parameter weights.

Table C-1, Summary of Parameters, Characteristic Methods, and Rationale for Transuranic Mixed Waste, provides the parameters of interest for the constituent groupings and testing methodologies.

C-3 Generator Waste Characterization Methods

The characterization techniques used by the CCP include AK and may also include, as necessary, VE, and radiography. Characterization activities are performed in accordance with this QAPjP. Table C-1, Summary of Parameters, Characterization Methods, and Rationale for Transuranic Mixed Waste, provides a summary of the characterization requirements for TRU waste.

C-3a Acceptable Knowledge

AK is used in TRU waste characterization activities in five ways:

- To delineate TRU waste streams

- To assess whether TRU mixed wastes comply with the TSDF-WAC

- To assess whether TRU wastes exhibit a hazardous characteristic (New Mexico Hazardous Waste Management Regulations in 20.4.1.200 NMAC incorporating 40 CFR §261 Subpart C)

- To assess whether TRU wastes are listed (20.4.1.200 NMAC, incorporating 40 CFR §261 Subpart D)

- To estimate waste material parameter weights

AK is discussed in detail in Section C4, which outlines the minimum set of requirements and DQOs met by the CCP in order to use AK.

C-3b Radiography and Visual Examination

Radiography and VE are nondestructive qualitative and quantitative techniques used to identify and verify waste container contents as specified in Section C1. The CCP performs radiography or VE of 100 percent of CH-TRU waste containers in waste streams except for those waste streams for which the DOE approves a Determination Request. No RH-TRU waste will be shipped to WIPP for storage or disposal without

documentation of radiography or VE of 100 percent of the containers as specified in Section C1. VE consists of either observing the filling of waste containers or opening full containers and physically examining their contents. Radiography and/or VE are used, when necessary, to examine a waste container to verify the physical form of the waste matches its waste stream description as determined by AK. These techniques detect observable liquid in excess of TSDF-WAC limits and containerized gases which are prohibited for WIPP disposal. The prohibition of liquid in excess of TSDF-WAC limits and containerized gases prevents the shipment of corrosive, ignitable, or reactive wastes. Radiography and/or VE are also able to verify the physical form of the waste matches its waste stream description (i.e., Homogeneous Solids, Soil/Gravel, or Debris Waste [including uncategorized metals]).

If the physical form does not match the waste stream description, the waste is designated as another waste stream and assigned the preliminary hazardous waste numbers associated with that new waste stream assignment. That is, if radiography and/or VE indicate that the waste does not match the waste stream description produced by AK characterization, a nonconformance report (NCR) is completed and the inconsistency resolved as specified in Section C4 (Q5), and the NCR will be dispositioned as specified in Section C3-7. The proper waste stream assignment is determined (including preparation of a new WSPF), the correct hazardous waste numbers are assigned, and the resolution is documented. The AK verification process is discussed in Section C4.

If CCP uses VE, the detection of any liquid in non-transparent internal containers, detected from shaking the internal container, is handled by assuming that the internal container is filled with liquid and adding this volume to the total liquid in the container being characterized using VE. The container being characterized using VE is then repackaged or rejected to exclude the internal container if it does not meet the requirements of the TSDF-WAC. When radiography is used or VE of transparent containers is performed, if any liquid in internal containers is detected, the volume of liquid is added to the total for the container being characterized using radiography or VE. Radiography, or the equivalent, is used as necessary on the existing or stored waste containers to verify the physical characteristics of the TRU waste corresponding with its waste stream identification and waste matrix code and to identify prohibited items. Radiographic examination protocols and QA/QC methods are provided in Section C1. Radiography and VE shall be subject to the Audit and Surveillance Program.

C-4 Data Verification and Quality Assurance

The CCP ensures that its applicable waste characterization process performance for generator/storage sites sending TRU waste to the WIPP for disposal meets WAP requirements through data validation, verification, usability and reporting controls. Verification occurs at three levels: 1) the CCP data generation level, 2) the CCP project

level, which consists of verification and validation by the CCP to ensure that applicable WAP requirements are met and; 3) the Permittee level. The validation and verification process and requirements at each level are described in Section C3-4. The validation verification process at the Permittee Level is also described in C-5.

C-4a Data Generation and Project Level Verification Requirements

C-4a(1) Data Quality Objectives

The waste characterization data obtained through implementation of this QAPjP are used by the Permittees to ensure that the regulatory requirements of the WAP are met with regard to compliance and to ensure that TRU wastes are properly managed during the disposal phase.

To satisfy the RCRA regulatory compliance requirements, the following are DQOs established by the WAP and flowed down to this QAPjP (T2):

Acceptable Knowledge

- To delineate TRU waste streams.
- To assess whether TRU mixed wastes comply with the applicable requirements of the TSDF-WAC.
- To assess whether TRU mixed wastes exhibit a hazardous characteristic (20.4.1.200 NMAC, incorporating 40 CFR §261, Subpart C).
- To assess whether TRU mixed wastes are listed (20.4.1.200 NMAC, incorporating 40 CFR §261, Subpart D).
- To estimate waste material parameter weights.

Radiography and VE

- Verify the TRU mixed waste streams contain no prohibited items and to verify the physical form of the waste matches the waste stream description as to be determined by AK.

Reconciliation of these DQOs by the SPM as applicable, is addressed in Section C3-11. Reconciliation requires determining whether sufficient types, quality, and quantity of data have been collected to ensure that the DQOs cited above can be achieved.

C-4a(2) Quality Assurance Objectives

The CCP shall demonstrate compliance with each Quality Assurance Objective (QAO) associated with the characterization methods in Section C3. The SPM performs reconciliation of the data with the DQOs established in this QAPjP. The SPM concludes that all of the DQOs have been met for the characterization of the waste stream prior to submitting a WSPF to the DOE for approval (T2).

The following QAO elements are considered for each technique, as a minimum:

- Precision - a measure of the mutual agreement among multiple measurements
- Accuracy - the degree of agreement between a measurement result and the true or known value
- Completeness - a measure of the amount of valid data obtained from a method compared to the total amount of data obtained (expressed as a percentage)
- Comparability - the degree to which one data set can be compared to another
- Representativeness - the degree to which sample data represent characteristics of a population

A more detailed discussion of the QAOs can be found in Section C3, which describes the QAOs associated with each test method.

C-4a(3) Data Generation

BDRs, in a format approved by the DOE, are used by CCP for reporting waste characterization data. The CCP formats for reporting waste characterization data in BDRs are specified in several procedures. These procedures comply with the waste characterization data reporting requirements described in Section C3.

C-4a(4) Data Verification

BDRs document the testing, and on-line results from required characterization activities, and required QA/QC activities. Data validation, review, and verification are performed at the data generation level and the CCP project level before the required data are transmitted to the Permittees (T1). Section C3 discusses the data validation process in greater detail. NMED may request, through the Permittees, copies of any BDR and/or the raw data validated by the CCP to check the DOE's audit of the validation and verification process.

C-4a(5) Data Transmittal

As part of the waste characterization data submittal, the CCP transmits the data electronically to the Permittees via the WIPP Waste Information System (WWIS)/Waste Data System (WDS) (T30, T530). Data will be entered into the WWIS/WDS in the exact format required by the data base as specified in Section C-5a(1) for WWIS/WDS reporting requirements and the *Waste Data System User's Manual* (DOE 2009) for the WWIS/WDS data fields and format requirements. BDRs include the information required by Section C3-4 and are transmitted by hard copy or electronically (provided a hard copy is available on demand) from the data generation level to the CCP project level.

Once a waste stream is fully characterized the SPM submits a WSPF, accompanied by a CIS for that waste stream to the Permittees, which includes a record of reconciliation with DQOs as described in Sections C3-6b(1) and C3-6b(2).

The WSPF, the CIS, and information from the WWIS/WDS is used as the basis for acceptance of waste characterization information on TRU wastes to be disposed of at WIPP.

C-4a(6) Records Management

Records related to waste characterization activities performed by the generator/storage sites will be maintained in the testing facility files or generator/storage site project files or at the WIPP Records Archive facility. Raw data obtained by testing TRU mixed waste in support of the WAP will be identifiable, legible, and provide documentary evidence of quality. TRU mixed waste characterization records submitted to the Permittees shall be maintained in the WIPP facility operating record and be available for inspection by NMED. A detailed description of CCP site-specific records management activities is provided in Section C7.

Records inventory and disposition schedule (RIDS) or an equivalent system shall be prepared and approved by CCP. All records relevant to an enforcement action under this Permit, regardless of disposition, shall be maintained in CCP Records at the generator/storage site or at the WIPP Records Archive facility until NMED determines they are no longer needed for enforcement action, and then dispositioned as specified in the approved RIDS. All waste characterization data and related QA/QC records for TRU mixed waste to be shipped to the WIPP facility are designated as either Lifetime Records or Non-Permanent Records. Records that are designated as Lifetime Records shall be maintained for the life of the waste characterization program by CCP Records or generator/storage sites plus six years or transferred for permanent archival storage to the WIPP Records Archive facility.

Waste characterization records include characterization records (i.e., headspace gas sampling and homogeneous solids and soil/gravel sampling/analysis) generated through implementation of previous requirements in this WAP. Those waste characterization records designated as Non-Permanent Records shall be maintained for 10 years from the date of (record) generation by CCP Records or at the participating generator/storage site or at the WIPP Records Archive facility and then dispositioned according to their approved RIDS. If a generator/storage site ceases to operate, all records shall be transferred before closeout to the Permittees for management at the WIPP Records Archive facility. Table C-2, Required Program Records, is a listing of records designated as Lifetime Records and Non-Permanent Records.

Classified information will not be transferred to WIPP. Notations will be provided to the Permittees indicating the absence of classified information. The approved CCP RIDS will identify the appropriate disposition of classified information. Nothing in the WIPP Permit is intended to, nor should it be interpreted to, require disclosure of any DOE classified information to persons without appropriate clearance to view such information.

C-5 Permittee Level Waste Screening and Verification of TRU Mixed Waste

This section is not applicable to CCP. This section applies to the Permittees.

C-5a Phase I Waste Stream Screening and Verification

The first phase of the waste screening and verification process occurs before TRU waste is shipped to the WIPP facility. Before the Permittees begin the process of accepting TRU waste from the CCP, an initial audit is conducted as part of the Audit and Surveillance Program. The audit of CCP provides verification of characterization procedures; BDR preparation; and recordkeeping that ensures that all applicable provisions of the WAP requirements are met. Another portion of the Phase I verification is the WSPF approval process. At the WIPP facility, this process includes verification that all of the required elements of a WSPF and CIS are present and that the summarized waste characterization information meets acceptance criteria required for compliance with the WAP (Section C3-6b(1)).

The CCP has prepared this QAPjP, which includes applicable WAP requirements. This document is submitted to DOE for review and approval. The CCP implements the specific parameters of this QAPjP after Permittee approval. An initial audit is performed after QAPjP implementation and prior to the CCP being certified for shipment of waste to WIPP. Additional audits, focusing on the results of waste characterization, are performed at least annually. The DOE has the right to conduct unannounced audits and to examine any records that are related to the scope of the audit. See Section C-5a(3) for further information regarding audits.

When the required waste stream characterization data have been collected by the CCP and the initial audit is successfully completed, the SPM will verify that the waste stream characterization meets the applicable WAP requirements as part of the project level verification (T2). If the waste characterization does not meet the applicable requirements of the WAP, the waste stream cannot be managed, stored, or disposed of at the WIPP until those requirements are met. The SPM will then complete the WSPF and submit it to the Permittees, along with the accompanying CIS for that waste stream. All data necessary to check the accuracy of the WSPF is transmitted to the Permittees. This provides notification that the CCP considers that the waste stream (identified by the waste stream identification number) has been adequately characterized for disposal prior to shipment to WIPP. The Permittees then compare radiography and VE data obtained subsequent to submittal and approval of the WSPF (and prior to submittal) with characterization information presented on this form. If the Permittees determine (through the data comparison) that the characterization information is adequate, DOE will approve the WSPF. Prior to the first shipment of containers from the approved waste stream, the approved WSPF and accompanying CIS is provided to NMED. If the data comparison indicates that analyzed containers have hazardous wastes not present on the WSPF, or a different waste matrix code applies, the WSPF is in error and is resubmitted. Ongoing WSPF examination is discussed in detail in Section C-5a(2).

Audits of CCP will be conducted as part of the Audit and Surveillance Program. The RCRA portion of the CCP audit program will provide on-site verification of waste characterization procedures; BDR preparation; and record keeping to ensure that all applicable provisions of the WAP requirements are met. As part of the waste characterization data submittal, the CCP also transmits the data on a container basis via the WWIS/WDS prior to shipment of that container. This data submittal occurs at any time as the data are being collected, but is complete for each container prior to shipment of that container. The WWIS/WDS conducts internal edit/limit checks based on the approved WSPF. The Permittees compare ongoing characterization data obtained and submitted via the WWIS/WDS to the approved WSPF. If this comparison shows that containers have hazardous wastes not reported on the WSPF, or a different waste matrix code applies, the data are rejected and the waste containers are not accepted for shipment until a new or revised WSPF is submitted to Permittees' and approved by the DOE.

If discrepancies regarding hazardous waste number assignment or Waste Matrix Code designation arise as a result of the Phase I review, the CCP is contacted by the Permittees and provides the necessary additional information to resolve the discrepancy before that waste stream is approved for disposal at the WIPP facility. If the discrepancy is not resolved, the waste stream is not approved for shipment.

C-5a(1) WWIS/WDS Description

The CCP supplies the required data to the Permittees via the WWIS/WDS (T30, T530). The WWIS/WDS Data Dictionary includes all of the data fields, the field format and the limits associated with the data as established by the WIPP WAP. These data will be subjected to edit and limit checks that are performed automatically by the database, as defined in the *Waste Data System User's Manual* DOE/WIPP-09-3427(DOE, 2009). The Permittees will coordinate the data transmission with CCP. Actual data transmission will use appropriate technology to ensure the integrity of the data transmissions. The Permittees will require sites with large waste inventories and large databases to populate a data structure provided by the Permittees that contains the required data dictionary fields that are appropriate for the waste stream (or waste streams) at the site. The Permittees will access these data via the Internet to ensure an efficient transfer of this data. Small quantity sites will be given a similar data structure by the Permittees that is tailored to their types of waste. Sites with very small quantities of waste will be provided with the ability to assemble the data interactively to this data structure on the WWIS/WDS.

The Permittees will use the WWIS/WDS to verify that all of the supplied data meet the applicable edit and limit checks prior to the shipment of any TRU waste to WIPP. The WWIS/WDS automatically notifies the CCP if any of the supplied data fails to meet the requirements of the edit and limit checks via an appropriate error message. The CCP corrects the discrepancy with the waste or the waste data and re-transmits the corrected data prior to acceptance of the data by the WWIS/WDS. The Permittees review data reported for each container of each shipment prior to providing notification to the CCP that the shipment is acceptable.

Access to the WWIS/WDS is controlled by the Permittees' Data Administrator (DA) who controls the WWIS/WDS users based on approval from management personnel.

The CCP only has access to CCP data supplied to WWIS/WDS, and only until the data have been formally accepted by the Permittees. After the data have been accepted, the data are protected from indiscriminate change and only changed by an authorized DA.

C-5a(2) Examination of the Waste Stream Profile Form and Container Data Checks

The Permittees verify the completeness and accuracy of the WSPF (Section C3-6b(1)). The assignment of the waste stream description, waste matrix code group, and Summary Category Groups; the AK summary documentation; the methods used for characterization; the DOE certification, and appropriate designation of hazardous waste number(s) are examined by the Permittees. If the WSPF is inaccurate, efforts are made to resolve discrepancies by contacting the CCP in order for the waste stream to be eligible for shipment to the WIPP facility. If discrepancies in the

waste stream are detected, the CCP implements a non-conformance action to identify, document, and report discrepancies.

The WSPF shall pass all verification checks by the Permittees in order for the waste stream to be approved by DOE for shipment to the WIPP facility. The WSPF check against waste container data will occur during the initial WSPF process (Section C-5a). Waste data transferred via the WWIS/WDS after WSPF approval is compared with the approved WSPF. Any container from an approved hazardous waste stream with a description different from its WSPF is not shipped to the WIPP for disposal.
The CCP verifies that the three different types of data specified below are available for every container holding TRU waste before that waste is managed, stored, or disposed at WIPP: 1) an assignment of the waste stream's waste description (by waste matrix codes) and waste matrix code group; 2) a determination of ignitability, reactivity, and corrosivity; and 3) a determination of compatibility. The CIS indicates if the waste was checked for the characteristics of ignitability, corrosivity, and reactivity.

Any container with unresolved discrepancies associated with hazardous waste characterization will not be managed, stored, or disposed at the WIPP facility until the discrepancies are resolved. If discrepancies cannot be resolved, the DOE will revoke the approval status of the waste stream and CCP will suspend shipments of the waste stream. Waste stream approval will not be reinstated until the CCP demonstrates all corrective actions have been implemented and the CCP waste characterization program is reassessed by the DOE.

C-5a(3) Audit and Surveillance Program

This section is not applicable to the CCP. It applies to the Permittees.

C-5b Phase II Waste Shipment Screening and Verification

For each container shipped, the CCP provides the following information (T86):

Hazardous Waste Manifest Information:

- Generator/storage site name and EPA Identification Number
- CCP contact name and phone number
- Quantity of waste
- List of up to six state and/or federal hazardous waste numbers in each line item

- Listing of all shipping container identification numbers (IDs) (Shipping Package serial number)

- Signature of authorized generator representative

Specific Waste Container information:

- Waste Stream Identification Number
- List of hazardous Waste Numbers per Container
- Certification Data
- Shipping Data (assembly numbers, ship date, shipping category, etc.)

This information is also supplied electronically to the WWIS/WDS. The container-specific information will be supplied electronically as described in Section C-5a(1), and is supplied prior to shipment.

C-5b(1) Examination of the EPA Uniform Hazardous Waste Manifest and Associated Waste Tracking Information

Manifest discrepancies will be identified during manifest examination and container bar-code WWIS/WDS data comparison. A manifest discrepancy is a difference between the quantity or type of hazardous waste designated on the manifest and the quantity or type of hazardous waste the WIPP facility actually receives. The CCP technical contact (as listed on the manifest) is contacted to resolve the discrepancy. Errors on the manifest are corrected by the WIPP facility with a verbal (followed by a mandatory written) concurrence by the CCP technical contact. If the manifest discrepancies are not resolved in thirty (30) days of waste receipt, the shipment is returned to the facility where the CCP performed the characterization.

C-5b(2) Examination of the Land Disposal Restriction Notice

TRU waste designated by the Secretary of Energy for disposal at WIPP is exempt from the Land Disposal Restrictions (LDRs) by the WIPP Land Withdrawal Act Amendment (Public Law 104-201). This amendment states that WIPP “Waste is exempted from treatment standards promulgated pursuant to section 3004(m) of the Solid Waste Disposal Act (42 U.S.C. 6924[m]) and shall not be subjected to the Land Disposal prohibitions in section 3004(d), (e), (f), and (g) of the Solid Waste Disposal Act.”

Therefore, with the initial shipment of a TRU waste stream, the CCP provides the Permittees with a onetime written notice. The notice includes the information listed below:

Land Disposal Restriction Notice Information:

- EPA hazardous waste numbers and Manifest Numbers of first shipment of a mixed waste stream
- Statement: this waste is not prohibited from land disposal
- Date the waste is subject to prohibition

This information is the applicable information taken from column "268.7(a)(4)" of the "Generator Paperwork Requirements Table" in 20.4.1.800 NMAC (incorporating 40 CFR §268.7(a)(4)). Note that item "5" from the "Generator Paperwork Requirements Table" is not applicable since waste analysis data are provided electronically via the WWIS/WDS and item "7" is not applicable since waste designated by the Secretary of Energy for disposal at WIPP is exempted from the treatment standards.

The Permittees review the LDR notice for accuracy and completeness. The CCP prepares this notice in accordance with the applicable requirements of 20.4.1.800N MAC (incorporating 40 CFR §268.7(a)(4)).

C-5b(3) Verification

This section is not applicable to CCP. This section applies to the Permittees.

C-6 Permittees' Waste Shipment Screening QA/QC

This section is not applicable to CCP. This section applies to the Permittees.

C-7 Records Management and Reporting

All waste characterization data for each TRU waste container transmitted to WIPP shall be maintained by the Permittees for the active life of the WIPP facility plus two years (Q8). The active life of the WIPP facility is defined as the period from the initial receipt of TRU waste at the facility until NMED receives certification of final closure of the facility. After their active life, the records shall be retired to the WIPP Records Archive facility and maintained for 30 years. These records will then be offered to the National Archives. However, this disposition requirement does not preclude the inclusion of these records in the permanent marker system or other requirements for institutional control.

Waste characterization and waste confirmation data and documents related to waste characterization that are part of the WIPP facility operating record are managed in accordance with the following guidelines:

C-7a General Requirements

- Records shall be legible
- Corrections shall be made with a single line through the incorrect information, and the date and initial of the person making the correction shall be added
- Black ink is encouraged, unless a copy test has been conducted to ensure the other color ink will copy
- Use of highlighters on records is discouraged
- Records shall be reviewed for completeness
- Records shall be validated by the cognizant manager or designee

C-7b Records Storage

- Active records shall be stored when not in use
- Quality records shall be kept in a one-hour (certified) fire-rated container or a copy of a record shall be stored separately (sufficiently remote from the original) in order to prevent destruction of both copies as a result of a single event such as fire or natural disaster
- Unauthorized access to the records is controlled by locking the storage container or controlling personnel access to the storage area

C-8 Reporting

This section is not applicable to CCP. This section applies to the Permittees.

Table C-1. Summary of Parameters, Characterization Methods, and Rationale for Transuranic Mixed Waste

Waste Matrix Code Summary Categories	Waste Matrix Code Groups	Characterization Parameter	Method	Rationale
S3000-Homogeneous Solids	• Solidified inorganics • Salt waste • Solidified organics	Physical waste form	Acceptable knowledge, radiography and/or visual examination	• Determine waste matrix • Demonstrate compliance with waste acceptance criteria (e.g., no liquid in excess of TSDF-WAC limits, no incompatible wastes, no compressed gases)
S4000-Soil/Gravel	• Contaminated soil/debris			
S5000-Debris Waste	• Uncategorized metal (metal waste other than lead/cadmium) • Lead/cadmium waste • Inorganic nonmetal waste • Combustible waste • Graphite waste • Heterogeneous debris waste • Composite filter waste	Hazardous constituents • Listed • Characteristic	Acceptable knowledge	• Determine assignment of EPA hazardous waste numbers

Table C-2. Required Program Records Maintained in Generator/Storage Site Project Files

Lifetime Records
• Field sampling data forms • Field and laboratory chain-of-custody forms • Test facility and laboratory batch data reports • Waste Stream Characterization Packages • Sampling plans • Data reduction, validation, and reporting documentation • AK documentation • WSPFs and CIS
Non-Permanent Records
• Nonconformance documentation • Variance documentation • Assessment documentation • Gas canister tags • Methods performance documentation • PDP documentation • Sampling equipment certifications • Calculations and related software documentation • Training/qualification records • QAPjPs documentation (all revisions) • Calibration documentation • Analytical raw data • Procurement records • QA and technical procedures (all revisions) • Audio/video recordings (radiography, VE)

Table C-3. WIPP Waste Information System Data Fields[a]

Characterization Module Data Fields [b]	
Container ID [c] Generator EPA ID Generator Address Generator Name Generator Contact Hazardous Code Layers of Packaging Liner Exists Liner Hole Size Filter Model Number of Filters Installed Item Description Code Haz. Manifest Number NDE Complete [e]	Transporter EPA ID Transporter Name Visual Exam Container [e] Waste Material Parameter [d] Waste Material Weight [d] Waste Matrix Code Waste Matrix Code Group Waste Stream Profile Number
Certification Module Data Fields	
Container ID [c] Container type Container Weight Contact Dose Rate Container Certification date Container Closure Date Handling Code	
Transportation Data Module	
Contact Handled Package Number Assembly Number[f] Container IDs [c,d] ICV Closure Date Ship Date Receive Date	
Disposal Module Data	
Container ID [c] Disposal Date Disposal Location	

[a] This is not a complete list of the WWIS/WDS data fields.
[b] Some of the fields required for characterization are also required for certification and/or transportation.
[c] Container ID is the main relational field in the WWIS/WDS Database.
[d] This is a multiple occurring field for each waste material parameter, nuclide, etc.
[e] These are logical fields requiring only a yes/no.
[f] Required for 7-Packs of 55-gallon drums, 4-packs of 85-gallon drums, or 3-packs of 100-gallon drums to tie all of the drums in that assembly together. This facilitates the identification of waste containers in a shipment without need to breakup the assembly.

Table C-4. Waste Tanks Subject to Exclusion

Hanford Site - 177 Tanks	
A-101 through A-106	C-201 through C-204
AN-101 through AN-107	S-101 through S-112
AP-101 through AP-108	SX-101 through SX-115
AW-101 through AW-106	SY-101 through SY-103
AX-101 through AX-104	T-101 through T-112
AY-101 through AY-102	T-201 through T-204
B-101 through B-112	TX-101 through TX-118
B-201 through B-204	TY-101 through TY-106
BX-101 through BX-112	U-101 through U-112
BY-101 through BY-112	U-201 through U-204
C-101 through C-112	
SRS - 51 Tanks	
Tank 1 through 51	
Idaho National Laboratory - 15 Tanks	
WM-103 through WM-106	WM-180 through 190

Table C-5. Listing of Permitted Hazardous Waste Numbers

EPA Hazardous Waste Numbers			
F001	D019	D043	U079
F002	D021	P015	U103
F003	D022	P030	U105
F004	D026	P098	U108
F005	D027	P099	U122
F006	D028	P106	U133*
F007	D029	P120	U134*
F009	D030	U002*	U151
D004	D032	U003*	U154*
D005	D033	U019*	U159*
D006	D034	U037	U196
D007	D035	U043	U209
D008	D036	U044	U210
D009	D037	U052	U220
D010	D038	U070	U226
D011	D039	U072	U228
D018	D040	U078	U239*

* Acceptance of U-numbered wastes listed for reactivity, ignitability, or corrosivity characteristics is contingent upon a demonstration that the wastes no longer exhibit the characteristic of reactivity, ignitability, or corrosivity.

Figure C-1. Waste Stream Profile Form (Example Only)

(1) Waste Stream Profile Number:								
(2) Generator site name:							(3) Generator site EPA ID:	
(4) Technical contact:							(5) Technical contact phone number:	
(6) Date of audit report approval by New Mexico Environment Department (NMED):								
(7) Title, version number, and date of documents used for WIPP-WAP Certification:								
(8) Did your facility generate this waste?	YES		NO					
(9) If no, provide the name and EPA ID of the original generator:								
Waste Stream Information[1]								
(10) WIPP ID:							(11) Summary Category Group:	
(12) Waste Matrix Code Group:							(13) Waste Stream Name:	
(14) Description from the ATWIR:								
(15) Defense TRU Waste:	YES		NO					
(16) Check One:	CH		RH					
(17) Number of SWBs (17a) Number of SLB2		(18) Number of Drums					(19) Number of Canisters	
(20) Batch Data Report numbers supporting this waste stream characterization:								
(21) List applicable EPA Hazardous Waste Numbers:[2]								
(22) Applicable TRUCON Content Numbers:								
(23)**Acceptable Knowledge Information[1]**								
(For the following, enter the supporting documentation used [i.e., references and dates])								
Required Program Information								
(23A) Map of site:								
(23B) Facility mission description:								
(23C) Description of operations that generate waste:								
(23D) Waste identification/categorization schemes:								
(23E) Types and quantities of waste generated:								
(23F) Correlation of waste streams generated from the same building and process, as applicable:								
(24) Waste certification procedures:								
(25)Required Waste Stream Information								
(25A) Area(s) and building(s) from which the waste stream was generated:								
(25B) Waste stream volume and time period of generation:								
(25C) Waste generating process description for each building:								
(25D) Waste Process flow diagrams:								
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form:								
(25F) Waste Material Parameter Weight Estimates per unit of waste								
(26) Which Defense Activity generated the waste:								
	Weapons activities including defense inertial confinement fusion							Naval Reactors development
	Verification and control technology							Defense research and development
	Defense nuclear waste and material by products management							Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations							

Figure C-1. Waste Stream Profile Form (Example Only) (continued)

(27)Supplemental Documentation:	
(27A) Process design documents:	
(27B) Standard operating procedures:	
(27C) Safety Analysis Reports:	
(27D) Waste packaging logs:	
(27E) Test plans/research project reports:	
(27F) Site databases:	
(27G) Information from site personnel:	
(27H) Standard industry documents:	
(27I) Previous analytical data:	
(27J) Material safety data sheets:	
(27K) Sampling and analysis data from comparable/surrogate Waste:	
(27L) Laboratory notebooks:	
Confirmation Information2	
For the following, when applicable, enter procedure title(s), number(s) and date(s)	
(28)	Radiography:
	Visual Examination:
(29) Comments: For a list of the waste characterization procedures used and date of respective procedures see the list of procedures on the attached CIS.	

Reviewed by AK Expert: **YES** ☐ **Date:** _____

Reviewed by STR (if necessary): **YES** ☐ **N/A** ☐ **Date:** _____

Waste Stream Profile Form Certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Signature of Site Project Manager	Printed Name	Date

Controlled
Copy

Figure C-2. Waste Characterization Process (Reprinted from the WAP, Figure C-2)

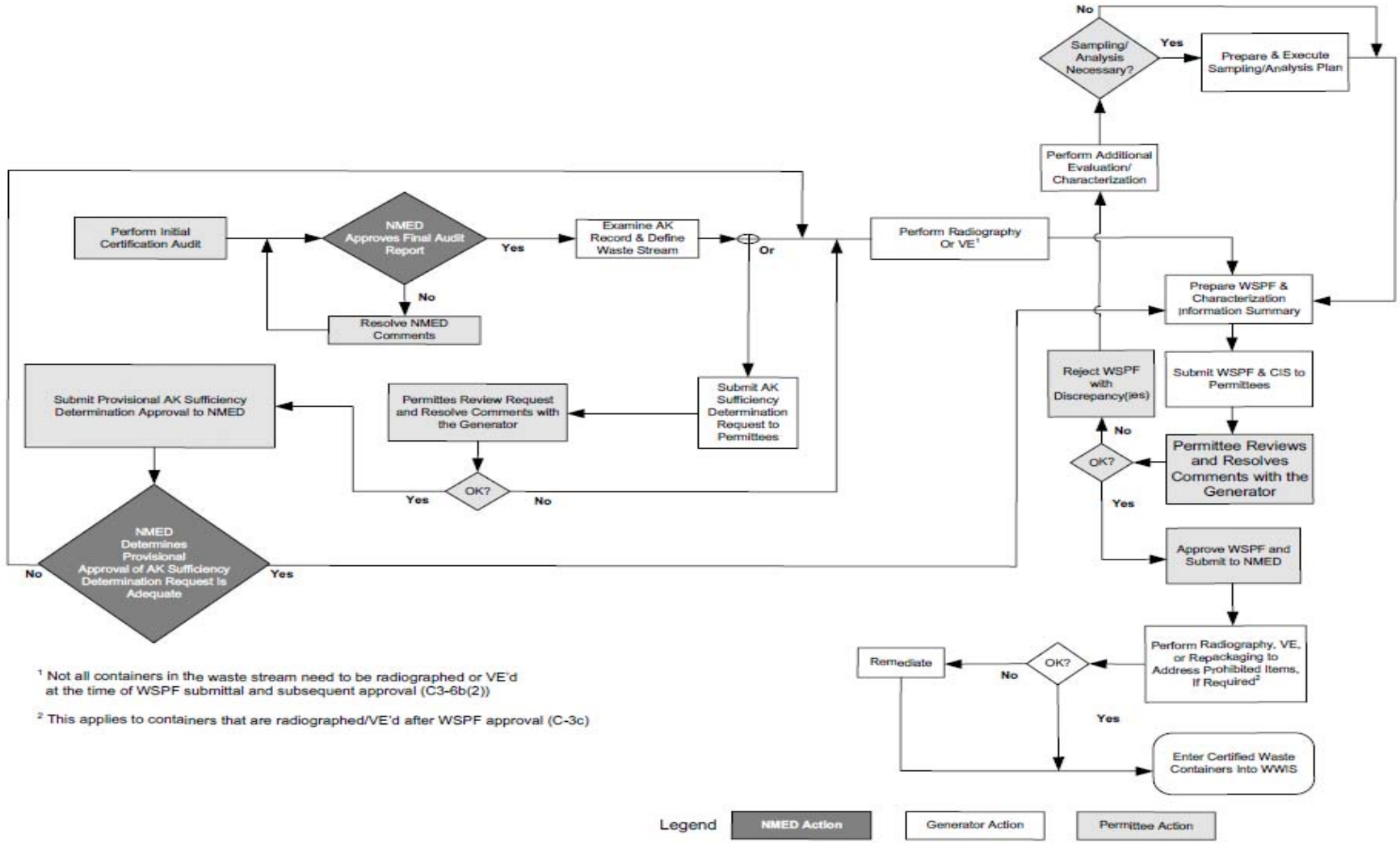


Figure C-3. TRU Mixed Waste Screening and Verification Flow Diagram

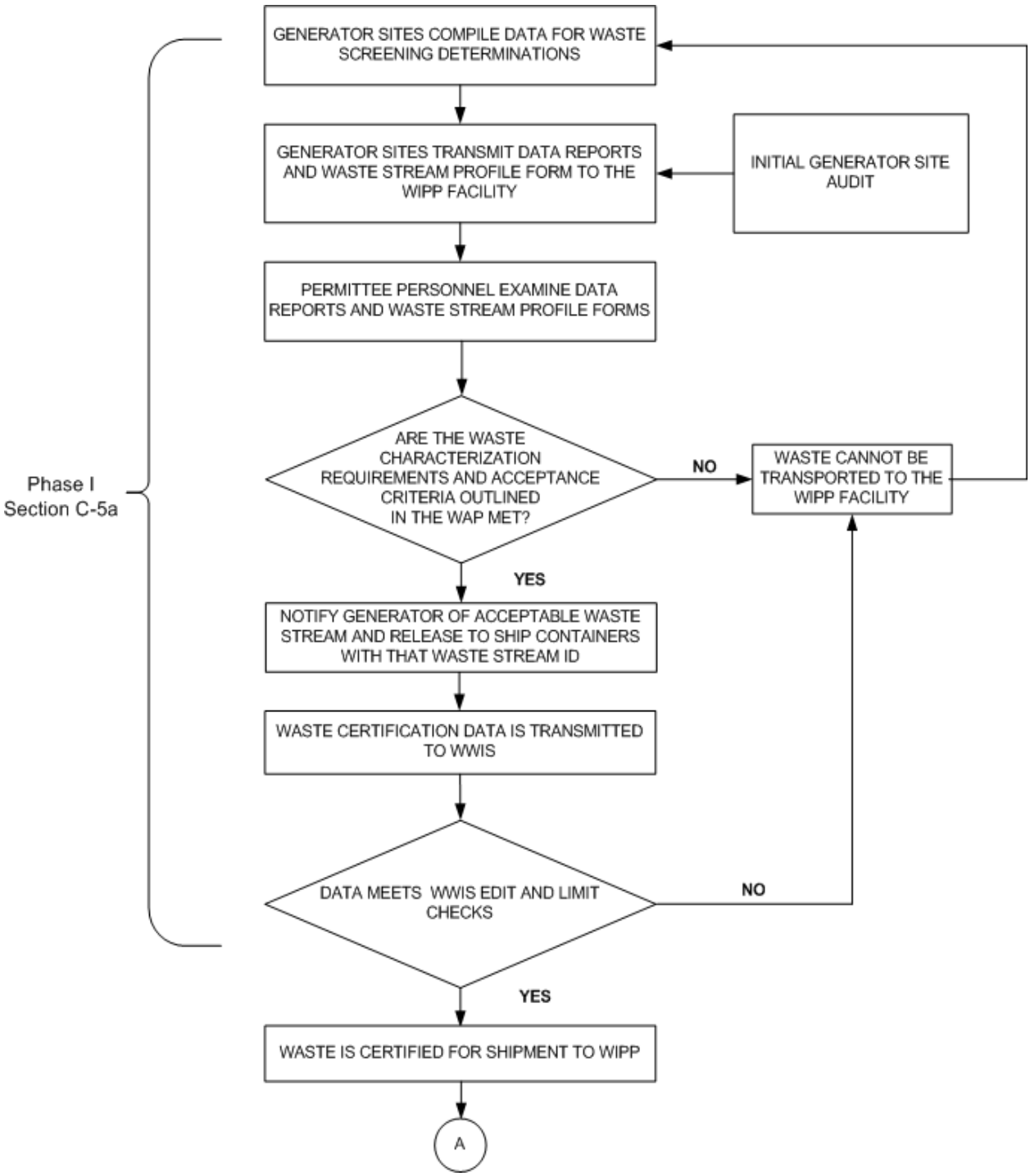
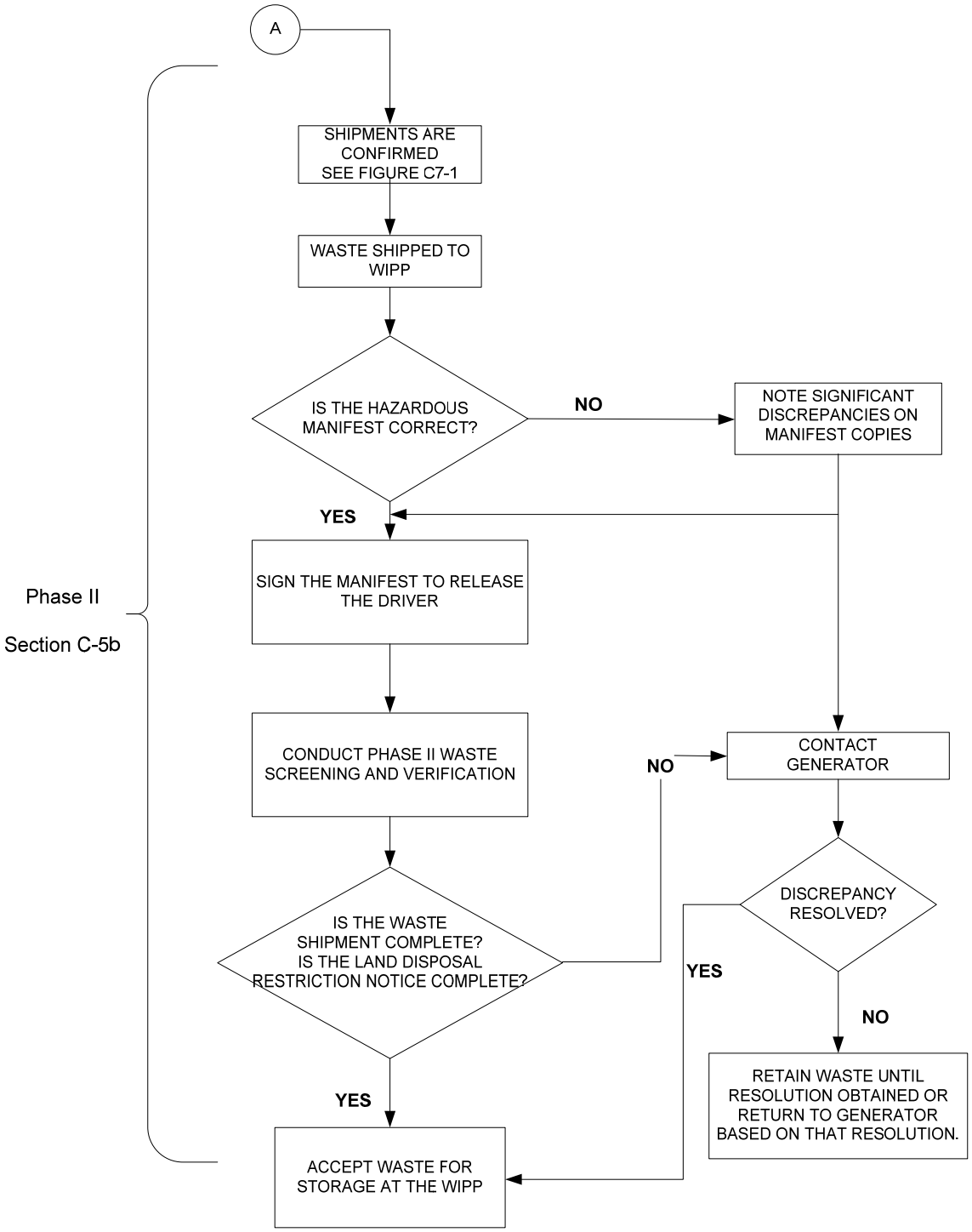


Figure C-3. TRU Mixed Waste Screening and Verification Flow Diagram (continued)



C1 WASTE CHARACTERIZATION TESTING METHODS

CCP characterizes TRU waste for shipment to WIPP by using the following methods, if applicable, for characterization of TRU waste. These methods include requirements for radiography or VE. This section describes these methods, QC requirements.

C1-1 Radiography

Radiography aids in the examination and identification of containerized waste. There is no equivalent EPA method. Personnel perform radiography in accordance with the procedures to meet the WAP requirements described in the following sections (T53, T508). Additionally, these procedures include instructions specific to the radiography method used. For example, details about moving the drum in a specific way in order to detect liquids are included in the radiography procedures. QAOs for radiography are contained in Section C3-2a.

All activities required to achieve the radiography objectives are described in the QAPjP and radiography-related Standard Operating Procedures (SOPs). A radiography system (e.g., real time radiography, digital radiography/computed tomography) normally consists of the following components: x-ray-producing device; imaging system; an enclosure for radiation protection; a waste container handling system; an audio/visual recording system; and an operator control and data acquisition station. The radiography equipment has controls (or an equivalent process) that allow the operator to control image quality for materials of varying density. On some radiography systems, it should be possible to vary the voltage, typically between 150-400 kilovolts (kV), to provide an optimum degree of penetration through the waste. For example, high-density material is examined with the x-ray device set on the maximum voltage. This ensures maximum penetration through the waste container. Low-density material is examined at lower voltage settings to improve contrast and image definition. The imaging system utilizes a fluorescent screen, a low-light television camera, or x-ray detectors to generate the image.

To perform radiography, the waste container is scanned while the operator views the television screen. A video and audio recording is made of the waste container scan and is maintained as a Non-Permanent Record. A radiography data form is also used to document the waste matrix code, to ensure that the waste container contains no ignitable, corrosive, or reactive waste by documenting the absence of liquids in excess of TSDF-WAC limits or compressed gases, and verify that the physical form of the waste is consistent with the waste stream description documented in the AK Summary Report. Containers whose contents prevent full examination of the remaining contents are subject to VE unless the CCP certifies that VE would provide no additional relevant information for that container based on the acceptable knowledge information for the waste stream. Such certification shall be documented in CCP records.

For containers which contain classified shapes and undergo radiography, the radiography video and audio recording will be considered classified. The radiography data forms will not contain classified information.

The radiography system involves qualitative and semi-quantitative evaluations of visual displays. Operator training and experience are the most important considerations for ensuring QC in regard to the operation of the radiography system and for interpretation and disposition of radiography results. Only trained personnel are allowed to operate radiography equipment.

Standardized training requirements for radiographic operators are based on existing industry standard training requirements.

Formal and on-the-job training (OJT) elements are listed below. In addition, radiography personnel are instructed in the specific waste generating practices, typical packaging configurations, and associated waste material parameters expected to be found in the waste matrix code. OJT and apprenticeship of radiography personnel are conducted by experienced, qualified radiography operators prior to qualification of training candidates. Training describes the site equipment, waste configurations, and the level of waste characterization efforts for the CCP. In addition, radiography operators are trained on the types of waste, physical forms, packaging configurations, and QC requirements for site waste characterized by the CCP.

All of the radiography QC requirements specified in the QAPjP shall be incorporated into the CCP training programs and radiography operations, so that data quality and comparability will not be affected (T28, T510). The radiography training program is subject to the audit and surveillance program. The training program includes items required by CCP-QP-002, *CCP Training and Qualification Plan,* and the required elements listed below.

One or more training containers with items (including prohibited items) common to the waste streams to be characterized and internal containers of various sizes is scanned semi-annually by each operator. The audio and video media are then reviewed by a supervisor to ensure that operators' interpretations remain consistent and accurate. Imaging system characteristics are verified on a routine basis.

Independent replicate scans and replicate observations of the video output of the radiography process are performed under uniform conditions and procedures. Independent replicate scans are performed on one waste container per day or once per testing batch, whichever is less frequent by a qualified radiography operator that was not involved in the original scan of the waste container. Independent observations of one scan (not the replicate scan) are made once per day or once per testing batch, whichever is less frequent, by a qualified radiography operator that was not involved in the original scan of the waste container. A testing batch is a suite of waste containers

undergoing radiography using the same testing equipment. A testing batch can be up to 20 waste containers without regard to waste matrix.

Oversight functions include periodic audio/video media reviews of accepted waste containers and are performed by qualified radiography operators that were not involved in the original scans of the waste containers. The results of this independent verification are available to the radiography operators who performed the original scans. The SPM is responsible for monitoring the quality of the radiography data and calling for corrective action, when necessary.

C1-2 Visual Examination

The CCP may use VE to verify container's contents. VE is performed by physically examining the contents of waste containers to verify the Waste Matrix Code and to verify that the container is properly included in the appropriate waste stream (T6, T113, T163, T500).

VE is conducted on a waste container to identify and describe all waste items, packaging materials, and waste material parameters in the waste containers. VE activities are documented on video/audio media or by using a second operator to provide additional verification by reviewing the contents of the waste container to ensure correct reporting. When VE is performed using a second operator, each operator performing the VE will observe for themselves the waste being placed in the waste container or the contents within the examined waste container when waste is not removed. The results of all VE are documented on VE data forms, which are used to document the Waste Matrix Code, ensure that the waste container contains no ignitable, corrosive, or reactive waste by documenting the absence of liquids in excess of TSDF-WAC limits or compressed gases, and verify that the physical form of the waste is consistent with the waste stream description documented in the AK Summary.

VE recorded on video/audio media shall meet the following minimum requirements:

- The video/audio media shall record the waste packaging event for the container such that all waste items placed into the container are recorded in sufficient detail and shall contain an inventory of waste items in sufficient detail that another trained VE operator can identify the associated waste material parameters.

- The video/audio media shall capture the waste container identification number.

- The personnel loading the waste container shall be identified on the video/audio media or on packaging records traceable to the loading of the waste container.

- The date of loading of the waste container will be recorded on the video/audio media or on packaging records traceable to the loading of the waste container.

VE performed using two generator site personnel shall meet the following minimum requirements:

- At least two generator site personnel who witnessed the packaging of the waste shall approve the data forms or packaging records attesting to the contents of the waste container.

- The data forms or packaging records shall contain an inventory of waste items in sufficient detail that another trained VE operator can identify the associated waste material parameters.

- The waste container identification number shall be recorded on the data forms or packaging records.

VE video/audio media of containers which contain classified shapes, shall be considered classified information. VE data forms or packaging records will not contain classified information.

Waste container packaging records may be used to meet the VE DQOs, Sections C-4a(1). These records must meet the minimum requirements listed above for either VE recorded on video/audio media or VE performed by two generator site personnel, and shall be reviewed by operators trained and qualified to the requirements listed below. The operators will prepare data forms based on the VE records. VE BDRs will be prepared, reviewed, and approved as described in Section C-4 and Section C3.

There will be standardized training for VE. VE operators are instructed in the specific waste-generating processes, typical packaging configurations, and waste material parameters expected to be found in each waste matrix code at the site. The training covers the various waste configurations generated/stored at the site. The particular physical forms and packaging configurations will vary at each site, so operators will be trained to examine the types of waste that are generated, stored and/or characterized at that site. Training will include the following regardless of Summary Category Group:

- Identifying and describing the contents of a waste container by examining all items in waste containers of previously packaged waste

- Identifying when VE cannot be used to meet the DQOs

VE personnel are requalified once every two years.

The SPM designates VE experts. Designated VE experts are familiar with the waste-generating processes that have taken place at the site and waste types for wastes being characterized at a particular site. VE experts are responsible for the overall direction and implementation of VE activities for the CCP at that site. VE experts meet the qualification and training requirements specified in CCP-QP-002 and make decisions based on training, previous experience, and knowledge of the waste stream.

C2 RESERVED

C3 QUALITY ASSURANCE OBJECTIVES AND DATA VALIDATION TECHNIQUES FOR WASTE CHARACTERIZATION METHODS

C3-1 Validation Methods

The CCP performs validation of qualitative and quantitative data so that characterization data are of known and acceptable quality.

The qualitative data or descriptive information generated by radiography and VE are not amenable to statistical data quality analysis. However, radiography and VE are complementary techniques yielding similar data for determining the waste matrix code. The waste matrix code is determined to ensure that the container is properly included in the appropriate waste stream.

Data validation is used to assess the quality of waste characterization data collected based on project precision, accuracy, completeness, comparability, and representativeness objectives. These objectives are described below:

Precision

Precision is a measure of the mutual agreement among multiple measurements.

Accuracy

Accuracy is the degree of agreement between a measured result and the true or known value.

Completeness

Completeness is a measure of the amount of valid data obtained from a method compared to the total amount of data collected.

Comparability

Comparability is the degree to which one data set can be compared to another.

Representativeness

Representativeness is the degree to which sample data represent a characteristic of a population.

C3-2 Nondestructive Examination Methods

Quality Assurance Objectives

The QAOs for nondestructive examination (NDE) are detailed in this section. NDE can be either radiography or VE. If the QAOs in this section are not met, then corrective actions are taken. NDE is a primary qualitative determination. The objective of NDE for the program is to verify that the physical form of waste matches the waste stream description as determined by AK and the absence of prohibited items. CCP describes all of the activities required to achieve these objectives in this QAPjP and the operating procedures listed in Section C1.

C3-2a Radiography (T53, T508)

Data to meet the QAOs for radiography are obtained from a video and audio recorded scan provided by trained radiography operators at the Host site. Results are also recorded on a radiography data form. The precision, accuracy, completeness, and comparability objectives for radiography data follow.

Precision

Precision is maintained by reconciling any discrepancies between two radiography operators with regard to identification of the waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases through independent replicate scans and independent observations. The precision of radiography is also verified prior to use by tuning precisely enough to demonstrate compliance with QAOs listed in Section C-4a through viewing an image test pattern.

Accuracy

Accuracy is obtained by using a target to tune the image for maximum sharpness and by requiring operators to successfully identify 100 percent of the items required to meet the DQOs for radiography specified in Section C. Section C-4a(1) in a training container during their initial qualification and subsequent requalification.

Completeness

To ensure completeness, video and audio media recording of the radiography of the radiography examination and a validated radiography data form are obtained for 100 percent of retrievably stored waste containers that are examined by radiography. All video and audio media recordings and radiography data forms are subject to validation as indicated in Section C3-7.

Comparability

The comparability of radiography data from different operators is enhanced by using standardized radiography procedures and operator qualifications.

C3-2b Visual Examination (T6, T113, T163, T500)

Results must be recorded on a VE data form. The precision, accuracy, completeness, and comparability objectives for VE data are presented below.

Precision

Precision is maintained by reconciling any discrepancies between the operator and the independent technical reviewer with regard to identification of waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases.

Accuracy

Accuracy is maintained by requiring operators to pass a comprehensive examination and demonstrate satisfactory performance in the presence of the VE expert during their initial qualification. VE operators shall be requalified every two years.

Completeness

A validated VE data form will be obtained for 100 percent of the waste containers subject to VE.

Comparability

The comparability of VE data from different operators shall be enhanced by using standardized VE procedures and operator qualifications.

C3-3 Acceptable Knowledge (T5)

AK documentation provides qualitative information that cannot be assessed according to specific data quality goals that may be used for quantitative techniques. To ensure that the AK process is consistently applied, the CCP complies with the following data quality requirements for AK documentation.

- Precision - The qualitative determinations, such as compiling and assessing AK documentation, do not lend themselves to statistical evaluations of precision. However, the AK information is assessed by independent review during internal and external audits.

- Accuracy - The percentage of waste containers which require reassignment to a new waste matrix code and/or designation of a different hazardous waste number, based on testing data and discrepancies identified during waste confirmation is reported as a measure of AK accuracy. The CCP calculates the AK accuracy in accordance with CCP-TP-005, *CCP Acceptable Knowledge Documentation*.

- Completeness - The AK record contains 100 percent of the required information (Section C4-3). The usability of the AK information is assessed for completeness during audits.

- Comparability - The CCP ensures comparability by meeting the training requirements and complying with the minimum standards outlined for procedures that are used to implement the AK process. The CCP assign hazardous waste numbers in accordance with Section C4-3b and will provide the information regarding the waste being characterized to other sites that store or generate a similar waste stream.

- Representativeness - Representativeness is a qualitative parameter that is satisfied by ensuring that the process of obtaining, evaluating, and documenting AK information is performed in accordance with the minimum standards established in Section C4. The CCP assesses and documents the limitations of the AK information used to assign hazardous waste numbers (e.g., purpose and scope of information, date of publication, type and extent to which waste parameters are addressed).

The CCP complies with the nonconformance notification and reporting requirements of Section C3-7of this QAPjP if the results of testing specified in this QAPjP are inconsistent with AK documentation.

In addition, performance with regard to the use of AK information is tracked by assessing the frequency of inconsistencies among information, and documenting AK inconsistencies identified through radiography and VE. The AK process and waste stream documentation are evaluated through internal assessments by QA and assessments by auditors external to the organization (i.e. the Permittees).

C3-4 Data Review, Validation, and Verification Requirements

Data review, validation, and verification are performed at the CCP data generation level in accordance with CCP data generation level characterization procedures. Data validation and verification are performed at the project level by the CCP project staff.

Data review determines whether raw data was properly collected and ensures that it was properly reduced. Data validation verifies that the reported data satisfy the

WAP requirements and are accompanied by signature release. Data verification authenticates that the data are presented accurately, represent the testing activities performed, and have been subject to the appropriate level of review. By meeting the requirements in this section, the CCP ensures that records furnish documentary evidence of quality.

The following types of BDRs (as applicable to the characterization process in use) are required for data validation and verification, and quality assurance activities:

- The Testing BDR or equivalent includes all data pertaining to radiography or VE for up to 20 waste containers without regard to waste matrix. Table C3-3, Testing Batch Data Report Contents lists the information required in Testing BDRs (identified with an "X") and other information necessary for data validation but optional for inclusion in the Testing BDR (identified with an "O")

C3-4a Data Generation Level (T6, T32, T53, T106, T113, T143, T188, T500, T508)

The minimum requirements for raw data collection and management include the following:

- All data are signed and dated in reproducible ink by the individual generating the data, or by use of unalterable electronic signature.
- All data are recorded clearly, legibly, and accurately in field records.
- All changes to original data are lined out, initialed, and dated by the individual making the change. A justification for changing the original data may also be included. Original data are not obliterated or otherwise disfigured so as to be unreadable. Data changes are made only by the individual who originally collected the data, or by an individual authorized to change the data.
- All data are transferred and reduced from field records completely and accurately.
- All field records are maintained as specified in Table C-2.
- All data are organized in standard formats (i.e., BDRs) specified in procedures.

- All electronic and video data are stored appropriately to ensure that waste containerand associated QC data are readily retrievable. In the case of classified information, additional security provisions may apply that could restrict retrievability. The additional security provisions will be documented in CCP procedures when required.

Data review, validation, and verification at this level involves scrutiny and signature release from qualified independent technical reviewers not involved in the generation or recording of the data under review as specified below. Individuals conducting the data review, validation, and verification use checklists that address the items in this section. Checklists are forwarded with BDRs to the CCP Project Office.

C3-4a(1) Independent Technical Review (T6, T32, T53, T106, T113, T143, T188, T500, T508)

The independent technical reviewer ensures by review of raw data that data generation and reduction are technically correct, calculations are verified correct, deviations are documented, and QA/QC results are complete, documented correctly, and compared against the criteria specified in this QAPjP. This review is to validate and verify all of the work done by the originator.

One hundred percent of the BDRs must receive an independent technical review. This review is performed by an individual by a trained and qualified individual who was not involved in the generation or recording of the data under review. The independent technical review is performed as soon as practicably possible in order to determine and correct negative quality trends in the testing, process. However at a minimum, the independent technical review must be performed before any waste associated with the data reviewed is managed, stored, or disposed at WIPP. The reviewer(s) must release the data as evidenced by signature, and as a consequence ensure the following:

- Data generation and reduction were conducted in a technically correct manner in accordance with the methods used (procedure revision) and data were reported in the proper units and correct number of significant figures.

- Calculations were verified by a valid calculation program, a spot check of verified calculation programs, and/or 100 percent check of all hand calculations. Values that are not verifiable to within rounding or significant difference discrepancies are rectified prior to completion of independent technical review.

- The data were reviewed for transcription errors.

- The testing, data QA documentation for BDRs is complete and includes, as applicable, raw data, calculation records, calibration records, (or reference to an available calibration package), and Corrective action is taken to ensure that all BDRs are complete and include all necessary raw data prior to completion of the independent technical review.

- Radiography tapes were reviewed (independent observation) on a waste container basis at a minimum of once per testing batch or once per day of operation, whichever is less frequent (Section C1-3). The radiography tape was reviewed against the data reported on the radiography form to ensure that the data are correct and complete.

- QAOs have been met according to the methods outlined in Sections C3-2 and C3-3.

C3-4b Project Level

Data validation and verification at this level involves scrutiny and signature release from the SPM (T1, T500, T508). Any nonconformance identified during this process is documented on an NCR (Section C3-7).

The SPM ensures that a repeat of the data generation level review, verification and validation is performed on the data for a minimum of one randomly chosen waste container quarterly (every three months). This exercise documents that the data generation level review, verification, and validation are being performed in accordance with implementing procedures.

C3-4b(1) Site Project Manager Review

The SPM review is the final validation that all of the data contained in BDRs from the data generation level are complete and are properly reviewed, as evidenced by signature release and completed checklists.

One hundred percent of the BDRs have SPM signature release. At a minimum, the SPM signature release is performed before any waste associated with data reviewed is shipped to the WIPP. This signature release ensures the following (T1, T500, T508):

- Data generation level independent technical review, validation, and verification are performed as evidenced by completed review checklists and by the appropriate signature releases.

- Independent technical reviewers were not involved in the generation or recording of the data under review.

- Batch data review checklists are complete.
- BDRs are complete and data are properly reported (i.e., data are reported in the correct units, with the correct significant figures.
- Data are within established data assessment criteria and meet all applicable QAOs as described in Sections C3-2 through C3-3.
- Testing batch QC checks (e.g., replicate scans, measurement system checks) were properly performed. Radiography data are complete and acceptable based on evidence of videotape review of one waste container per day or once per testing batch, whichever is less frequent, as specified in C1-1.

C3-4b(2) Preparing SPM Summary and Data Validation Summary

To document the project level validation and verification described above, the SPM (or designee) prepares an SPM Summary, and Data Validation Summary (T1). These reports may be combined to eliminate redundancy. The SPM Summary includes a validation checklist for each BDR. Checklists for the SPM Summary are of sufficient detail to validate all aspects of a BDR that affect data quality.

The SPM Data Validation Summary provides verification that, on a per waste container as evidenced by BDR reviews, all data have been validated in accordance with this QAPjP. The SPM Data Validation Summary identifies each BDR data report reviewed (including all waste container numbers), describes how the validation was performed and whether or not problems were detected (e.g., nonconformance reports), and includes a statement indicating that data are acceptable. Summaries must include release signatures.

C3-4b(3) Preparing Waste Stream Characterization Packages

If requested by the Permittee, the SPM provides a Waste Stream Characterization Package. The SPM must ensure that the Waste Stream Characterization Package (described in Section C3-6b(3)) supports the waste characterization determinations.

C3-4c Permittee Level

Not applicable to CCP. This is a Permittee function.

C3-5 Reconciliation with Data Quality Objectives

Reconciling the results of waste testing with DQOs ensures that data are of adequate quality to support regulatory compliance programs. When waste is characterized by

CCP, reconciliation with the DQOs is the responsibility of the SPM and occurs prior to waste shipment (T2).

C3-5a Reconciliation at the Project Level

The SPM ensures that all data generated and used in decision making meet the DQOs providing in Section C-4a(1). DQO reconciliation is the responsibility of the SPM, who assesses whether data of sufficient type, quality, and quantity to meet the DQOs (Section C-4a(1)) have been collected and determines whether the variability of the data set is small enough to provide the required confidence in the results.

The SPM determines for each waste stream characterized, whether sufficient data have been collected to determine the following required waste parameters (T2):

- Waste matrix code.
- Waste material parameter weights.
- That each container of waste is transuranic radioactive waste.
- Whether the waste stream exhibits a toxic characteristic or is listed under 40 CFR §261, Subpart C.
- Whether the waste stream contains listed waste found in 20.1.4.200 NMAC incorporating 40 CFR §261, Subpart D.
- Whether the waste stream can be classified as hazardous or nonhazardous
- Whether the overall completeness, comparability, and representativeness QAOs were met for the testing procedures specified in Sections C3-2 and C3-3 prior to submittal of a WSPF for a waste stream or waste stream lot.

If the SPM determines that insufficient data have been collected to make the determinations listed above, additional data collection efforts are undertaken. The reconciliation of a waste stream is performed, as described in Section C4, prior to submittal of the WSPF and CIS to the Permittees for that waste stream. The CCP does not ship TRU waste stream to the WIPP unless the SPM determines that the WAP-required waste parameters listed above are met for that waste stream.

C3-5b Reconciliation at the Permittee Level

Not applicable to the CCP. This is a Permittee function.

C3-6 Data Reporting Requirements

Data reporting requirements define the type of information and the method of transmittal for data transfer from the data generation level to the CCP Project Office and from the CCP Project Office to the Permittee.

C3-6a Data Generation Level

Data are transmitted by hard copy or electronically (with hard copies available on demand) from the data generation level to the CCP Project Office. Transmitted data include all BDRs, and data review checklists. The BDR forms and checklists must contain all the information required by the testing techniques described in Sections C1 through C6, as well as the signature releases to document the review, validation, and verification as described in Section C3-4. BDRs and checklists are on approved forms as provided in procedures.

BDRs are forwarded to the SPM. All BDRs are assigned serial numbers, and each page is numbered. The serial number is the same as the batch number. QA documentation, including raw data, is maintained in either testing facility files, or the CCP files in accordance with CCP-QP-008.

C3-6b Project Level

The CCP Project Office prepares a WSPF for each waste stream certified for shipment to the WIPP based on information obtained from AK and BDRs, if applicable (T2). The CCP Project Office ensures that the CIS and Waste Stream Characterization Package (when requested by the Permittee) are prepared as appropriate. The SPM verifies these reports are consistent with information found in BDRs. Summarized testing are included in the CIS. The contents of the WSPF, the CIS, and the Waste Stream Characterization Package are discussed in the following sections.

A Waste Stream Characterization Package is submitted only when requested by the Permittee. These reports are reviewed, validated, and verified by the SPM (T2).

After approval of a WSPF and the associated CIS by the DOE, CCP will maintain a cross reference of container identification number to each BDR.

A Waste Stream Characterization Package will be transmitted by hard copy or electronically from the SPM to the Permittees when requested.

C3-6b(1) Waste Stream Profile Form (T2)

The WSPF shall include the following information:

- Site name
- Site EPA ID
- Date of audit report approval by NMED (if obtained)
- Original generator of waste stream
- Whether waste is CH or RH
- The Waste Stream WIPP Identification Number
- Summary category group
- Waste matrix code group
- Waste Material Parameter Weight Estimates per unit of waste
- Waste stream name
- A description of the waste stream
- Applicable U.S. EPA Hazardous Waste Numbers
- Applicable TRUPACT Content (TRUCON) codes
- A listing of AK documentation used to identify the waste stream
- The waste characterization procedures used and the reference and date of the procedure
- Certification signature of SPM, name, title, and date signed

C3-6b(2) Characterization Information Summary (T2)

The CIS shall include the following elements, if applicable:

- Data reconciliation with DQOs.

- Radiography and VE summary to document that prohibited items are not present, and to verify that the physical form of the waste matches the waste stream description as determined by AK.

- A justification for the selection of radiography and/or VE as an appropriate method for characterization of the waste.

- A complete listing of all container identification numbers used to generate the WSPF, cross-referenced to each BDR.

- Complete AK summary, including waste stream name and number, the point of generation, waste stream volume (current or projected), generation dates, TRUCON codes, Summary Category Group, Waste Matrix Code(s) and Waste Matrix Code Group, other TRU Waste Baseline Inventory Report (TWBIR) information, waste stream description, areas of operation, generation processes, RCRA determinations, radionuclide information, all references used to generate the AK summary, and any other information required by Section C4-2b.

- Method for determining Waste Material Parameter Weights per unit of waste.

- List of any AK Sufficiency Determinations requested for the waste stream.

- Certification through acceptable knowledge or testing that any waste assigned the Hazardous Waste Number of U134 (hydrofluoric acid) no longer exhibits the characteristic of corrosivity. This is verified by ensuring that no liquid is present in U134 waste.

C3-6b(3) Waste Stream Characterization Package (T2)

The waste stream characterization package is submitted when requested by the Permittee and includes the following information:

- WSPF (Section C3-6b(1))

- Applicable CIS (Section C3-6b(2))

- Complete AK summary (Section C3-6b(2))

- BDRs supporting the characterization of the waste stream and any others requested by the Permittee

- Raw testing data requested by the Permittee

C3-6b(4) WIPP Waste Information System Data Reporting (T30)

The WWIS/WDS data dictionary includes the data, field formats, and limits associated with waste characterization data established by the WAP. These data are subject to edit and limit checks that are performed automatically by the database, as defined in the "Waste Data System User's Manual" (DOE 2009).

C3-7 Nonconformances (Q5)

The status of CCP activities are monitored and controlled by the SPM in accordance with the nonconformance and procurement procedures identified below. This includes nonconformance identification, documentation, and reporting.

Nonconformances

Nonconformances are uncontrolled and unapproved deviations from an approved plan or procedure (e.g., this QAPjP). In the context of this QAPjP, deficiencies and nonconformances are synonymous. Nonconforming items and activities are those that do not meet the CCP requirements, procurement document criteria, or approved work procedures. The CCP personnel are responsible for promptly reporting any nonconformance to management. The CCP reconciles and corrects nonconformance items, as appropriate, in accordance with the DOE-CBFO QAPD. The disposition of nonconforming items is identified and documented and nonconforming items are identified by marking, tagging, or segregating and appropriate notifications are made to the site. When a nonconformance related to the CCP is observed or detected, the QA is notified, and affected management reviews the content of the NCRs and assists the QA in processing the NCR. For each container selected for confirmation pursuant to Section C7, the Permittees will examine the respective NCR documentation to verify NCRs have been dispositioned for the selected container.

The CCP identifies and documents nonconformances as follows:

- The NCR procedure establishes the method for CCP personnel to identify, document, control, and disposition nonconforming activities, processes, items, and materials. NCRs are initiated by any individual identifying a nonconformance during performance of work tasks, random observations, inspections, or any other review of CCP procedures, operations, and activities. The CCP personnel identify deficient items by marking, tagging, or segregating them. This procedure implements the requirements of Section 1.3.2 (Nonconformances) of the DOE-CBFO QAPD.

- Corrective Action Reporting and Control procedures establishes the method for personnel to identify and correct potential problems and conditions adverse to quality, in addition to precluding their recurrence, and if necessary,

stopping associated work activities (Q8). Any person may temporarily stop work prior to evaluation of the condition by the responsible CCP supervisor. The CCP supervisor then evaluates and reports the condition, as necessary, in accordance with CCP-QP-029, *CCP Corrective Action Management.* This procedure implements the requirements of Section 1.3.3 (Corrective Action) of the DOE-CBFO QAPD.

Management at all levels fosters a "no-fault" attitude to encourage the identification of nonconforming items and processes within the CCP. Nonconformances may be detected and identified by anyone performing activities in support of this QAPjP, including:

- The CCP project staff - during field operations, supervision of subcontractors, data validation and verification, and self-assessment
- Testing Facility staff - during the preparation for and performance of testing; calibration of equipment; QC activities; data review, validation, and verification; and self-assessment.
- QA personnel - during oversight activities or audits

An NCR is prepared for each nonconformance identified. Each NCR is initiated by the individual(s) identifying the nonconformance. The NCR is then processed by knowledgeable and appropriate personnel. The NCR includes or references results of, QC tests, audit reports, internal memoranda, or letters, as appropriate. The NCR provides the following information:

- Identification of the individual(s) identifying or originating the nonconformance
- Description of the nonconformance
- Method(s) or suggestions for correcting the nonconformance (corrective action)
- Schedule for completing the corrective action
- An indication of the potential ramifications and overall usability of the data, if applicable
- Any approval signatures specified in the nonconformance procedures.

The SPM oversees the NCR process for the CCP, identifies and tracks the status of deficiencies, reports this information to the Permittees, and is responsible for verifying the close-out of the NCRs.

Nonconformances are tracked and trended in accordance with procedures (Q5, Q14) that establish the method for evaluating trends in nonconformances and identifying appropriate corrective actions.

The SPM ensures that relevant project personnel are notified of nonconformances and verifying completion of corrective action for nonconformances.

Nonconformance to DQOs

For any non-administrative nonconformance related to applicable requirements specified in this QAPjP which are first identified at the SPM signature release level (i.e., a failure to meet a DQO), the SPM will provide a written notification to the Permittees within seven (7) calendar days of identification and shall also provide a nonconformance report within 30 calendar days of identification of the incident. The CCP implements a corrective action process and resolves identified nonconformances prior to shipment of any affected waste to the WIPP.

DOE Corrective Action Process

This section is not applicable to the CCP.

C3-8 Special Training Requirements and Certifications (Q2)

The SPM is responsible for ensuring that all personnel maintain proficiency in the work performed and identifies additional training if required. The training and qualification process for CCP personnel and subcontracted personnel who perform work to support the CCP is documented and controlled. In accordance with these plans, only personnel trained to applicable CCP-related plans and procedures perform CCP activities. Before performing CCP-related activities, assigned staff receive indoctrination into the scope, purpose, and objectives of the WAP and the specific QAOs of assigned tasks. Personnel assigned to perform activities under this QAPjP have the education, experience, and training applicable to the functions associated with the work.

Evidence of personnel proficiency and demonstration of competence in the task(s) assigned are demonstrated and documented. All personnel designated to work on specific aspects of the WAP maintain qualification (i.e., training and certification) throughout the duration of the work as specified in this QAPjP and applicable procedures. Job performance is evaluated and documented at periodic intervals, as specified in the appropriate implementing procedures.

CCP personnel involved in WAP activities (as flowed down in this QAPjP) receive continuing training to ensure that job proficiency is maintained and documented. The due date for required continuing training courses and requalification shall be the end of the month of the anniversary date when the training was previously completed. Training

includes both education in principles and enhancement of skills. Job performance is evaluated and documented at periodic intervals, as specified in the implementing procedures or in CCP-QP-002. Documentation of training, consisting of training records that specify the scope of training, dates of completion, and job proficiency are maintained by the CCP Project Office and/or the site records system as QA records.

The minimum qualifications for certain specified positions for the WAP are summarized in Table C3-2. This QAPjP specify the titles and minimum training and qualification requirements for personnel performing QAPjP activities.

Evaluation of CCP personnel qualifications includes a comparison of the job description to the skills, training, and experience included in the individual's resume, training records, and other documented bases for job assignment. This evaluation is also performed for personnel who change positions because of a transfer or promotion as well as personnel assigned to short-term or temporary work assignments that may affect the quality of CCP activities. Procedures identify the responsible persons for ensuring all personnel maintain proficiency in the work performed and identify any additional training that may be required.

C3-9 Changes to WAP Related Plans or Procedures

Controlled changes to WAP-related CCP plans or procedures are managed through the document control process (Q10). The SPM reviews all nonadministrative changes and evaluates whether those changes could impact DQOs specified in the WAP. Any changes to the WAP-related plans or procedures that could impact DQOs (i.e., those changes that require prior approval of the DOE as defined in Section C5-2) are reported to the DOE within five days of identification by the project level review.

Table C3-1. Waste Material Parameters and Descriptions

Waste Material Parameter	Description
Iron-Based Metals/Alloys	Iron and steel alloys in the waste excluding the waste container materials.
Aluminum-Based Metals/Alloys	Aluminum or aluminum-based alloys in the waste materials.
Other Metals	All other metals found in the waste materials (e.g., copper, lead, zirconium, tantalum, etc.).
Other Inorganic Materials	Non-metallic inorganic waste, including concrete, glass, firebrick, ceramics, sand, and inorganic sorbents.
Cellulosics	Materials generally derived from high polymer plant carbohydrates (e.g., paper, cardboard, wood, cloth).
Rubber	Natural or man-made elastic latex materials (e.g., surgeon's gloves, leaded rubber gloves).
Plastics (Waste Materials)	Generally man-made materials, often derived from petroleum feedstock (e.g., polyethylene and polyvinylchloride).
Organic Matrix	Cemented organic resins, solidified organic liquids and sludges.
Inorganic Matrix	Any homogeneous materials consisting of sludge or aqueous-based liquids that are solidified with cement, calcium silicate, or other solidification agents; (e.g., waste water treatment sludge, cemented aqueous liquids, and inorganic particulates).
Soils/Gravel	Generally consists of naturally-occurring soils that have been contaminated with inorganic waste materials.
Steel (Packaging Materials)	208-liter (55-gallon) drums.
Plastics (Packaging Materials)	90-mil polyethylene drum liner and plastic bags.

Table C3-2. Minimum Training and Qualification Requirements

Personnel	Requirements
Radiography Operators[a]	Site-specific training based on waste matrix codes and waste material parameters as described in Section C3-4; requalification every 2 years

[a] Operators are responsible for the actual operation of testing equipment.

Table C3-3. Testing Batch Data Report Contents

Required Information	Radiography	VE	Comment
Batch Data Report Date	X	X	
Batch number	X	X	
Waste container number	X	X	
Waste stream name and/or number	O	O	
Waste matrix code	X	X	Summary Category Group included in waste matrix code.
Implementing procedure (specific version used)	X	X	If procedure cited contains more than one method, the method used must also be cited. Can use revision number, date, or other means to track specific version used.
Container type	O	O	Drums, Pipe Overpack, SWB, TDOP, etc.
Video media reference	X	X	Reference to video media applicable to each container. For VE for newly generated waste, video media is not required if two trained operators review the contents of the waste container to ensure correct reporting.
Imaging check	O	N/A	
Camera check	N/A	O	
Audio check	O	O	
QC documentation	X	X	

Table C3-3. Testing Batch Data Report Contents (continued)

Required Information	Radiography	VE	Comment
Verification that the physical form matches the waste stream description and waste matrix code	X	X	Summary Category Group included in waste matrix code.
Comments	X	X	
Reference to or copy of associated NCRs, if any	X	X	Copies of associated NCRs must be available.
Verify absence of prohibited items	X	X	
Operator signature and date of test	X	X	Signatures of both operators required for visual verification of AK.
Data review checklists	X	X	All data review checklists will be identified.

LEGEND:
X = Required in Batch Data Report
O = Information must be documented and traceable; inclusion in Batch Data Report is optional.

C4 ACCEPTABLE KNOWLEDGE

C4-1 Introduction

The RCRA regulations codified in 40 CFR and the New Mexico Hazardous Waste Management Regulations in 20.4.1 NMAC, Subparts 100 through 600, Subpart 800, and Subpart 900, authorize the use of AK in appropriate circumstances by waste generators or treatment, storage, or disposal facilities to characterize hazardous waste. AK is described in *Waste Analysis at Facilities that Generate, Treat, Store and Dispose of Hazardous Waste: A Guidance Manual* (EPA 1994a). AK, as an alternative to waste sampling and analysis, is used to meet all or part of RCRA waste characterization requirements (EPA 1994a).

EPA's 1994 Waste Analysis Guidance Manual broadly defines the term "acceptable knowledge" to include process knowledge, whereby detailed information on the wastes is obtained from existing published or documented waste analysis data or studies conducted on hazardous waste generated by processes similar to that which generated the waste; facility records of analysis performed before the effective date of RCRA; and sampling and waste analysis data obtained from generators of similar wastes that send their wastes off-site for treatment, storage, or disposal (EPA 1994a). If it is determined that AK alone is insufficient to accurately characterize a waste, radiography and/or VE, may be used to complete the waste characterization process and satisfy the requirements of the WAP. AK is used in TRU waste characterization activities in five ways:

- To delineate TRU waste streams
- To assess whether TRU mixed wastes comply with the applicable requirements of the Treatment, Storage, and Disposal Facility Waste Acceptance Criteria (TSDF-WAC)
- To assess whether TRU mixed wastes exhibit hazardous characteristic (20 NMAC 4.1.200, incorporating 40 CFR § 261 Subpart C)
- To assess whether TRU mixed wastes are listed wastes (20 NMAC 4.1.200, incorporating 40 CFR § 261 Subpart D)
- To estimate waste material parameter weights

Radiography and/or VE may be performed to augment the characterization of wastes based on AK when an AK Sufficiency Determination has not been requested by the generator/storage site or, if requested, has not been granted by the DOE (see Section C4-3d). TRU waste streams undergo applicable provisions of the AK process prior to shipment of the waste to WIPP.

C4-2 Acceptable Knowledge Documentation

The CCP collects and compiles, in a logical sequence, AK information that progresses from general facility information (TRU waste management program information) to more detailed waste-specific information (TRU waste stream information).

The CCP implements the AK process as specified in the WAP to characterize TRU waste (T5). The AK information is then compiled into the AK report (and supporting documentation), as shown in Figure C4-1, Compilation of Acceptable Knowledge Documentation, in Attachment C-4 of the WAP.

The following sections include the information the Permittee will require for the CCP to characterize TRU waste using AK. Because waste generating processes are site-specific, CCP will, as necessary, augment the required AK records with additional supporting information as discussed in Section C4-2c. If the required information is not available for a particular waste stream, the waste stream is not eligible for an AK Sufficiency Determination as specified in Section C4-3d.

C4-2a Required TRU Waste Management Program Information

TRU waste management program information clearly defines waste categorization schemes and terminology, provides a breakdown of the types and quantities of TRU waste that are generated and stored by the site (and processed by the CCP), and describes how waste is tracked and managed, including historical and current operations. Information related to TRU waste certification procedures and the types of documentation (e.g., WSPFs) used to summarize AK are also provided.

The following information is included as part of the AK written record:

- A map of the site with the areas and facilities involved in TRU waste generation, treatment, and storage identified
- Facility mission description as related to TRU waste generation and management
- Description of the operations that generate TRU waste at the site
- Description of waste identification and characterization schemes used at the site or facility (e.g., content codes, item description codes)
- Types and quantities of TRU waste generated, including historical generation through future projections. Includes time and facility/site of generation
- Description of correlation of waste streams generated from the same building and process (e.g., sludge, combustibles, metals, and glass)

- Waste certification procedures for TRU wastes to be shipped to the WIPP

C4-2b Required TRU Waste Stream Information

The CCP uses AK to delineate site-specific waste streams for shipment to the WIPP. The available process information and data that supports the AK used to characterize waste streams are compiled in AK summary reports and supporting documentation in accordance with CCP-TP-005. The type and quantity of supporting documentation may vary by waste stream, depending on the waste generating process and site specific requirements imposed by the Permittee. At a minimum, the waste process information on each waste stream includes the following written information:

- Areas and buildings from which the waste stream was or is generated
- The waste stream volume and time period of waste generation
- Waste generating process described for each building (e.g., batch waste stream generated during decommissioning operations of glove boxes), including processes associated with U134 waste generation, if applicable
- Documentation regarding how the site has historically managed the waste, including the historical regulatory status of the waste (i.e., TRU mixed versus TRU non-mixed waste)
- Process flow diagrams. In the event that a process flow diagram cannot be created, a description of the waste generating process, rather than a formal process flow diagram, is used to satisfy this requirement. The use of the waste generating process description is justified, and the justification is placed in the AK record
- Material inputs or other information that identify the chemical content of the waste stream and physical waste form (e.g., glove box materials and chemicals handled during glove box operations; events or processes that may have modified the chemical or physical properties of the waste stream after generation; data obtained through VE of newly generated waste that later undergoes radiography; information demonstrating neutralization of U134 [hydrofluoric acid] and waste compatibility)

The AK written record includes a summary that identifies all sources of waste characterization information used to delineate the waste stream. The basis and rationale for delineating each waste stream, based on the parameters of interest, is clearly summarized and traceable to referenced documents. Assumptions made in delineating each waste stream also are identified and justified. If discrepancies exist between required information, then the CCP may consider applying all hazardous waste numbers indicated by the information to the subject waste stream but must assess and

evaluate the information to determine the appropriate hazardous waste numbers consistent with RCRA requirements.

Implementing procedures address the following AK processes:

- Identifying and assigning the physical waste form of the waste
- Delineating waste streams and assigning Summary Category Groups and waste matrix codes
- Resolving inconsistencies in AK documentation
- Radiography and VE, if applicable
- For newly generated waste, procedures describing process controls used to ensure prohibited items (specified in Section C) are documented and managed
- Procedures to ensure that radiography and VE include a list of prohibited items that the operator verifies are not present in each container (e.g., liquid exceeding TSDF-WAC limits, corrosives, ignitables, reactives, and incompatible wastes)
- Procedures for documenting how changes to waste matrix code, waste stream assignment, and associated hazardous waste numbers based on material composition are documented for any waste
- Procedures that ensure the assignment of EPA hazardous waste numbers is appropriate, consistent with RCRA requirements, and considers site historical waste management
- Procedures for estimating waste material parameter weights

C4-2c Additional Acceptable Knowledge Information

CCP shall obtain additional acceptable knowledge information. CCP shall collect information as appropriate to augment required information and provide any other information obtained to further delineate waste stream. Adequacy of this information shall be assessed by DOE during audits. CCP will use this information to compile the acceptable knowledge written record.

All additional specific, relevant acceptable knowledge documentation assembled and used in the acceptable knowledge process, whether it supports or contradicts any required acceptable knowledge documentation, shall be identified and an explanation provided for its use (e.g., identification of a toxicity characteristic). Additional

documentation may be used to further document the rationale for the hazardous characterization results. The collection and use of additional information shall be assessed by DOE during site audits to ensure that hazardous waste characterization is supported, as necessary, by such information. Similar to required information, if discrepancies exist between additional information and the required information, then CCP may consider applying all hazardous waste numbers indicated by the additional information to the subject waste stream, but must assess and evaluate the information to determine the appropriate hazardous waste numbers consistent with RCRA requirements. All information considered must be documented and placed in the auditable record, including applicable discrepancy resolution documentation.

Additional AK documentation includes, but is not limited to, the following information:

- Process design documents (e.g., Title II Design)
- Standard operating procedures that may include a list of raw materials or reagents, a description of the process or experiment generating the waste, and a description of wastes generated and how the wastes are managed at the point of generation.
- Preliminary and final safety analysis reports and technical safety requirements
- Waste packaging records
- Test plans or research project reports that describe reagents and other raw materials used in experiments
- Site databases (e.g., chemical inventory database for Superfund Amendments and Reauthorization Act Title III requirements)
- Information from site personnel (e.g., documented interviews)
- Standard industry documents (e.g., vendor information)
- Analytical data relevant to the waste stream, including results from fingerprint analyses, spot checks, routine verification sampling or other processes that collected information pertinent to the waste stream. This may also include new information which augments required information (e.g., VE not performed in compliance with the WAP, radiography screening for prohibited items)
- Material Safety Data Sheet, product labels, or other product package information

- Sampling and analysis data from comparable or surrogate waste streams (e.g., residues, equivalent nonradioactive materials)

- Laboratory notebooks that detail the research processes and raw materials used in an experiment

C4-3 Acceptable Knowledge Training, Procedures, and Other Requirements

The CCP uses the following to characterize TRU waste by means of AK information:

1) compiling the required and supporting additional AK documentation in an auditable record;

2) auditing AK records, and

3) WSPF approval and waste confirmation.

C4-3a Qualifications and Training Requirements (Q2)

The CCP and site personnel responsible for compiling AK, assessing AK, and resolving discrepancies associated with AK are qualified and trained in the following areas, at a minimum:

- WAP and TSDF-WAC requirements;

- State and Federal RCRA regulations associated with solid and hazardous waste characterization;

- Discrepancy resolution and reporting; and

- CCP and site-specific procedures associated with waste characterization using AK.

Position-specific qualification and training requirements such as those listed above for functional positions within the CCP are established by the SPM and documented (Q2). The SPM ensures that personnel conducting AK activities are qualified and trained as specified.

C4-3b Acceptable Knowledge Assembly and Compilation

The CCP process allows for the consistent application of the AK process and requirements, and addresses the following requirements (T5):

- Written procedures outlining the specific methodology used to assemble AK records, including the origin of the documentation, how it is used, and any

limitations associated with the information (e.g., identify the purpose and scope of a study that included limited sampling and analysis data).

- Written procedures to compile the required AK record.
- Written procedures ensuring that unacceptable wastes (e.g., reactive, ignitable, corrosive) are identified and segregated from TRU waste populations sent to the WIPP.
- Procedures to evaluate AK and resolve discrepancies. For example, if different sources of information indicate hazardous wastes are present in a waste stream, the CCP includes all sources of information in its records and may choose to either conservatively assign hazardous waste numbers or assign only those numbers deemed appropriate and consistent with RCRA requirements. All information used to justify assignment of hazardous waste numbers must be placed in the auditable record. Further the assignment of hazardous waste numbers is traceable in the AK record to required documentation.
- Procedures to identify hazardous wastes and assign the appropriate hazardous waste numbers to each waste stream in accordance with the following minimum baseline requirements:
  - Compiling all of the required information in an auditable AK record.
  - Reviewing the compiled information and delineating waste streams. Delineation of waste streams must comply with the definition in C-0a and justify combining waste historically managed separately as TRU mixed and TRU non-mixed waste streams into a single waste stream.
  - Reviewing the compiled information to determine if the waste stream is compliant with the TSDF-WAC.
  - Reviewing the required information to determine whether the waste is listed under 20.4.1.200 NMAC (incorporating 40 CFR §261), Subpart D. Assigning all the hazardous waste numbers unless the CCP chooses to justify an alternative assignment and documents the justification in an auditable record.
  - Reviewing the required information to determine if the waste exhibits a hazardous characteristic or contains toxicity characteristic hazardous constituents specified in 20.4.1.200 NMAC (incorporating 40 CFR §261), Subpart C. If a toxicity characteristic contaminant is identified and is not included as a listed waste, sites may evaluate available data and assign the toxicity characteristic hazardous waste number consistent with RCRA

requirements. All data examined to reach the hazardous waste number determination must be placed in the auditable record and must present a clear justification for the hazardous waste number analyses.

- Reviewing the compiled information to provide an estimate of material parameter weights for each container to be stored or disposed of at WIPP.

- For newly generated wastes, procedures are developed and implemented to characterize hazardous waste using AK prior to packaging the waste.

- The CCP ensures that results of other audits of the CCP TRU waste characterization activities are available in the CCP files.

- The CCP identifies all process controls (implemented to ensure that the waste contains no prohibited items and to control hazardous waste content and/or physical form) that may have been applied to retrievably stored waste and/or may presently be applied to newly generated waste. Process controls are applied at the time of waste generation/packaging to control waste content, whereas any activities performed after waste generation/packaging to identify prohibited items, hazardous waste content, or physical form are waste characterization activities not process controls. The AK record must contain specific process controls and supporting documentation identifying when these process controls are used to control waste content. See Section C-2 for programmatic requirements related to process controls.

C4-3c Criteria for Assembling an Acceptable Knowledge Record and Delineating the Waste Stream

CCP-TP-005 describes the process for assembling AK documentation into an auditable record. The first step is to assemble the required AK information and any additional information regarding the materials and processes that generate a specific waste stream. AK records are generated in compliance with the following criteria (T5):

- AK information is compiled in an auditable record, including a road map for applicable information.

- The overview of the facility and TRU waste management operations in the context of the facility's mission is correlated to specific waste stream information.

- Correlations between waste streams, with regard to time of generation, waste generating processes, and site-facilities are described in the AK summary report (Section C4-2b). For newly generated wastes, the rate (or schedule) and quantity of waste to be generated are also maintained in the AK process descriptions compiled in the AK summary report.

- A reference list provided in Section C4-3b that identifies documents, databases, QA protocols, and other sources of information that support AK information.

Container inventories are delineated into waste streams by correlating the container identifications to all of the required AK information and additional information (T5). The CCP assigns a waste matrix code and waste stream description to each container of waste using AK.

C4-3d AK Sufficiency Determination Request Contents (T5)

The CCP may submit an AK Sufficiency Determination Request (Determination Request). The Determination Request shall include, at a minimum.

- A complete AK Summary that addresses the following technical requirements:

  - Executive Summary

  - Waste Stream Identification Summary including a demonstration that the waste stream has been properly delineated and meets the Permit definition of waste stream (Attachment C, Introduction);

  - Mandatory Program Information (including, but not limited to, facility location and description, mission, defense waste assessment, spent nuclear fuel and high-level waste assessment, description of waste generating processes, research/development [as necessary], facility support operations [as applicable], types and quantities of TRU waste generated, correlation of waste streams to buildings/processes, waste identification and categorization, physical form identifiers);

  - Mandatory Waste Stream Information (including, but not limited to, Area and Building of Generation, waste stream volume/period of generation) (including, for newly generated waste, the rate and quantity of waste to be generation), waste generating activities, types of waste generated, material input related to physical form and identification of percentage of each waste material parameter in the waste stream, chemical content information including hazardous constituents and hazardous waste identification, prohibited item content (including documented evidence that the waste meets the TSDF-WAC Permit Sections 2.3.3.1 through 2.3.3.10), waste packaging, presence of filter vents, number of layers of confinement;

  - Types of supporting information gathered;

  - Container specific data (if available and relevant); and

- A complete reference list including all mandatory and additional information.

- An AK roadmap (defined as a cross reference between mandatory programmatic and mandatory waste stream information, with references supporting these requirements).

- A complete reference list including all mandatory and additional documentation.

- Additional relevant information for the required programmatic and waste stream data addressed in the AK Summary, examples of which are presented in Section C4-2c.

- Identification of any mandatory requirements supported only by upper tier documents (i.e., there is insufficient supporting data).

- Description or other means of demonstrating that the AK process described in the Permit was followed (for example, AK personnel were appropriately trained; discrepancies were documented, etc.).

- Information showing that CCP has developed a written procedure for compiling the AK information and assigning hazardous waste numbers as required in Section C4-3b.

- Information showing that CCP has assessed the AK process (e.g., internal audits, Section C4-3b).

C4-3e Requirements for Re-evaluating Acceptable Knowledge Information (T5)

AK includes information on the waste physical form, base materials composing the waste, and the waste generating process. Waste testing (i.e., radiography/VE) may be used to augment AK information prior to waste shipment. If retrievably stored waste must be repackaged, either VE prior to or during waste packaging or radiography after waste packaging, shall be used to confirm acceptable knowledge information.

The WSPF and CIS (including the AK summary) will be reviewed by the Permittees for each waste stream prior to DOE approval of the WSPF. The Permittees review will ensure that the submitted AK information was collected under procedures that ensure implementation of the WAP, provides data sufficient to meet the DQOs in Section C-4a(1), and allow the Permittees to demonstrate compliance with the waste analysis requirements of the Permit. A detailed discussion of the Permittees' waste stream review and DOE's WSPF approval process is provided in Section C-1d.

Re-Evaluation Based on Visual Examination and Radiography

The CCP has established procedures for re-evaluating AK if the results of waste confirmation indicate that the waste to be shipped does not match the approved waste stream, or if data obtained from VE or radiography for waste streams without an AK Sufficiency Determination exhibit this discrepancy. The CCP procedures describe how waste AK is re-evaluated, the waste is reassigned, and appropriate hazardous waste numbers assigned. If the re-evaluation requires that the waste matrix code be changed for the waste stream or the waste does not match the approved waste stream, the following minimum steps are taken to re-evaluate AK:

- Existing information is reviewed based on the container identification number and all differences in hazardous waste number assignments are documented
- If differences exist between the hazardous waste numbers that were assigned, the information is re-assessed, and required AK information associated with the new designation is documented
- Reassess and document all testing data associated with the waste
- The reassignment of the waste matrix code is documented and verified (e.g., verification that the waste was generated within the specified time period, area, and building and waste generating process, and that the process material inputs are consistent with the waste material parameters of waste identified during VE or radiography)
- Changes to AK records are recorded
- If discrepancies exist in the AK information for the revised waste matrix code, the discrepancies are documented in an NCR in accordance with CCP-QP-005. The NCR documents the segregation of the affected portion of the waste stream, and defines the corrective actions necessary to fully characterize the waste.

C4-3f Acceptable Knowledge Data Quality Requirements (T5)

DQOs for testing techniques are described in Section C3. Testing results are used to augment the characterization of wastes based on AK. To ensure the process is consistently applied and ensure that AK information is accurate, complete, and is representative of the waste stream being evaluated, the CCP complies with data quality requirements for AK documentation in Section C3.

The CCP addresses quality control by tracking its performance with regard to the use of AK by:

- Assessing the frequency of inconsistencies among information

- Documenting the results of waste discrepancies identified by CCP during waste confirmation using radiography, review of radiography audio/video recordings, VE, or review of VE records

In addition, the AK process and waste stream documentation is evaluated through internal assessments by QA organizations and assessment by auditors or observers external to the CCP (i.e., DOE-CBFO, NMED, EPA).

C4-3g Audits of Acceptable Knowledge

The DOE conducts an initial audit of the CCP prior to certifying the CCP for shipment of waste to the WIPP. This audit establishes an approved baseline that is reassessed annually by the DOE. The CCP does not certify waste for disposal until all corrective actions have been completed.

C5 QUALITY ASSURANCE PROJECT PLAN REQUIREMENTS

C5-1 Quality Assurance Project Plans

The CCP has developed and implemented this QAPjP to address the applicable waste characterization requirements specified in the WAP (P1). This QAPjP includes the qualitative or quantitative criteria to ensure that waste characterization activities are being performed satisfactorily. The organization(s) and position(s) responsible for implementation of this QAPjP are identified in Section B. Throughout this QAPjP, CCP documents are referenced that detail how each of the required elements of the characterization project are performed.

This QAPjP follows the format of the WAP and is implemented by the CCP through procedures that address TRU waste characterization activities. Compliance with CCP documents ensures that tasks are performed in a consistent manner that results in achieving the quality required under the QA program. The organization, format, content, and designation of the CCP procedures is described in the CCP-QP-010, *CCP Document Preparation, Approval, and Control*.

C5-2 Document Review, Approval, and Control (Q10)

Prior to the implementation of characterization activities, the SPM ensures that written procedures have been developed for implementing the requirements of this QAPjP. Procedures ensure that tasks are performed in a consistent manner and achieve the quality required for the quality assurance program. The SPM is responsible for ensuring that the procedures meet the organization, format, content, and designation of standard operating procedures. CCP procedures are written so that they may be implemented at several sites simultaneously. Site-specific issues such as safety policies, technical specification requirements, or organizational necessities, may require the CCP to prepare site-specific procedures to supplement the procedures used to ensure WAP compliance. These procedures are identified in the SOW or site interface document. These procedures are prepared and controlled as are the other existing CCP operating procedures and are subject to site specific review requirements. As a minimum, the following requirements are addressed in CCP procedures:

- Responsibilities of the organizations affected by the document,
- Technical, regulatory, quality assurance, or other program requirements.
- Sequential description of work to be performed,
- Quantitative or qualitative acceptance criteria sufficient for determining that activities were satisfactorily accomplished.

- Prerequisites, limits, precautions, process parameters, and environmental conditions,
- Special qualifications and training requirements,
- Verification points and hold points,
- Methods for demonstrating that the work was performed as required (such as provisions for recording inspection and test results, checklists, or sign-off blocks), and
- Identification and classification of QA records to be generated by the implementing procedure.

Procedures also include examples of data (e.g., reports, forms, and data validation checklists), as appropriate. Internal review and approval requirements are specified. In addition, CCP procedures are formatted, as follows:

- Purpose
- Scope
- Requirements
- Responsibilities
- Procedures
- Records

CCP procedures are reviewed for consistency with the QAPjP in accordance with the above listed requirements. The SPM is responsible for ensuring that the most current version of all procedures is readily available for use as needed by project personnel after procedures have been reviewed and approved for use.

The SPM ensures that the preparation, issuance, and change to documents that specify quality requirements or prescribe activities affecting quality for the CCP program be controlled to assure that correct and current documents are used and referenced. The CCP uses a document control format consisting of a unique document identification number, current revision number, data, and page number, which will be placed in the header on the individual pages of the document. CCP documents are delineated into five areas: quality procedures, denoted by CCP-QP-XXX; technical procedures, denoted by CCP-TP-XXX; health and safety plans denoted by CCP-HSP-XXX; configuration management denoted by CCP-CM-XXX; and CCP Project Office documents (i.e., this QAPjP), denoted by CCP-PO-XXX. “XXX” denotes a sequential number.

Qualified and independent personnel review all CCP documents (including this QAPjP) prior to approval and issuance. Reviews consider the technical adequacy, completeness, and correctness of CCP documents and the inclusion of and compliance

with the requirements established by the WAP. Approval is indicated by a signature and date page included in the front of the document. The SPM ensures that:

- Revisions to site implementing documents are denoted by including the current revision number and date on the document title page and each page of the document.
- Revised pages are marked in redline/strikeout for expeditious review of the entire document.
- A vertical bar, indicating the change to the text, is included along the left-hand margin of the page, except in the case of full document revisions.
- Revised document submittals identify the changes, the reason for the changes, and the justification for concluding that the revised contents continue to satisfy the requirements of the QA program.
- Revisions that affect performance criteria or data quality (e.g., sampling or analytical methods, QAO, calibration requirements), other than editorial or minor changes, undergo the same level of review and approval as the baseline version of each document. These documents are reviewed and approved by the same functional organizations that performed the original review/approval, unless other organizations are specifically designated in accordance with approved procedures. Editorial or minor changes may be made without the same level of review and approval as the original or otherwise changed documents. The following items are considered editorial or minor changes:
  - Correcting grammar or spelling (provided the meaning has not changed),
  - Renumbering sections or attachments,
  - Updating organizational titles (*A change in an organizational title accompanied by a change in responsibilities is not considered an editorial change*),
  - Changes to non-quality-affecting schedules,
  - Revised or reformatted forms, providing the original intent is not altered, and
  - Attachments marked “Example” or exhibits clearly intended to be representative only

- CCP personnel are responsible for reporting any obsolete or superseded information to the SPM

- All CCP changes are evaluated and approved by the SPM, the appropriate personnel are notified before implementation, and the affected documents are revised as necessary

- Changes that affect performance criteria or data quality, and would take the activity out of compliance because they alter a requirement are not made without prior approval by DOE.

In addition, the SPM is responsible for ensuring that non-administrative changes, non-editorial changes, or changes that could affect performance criteria or data quality, such as sample handling and custody requirements, sampling and analytical testing procedures, quality assurance objectives, calibration requirements, or QC sample acceptance criteria (i.e., those changes that require prior approval of DOE as defined in Section C5-2) shall be reported to DOE within five days of identification by the project level review. The SPM ensures that the document control system is implemented to control the process for initiating, revising, modifying, reviewing, and distributing project documents and changes to project documents. As potential changes to project information are identified by the SPM, documents are revised as necessary and distributed to affected organizations in accordance with this procedure.

C6 AUDIT AND SURVEILLANCE PROGRAM

C6-1 Introduction

The WIPP audit and surveillance program ensures that the CCP conducts testing of wastes in accordance with the current WAP and that waste certification information is being managed properly. The CCP addresses deficiencies identified during the audits. A deficiency is any failure to comply with an applicable requirement of the WAP.

C6-2 Audit Procedures

This section does not apply to the CCP.

C6-3 Audit Position Functions

This section does not apply to the CCP.

C6-4 Audit Conduct

During audit interviews or audit meetings, CCP may be advised of deficiencies identified within their areas of responsibility to establish a clear understanding of the identified condition.

The personnel will be given the opportunity to correct any deficiency that can be corrected during the audit period.

When a deficiency is identified by the DOE audit team, a Corrective Action Report (CAR) is issued to the CCP. The CCP reviews the CAR which is used to evaluate the extent and cause of the deficiency, and submits an approved response to the Permittees indicating remedial actions and actions taken to preclude recurrence. If these responses to the CAR are acceptable, DOE communicates the acceptance to the CCP.

The CCP completes the remedial actions and actions to preclude recurrence and requests DOE to close the CAR. Following the completion of corrective actions, the Permittees may schedule and perform a verification visit to assure that corrective actions have been completed and are effective.

The corrective action response includes a discussion of the investigation performed to determine the extent and impact of the deficiency, a description of the remedial actions taken, determination of root cause, and action taken to preclude recurrence.

The CCP responds to any deficiencies and observations within thirty (30) days of receipt of any CARs and indicates the corrective action taken or to be taken. If the corrective action has not been completed, the response indicates the expected date the action will be completed. CARs applicable to WAP requirements are resolved prior to waste shipment.

C7 TRU WASTE CONFIRMATION

Introduction

This section of the QAPjP describes the actions that the Permittees will take to approve and accept waste for and disposal at the WIPP, including waste confirmation activities. Discussion of the Permittees' actions that are relevant to CCP will be included here. The Permittees demonstrate compliance with the WIPP-WAP by ensuring that the waste characterization processes performed by CCP produce data compliant with the WIPP-WAP and through the waste screening and verification processes. Verification occurs at three levels: 1) the data generation level, 2) the project level, and 3) the Permittee level. The Permittees also examine a representative subpopulation of waste prior to shipment to confirm that the waste contains no ignitable, corrosive, or reactive waste; and that assigned EPA Hazardous Waste Numbers are allowed by the WIPP RCRA Permit. The waste confirmation activities described herein occur prior to shipment of the waste from the CCP to WIPP.

C7-1 Permittee Confirmation of TRU Mixed Waste

This section does not apply to CCP.

C7-1a Permittee Confirmation of a Representative Subpopulation of the Waste

The Permittees will confirm that the waste contains no ignitable, corrosive, or reactive waste through radiography or the use of VE of a statistically representative subpopulation of the waste. Prior to shipment to WIPP, waste confirmation will be performed on randomly selected containers from each CH- and RH-TRU waste stream shipment.

C7-1b Radiography Methods Requirements

This section describes the portion of the Permittees' confirmation program that applies to CCP.

For containers that have been characterized using radiography by CCP in accordance with the method in Section C1-1, the Permittees may perform confirmation by review of CCP's radiography audio/video recordings.

When confirmation is performed by review of audio/video recorded scans produced by CCP as specified in Section C1-1, independent observations will be performed on two waste containers per shipment or two containers per day, whichever is less frequent.

C7-1c Visual Examination Methods Requirements

This section describes the portion of the Permittees' confirmation program that applies to CCP.

VE may also be used as a waste confirmation method by the Permittees. VE shall be conducted by the Permittees in accordance with written standard operating procedures to describe the contents of a waste container. VE shall be conducted to identify and describe all waste items, packaging materials, and waste material parameters. VE may be used by the Permittees to examine a statistically representative subpopulation of the waste certified for shipment to WIPP to confirm that the waste contains no ignitable, corrosive, or reactive waste. This is achieved by confirming that the waste contains no liquid in excess of TSDF-WAC limits or compressed gases, and that the physical form of the waste matches the waste stream description documented on the WSPF. During packaging, the waste container contents are directly examined by trained personnel. This form of waste confirmation may be performed by the Permittees at the waste generator/storage site. VE may be documented on video and audio media, or by using a second operator to provide additional verification by reviewing the contents of the waste container to ensure correct reporting. When VE is performed using a second operator, each operator performing the VE shall observe for themselves the waste being placed in the waste container or the contents within the examined waste container when waste is not removed. The results of all VE shall be documented on data forms.

In order to keep radiation doses as low as reasonably achievable, the Permittees may use their own trained VE operators to perform VE for waste confirmation by reviewing CCP VE data, which includes VE data forms, waste packaging records, and may also include audit/video media. If the Permittees perform waste confirmation by review of video media, the video record of the VE must be sufficiently complete for the Permittees to confirm the Waste Matrix Code and waste stream description, and verify the waste contains no liquid in excess of TSDF-WAC limits or compressed gases. CCP VE video/audio media subject to review by the Permittees shall meet the following minimum requirements:

- The video/audio media shall record the waste packaging event for the container such that all waste items placed into the container are recorded in sufficient detail and shall contain an inventory of waste items in sufficient detail that a trained Permittee VE operator can identify the associated waste material parameters.

- The video/audio media shall capture the waste container identification number.

- The personnel loading the waste container shall be identified on the video/audio media or on packaging records traceable to the loading of the waste container.

- The date of loading of the waste container will be recorded on the video/audio media or on packaging records traceable to the loading of the waste container.

The Permittees may also use their own trained VE operators to perform VE for waste confirmation by reviewing VE data forms or packaging logs prepared by the generator during their packaging of the waste. To be acceptable, the CCP VE data must be signed by two CCP personnel who witnessed the packaging of the waste and must provide sufficient information for the Permittees to determine that the waste container contents match the waste stream description on the WSPF and the waste contains no liquid in excess of TSDF-WAC limits or compressed gases. The Permittees will document their review of CCP VE data on Permittee VE data forms. CCP VE forms or packaging records subject to review by the Permittees shall meet the following minimum requirements:

- At least two generator site personnel shall approve the data forms or packaging records attesting to the contents of the waste container.

- The data forms or packaging records shall contain an inventory of waste items in sufficient detail that a trained Permittee VE operator can identify the associated waste material parameters.

- The waste container identification number shall be recorded on the data forms or packaging records.

VE video media of containers which contain classified shapes shall be considered classified information. VE data forms will not contain classified information.

C7-2 Noncompliant Waste Identified During Waste Confirmation

This section describes the portion of the Permittees' confirmation program that applies to CCP.

If the Permittee identifies noncompliant waste during waste confirmation at a CCP site, (i.e., the waste does not match the waste stream description documented in the WSPF or there is liquid in excess of TSDF-WAC limits or compressed gases) the waste will not be shipped.

The DOE will suspend further shipments of the affected waste stream and issue a CAR to CCP. Shipments of affected waste streams will not resume until the CAR has been closed.

As part of the corrective action plan in response to the CAR, CCP will evaluate whether the waste characterization information documented in the CIS or WSPF for the waste stream must be updated because the results of waste confirmation for the waste stream indicated that the TRU waste being examined did not match the waste stream description. CCP will thoroughly evaluate the potential impacts on waste that has been shipped to WIPP. The DOE will evaluate the potential that prohibited items were shipped to WIPP and what remedial actions should occur, if any. The results of these evaluations will be provided to NMED before shipments of affected waste stream resume. If the CIS and/or WSPF requires revision, shipments of the affected waste stream shall not resume until the revised waste stream waste characterization information has been reviewed and approved by the DOE. If CCP certifies noncompliant waste at a site more than once during a running 90-day period, the DOE will suspend acceptance of CCP's waste from that CCP site until the DOE finds that all corrective actions have been implemented and the site complies with all applicable requirements of the WIPP-WAP.

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ACRONYMS AND ABBREVIATIONS

AK	acceptable knowledge
BDR	Batch Data Report
CAR	Corrective Action Report
CBFO	Carlsbad Field Office
CCP	Central Characterization Program
CFR	Code of Federal Regulations
CH	contact-handled
CIS	Characterization and Information Summary
DA	data administrator
DOE	U.S. Department of Energy
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
HWA	New Mexico Hazardous Waste Act
HWDU	Hazardous Waste Disposal Unit
HWFP	Hazardous Waste Facility Permit
ID	identification number
INL	Idaho National Laboratory
kV	kilovolts
LDR	Land Disposal Restrictions
nCi	nanocuries
NCR	nonconformance report
NDE	nondestructive examination
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NWP	Nuclear Waste Partnership
OJT	on-the-job training
PCB	polychlorinated biphenyls
PDP	Performance Demonstration Program
QA	quality assurance
QAO	quality assurance objective
QAPD	Quality Assurance Program Document
QAPjP	quality assurance project plan
QC	quality control
RCRA	Resource Conservation and Recovery Act
RH	remote-handled
RIDS	records inventory and disposition schedule
SLB2	standard large box 2
SOP	standard operating procedure
SOW	Statement of Work
SPM	site project manager
SRS	Savannah River Site
SWB	standard waste box
TDOP	ten-drum overpack
TRU	transuranic

ACRONYMS AND ABBREVIATIONS (Continued)

TRUCON	*TRUPACT Content (Code)*
TSDF-WAC	*Treatment, Storage, and Disposal Facility Waste Acceptance Criteria*
TWBIR	*Transuranic Waste Baseline Inventory Report*
VE	visual examination
VOC	volatile organic compound
WAP	Waste Analysis Plan
WDS	Waste Data System
WIPP	Waste Isolation Pilot Plant
WSPF	Waste Stream Profile Form
WWIS	WIPP Waste Information System

Attachment 1 – Implementing Procedures

Reference Number	Procedure Number	Procedure Title
Q1	CCP-QP-001	CCP Graded Approach
Q2	CCP-QP-002	CCP Training and Qualification Plan
Q5	CCP-QP-005	CCP TRU Nonconforming Item Reporting and Control
Q8	CCP-QP-008	CCP Records Management
Q10	CCP-QP-010	CCP Document Preparation, Approval, and Control
Q14	CCP-QP-014	CCP Quality Assurance Trend Analysis and Reporting
Q15	CCP-QP-015	CCP Procurement
Q16	CCP-QP-016	CCP Control of Measuring and Testing Equipment
Q17	CCP-QP-017	CCP Identification and Control of Items
Q18	CCP-QP-018	CCP Management Assessment
Q19	CCP-QP-019	CCP Quality Assurance Reporting to Management
Q21	CCP-QP-021	CCP Surveillance Program
Q22	CCP-QP-022	CCP Software Quality Assurance Plan
Q23	CCP-QP-023	CCP Handling, Storage and Shipping
Q26	CCP-QP-026	CCP Inspection Control
Q27	CCP-QP-027	CCP Test Control
Q28	CCP-QP-028	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
Q29	CCP-QP-029	CCP Corrective Action Management
Q30	CCP-QP-030	CCP Written Practice for the Qualification of CCP Helium Leak Detection Personnel
Q40	CCP-QP-040	Support Training
T1	CCP-TP-001	CCP Project Level Data Validation and Verification

Attachment 1 – Implementing Procedures (Continued)

Reference Number	Procedure Number	Procedure Title
T2	CCP-TP-002	CCP Reconciliation of DQOs and Reporting Characterization Data
T5	CCP-TP-005	CCP Acceptable Knowledge Documentation
T6	CCP-TP-006	CCP Visual Examination Technique for Idaho National Laboratory (INL) Newly Generated TRU Waste
T28	CCP-TP-028	CCP Radiographic Test Drum and Training Container Construction
T30	CCP-TP-030	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
T53	CCP-TP-053	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
T86	CCP-TP-086	CCP CH Packaging Payload Assembly
T113	CCP-TP-113	CCP Standard Contact-Handled Waste Visual Examination
T163	CCP-TP-163	CCP Evaluation of Waste Packaging Records for Visual Examination of Records
T500	CCP-TP-500	CCP Remote-Handled Waste Visual Examination
T508	CCP-TP-508	CCP RH Standard Real-Time Radiography Inspection Procedure
T512	CCP-TP-512	CCP Remote-Handled Waste Sampling
T530	CCP-TP-530	CCP RH TRU Waste Certification and WWIS/WDS Data Entry

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Effective Date: MAY 3 1 2013

CCP-PO-002
Revision 27

CCP
Transuranic
Waste Certification Plan

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RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
4	05/17/2002	Revised to reflect requirements of new Department of Energy (DOE)/WIPP 02-3122, *Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (CH-WAC) (WIPP).
5	02/12/2003	Added CCP-TP-046, CCP-TP-047 AND CCP-TP-048 to Attachment 1, Table A.3-3, NDA Procedures.
6	06/11/2003	Updated to Revision 5 of the Quality Assurance Program Description (QAPD).
7	11/20/2003	Supplemented the description of the CCP organization in Section 4.1.1; added work planning criteria to Section 4.1.2[B]; revised Sections 4.10 and 4.10.2 to better describe how independent assessments are scheduled and conducted; updated procedure references.
8	01/08/2004	Added Procedures into Tables A-3.3, B-1, B-3, and B-4. Removed cancelled procedure (CCP-TP-080) from Table B-4.
9	03/15/2004	Incorporate changes to Revision 1 of DOE/WIPP-02-3122, Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant and other editorial changes. Changed references to match WAC.
10	11/15/2004	Revised to add procedures into Tables B-1, B-2, B-3 and B-4 in Attachment 4: Procedure Tables. Editorial changes throughout document. Incorporated Revision 20 of the Transuranic Package Transporter Modell II (TRUPACT-II) Safety Analysis Report (SAR), Revision 3 of the HalfPACT SAR, Revision 2 of the WIPP Waste Acceptance Criteria. Incorporated Carlsbad Field Office (CBFO) Document Release Record (DRR) comments.
11	02/24/2005	Revised to incorporate LANL Off-Site Source Recovery (OSR) Project. The Facility Quality Assurance Officer (FQAO) responsibilities were removed from this document to address Environmental Protection Agency (EPA) concerns regarding document consistency.
12	03/10/2005	Added procedures to Table A-3.3, Table B-1, and Table B-3. Added new Table B-3A, Solids Sampling Procedures.
13	05/09/2005	Incorporated changes to Revision 3 of DOE/WIPP-02-3122, CH-WAC for the WIPP. Updated 2.0 in Attachment 8. Updated web links in Section 5.
14	12/29/2005	Incorporated changes to Table 3.3.22, ^{239}Pu FGE Limits for Packages and Rev. 2 of the CH-TRAMPAC and editorial changes.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
15	03/22/2006	Revised to add procedures to Attachment 1, Radioassay Requirements for Contact-Handled Transuranic Waste, Table A-3.3, NDA Procedures and Attachment 4, Procedure Tables, and editorial corrections throughout. Updated Figure 2-1, Central Characterization Project (CCP) Organization. Changed all references to DOE O 414.1A to DOE O 414.1. Updated step 3.2.2(B) (B.1) and step 3.2.6(B)(B.2) to address Carlsbad Field Office (CBFO) Document Review Record (DRR) comments.
16	11/16/2006	Revised to incorporate Revision 5 of DOE/WIPP 02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant.*
17	11/16/2006	Revised in response to concerns raised during the Idaho National Laboratory (INL) Remote-Handled (RH) Audit A-06-21. Corrected Section 4.4.1[B] and Attachment 11.
18	11/16/2006	Revised to incorporate Revision 6.0 of DOE/WIPP 02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant.*
19	05/22/2007	Revised to change the references for quality planning, list CCP special processes, and add a new Section 5.7 addressing configuration management of CCP equipment.
20	11/02/2007	Revised for the addition of Remote Handled Waste shipments.
21	01/26/2009	Revised procedure lists to include new and modified procedures/titles. Also, revised to incorporate Revision 6.2 of DOE/WIPP 02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*.
22	01/12/2010	Revised to incorporate Revision 6.4 of DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*.
23	04/07/2010	Revised to add Hanford Non-Destructive Assay (NDA) equipment.
24	06/30/2010	Revised to incorporate Revision 6.5 of DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*.
25	12/29/2010	Revised to incorporate Revision 7.0 of DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* and minor editorial changes.
26	07/14/2011	Revised to incorporate revision 7.1 and 7.2 of DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, minor editorial changes, and delete Appendix 11.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
27	05/31/2013	Revised to incorporate Revision 7.3 and Revision 7.4 of DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, which incorporates the changes resulting for the Class 2 Permit modification entitled “Revised Waste Analysis Plan Waste Characterization Methods” which was approved by New Mexico Environment Department (NMED) on March 13, 2013, incorporate organizational changes to reflect the transition to Nuclear Waste Partnership (NWP), to clarify the hierarchy of quality assurance (QA) program documents, and minor editorial changes.

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1.0 INTRODUCTION

The Central Characterization Program (CCP) is tasked with characterizing and certifying Transuranic (TRU) waste for disposal at the Waste Isolation Pilot Plant (WIPP). Accordingly, the CCP must comply with DOE/WIPP 02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WAC). The WAC establishes the specific physical, chemical, radiological, and packaging criteria for acceptance of defense TRU waste shipments at WIPP. The WAC also requires that the CCP produce documents, including a certification plan, that addresses applicable requirements and criteria pertaining to packaging, characterization, certification, and shipping of defense TRU waste to WIPP for disposal.

The CCP may provide its services to a site by contracting directly with that site. If this is the case, the scope of services provided by CCP is specified in a Statement of Work (SOW) issued by the site. The SOW also specifies health and safety requirements, quality requirements, and other requirements specific to that site. A site-specific interface document may also be prepared which provides more detail on the site-CCP interface. The CCP has the option to use data from established TRU waste characterization activities at a U.S. Department of Energy (DOE)-Carlsbad Field Office (CBFO)-certified site, per site-specific interface documents. Transportation services may be provided through the CCP Certified Program or by other DOE-CBFO certified sites.

The site has general management oversight responsibility for work performed by the CCP at the site. The site is responsible for ensuring that CCP conducts its activities in compliance with site requirements, as defined in the site-specific interface document for that location.

Figure 1-1, CCP Document Hierarchy for TRU Waste Characterization, Certification, and Transportation illustrates the hierarchy of regulatory requirements for TRU waste characterization, certification, and transportation, and reflects the flow-down of requirements from higher-level documents to site-level program documents and implementing procedures. To ensure that future changes to the WAC and other relevant requirements documents are appropriately reflected, this CCP Transuranic Waste Certification Plan (hereinafter referred to as the Plan) will be reviewed at least annually and updated as necessary.

This Plan establishes the programmatic framework and criteria within which the CCP ensures that TRU wastes can be certified as compliant with the WAC. This Plan includes the following sections:

- Section 2.0, ORGANIZATION OF THE CCP, describes the interaction between the characterization, certification, and transportation personnel, and lists the responsibilities of key CCP officials.

- Section 3.0, COMPLIANCE PLAN FOR CH-WAC, describes CCP activities and specific documents that implement and verify compliance with each requirement.

- Section 4.0, WASTE ACCEPTANCE REQUIREMENTS AND CRITERIA FOR RH WASTE, describes CCP activities and specific documents that implement and verify compliance with each requirement.

- Section 5.0, QUALITY ASSURANCE PLAN, describes how the CCP complies with DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document* (QAPD) (Reference 18), the WAC (Reference 47), DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan* (WCPIP) (Reference 17), and provides the QA Plan for transportation as required by Title 10 *Code of Federal Regulations* (CFR), *Energy,* Part 71, *Packaging and Transportation of Radioactive Material,* Subpart H, *Quality Assurance*.

This Plan and associated Quality Assurance (QA) Plan (Section 5.0), CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (QAPjP), CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC),* and CCP-PO-505, *Remote-Handled Transuranic Waste Authorized Methods for Payload Control* establish the programmatic framework for the CCP's waste characterization, certification, and transportation activities. The QA Plan (Section 5.0) within this Plan implements all of the applicable CBFO QAPD requirements. These documents are submitted to the CBFO for review and approval. CCP will not characterize, certify, or ship TRU wastes to the WIPP before CBFO approval of this Plan.

1.1 CBFO Organization and Responsibilities

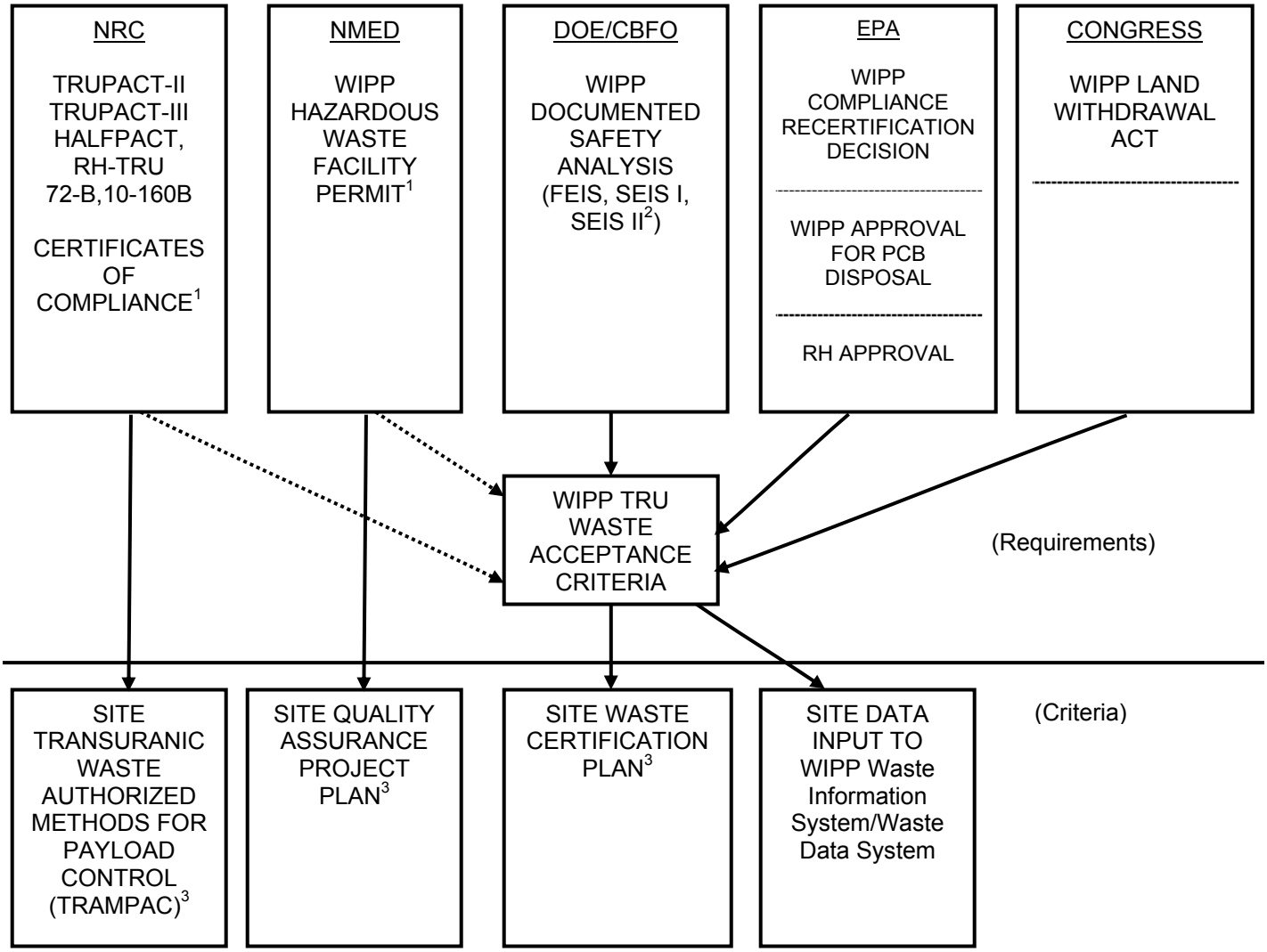
1.1.1 DOE-CBFO Office Director, Office of (Quality Assurance Manager)

[A] The DOE-CBFO QA Manager provides independent oversight of QA activities of the CCP and approves this Plan. This will include audits and surveillances to ensure that CCP is in compliance with this Plan.

1.1.2 DOE-CBFO Office Director, Office of National TRU Program

[A] The DOE-CBFO Office Director, Office of National TRU Program provides overall policy direction and oversees the CCP characterization and certification activities and approves this Plan.

Figure 1-1. CCP Document Hierarchy for TRU Waste Characterization, Certification, and Transportation



Note 1: The TRAMPACs as referenced by the TRUPACT-II, TRUPACT-III, HalfPACT, and RH-TRU 72-B Certificates of Compliance, the Safety Analysis Report (SAR) as referenced by the 10-160B Certificate of Compliance, and the WIPP Hazardous Waste Facility Permit (HWFP) provide detailed requirements. This Plan provides only an overview of these requirements.

Note 2: Final Environmental Impact Statement (FEIS), Supplemental Environmental Impact Statement (SEIS).

Note 3: All work performed by the site for the CBFO must be performed under an approved QA program. The site-specific Transuranic Waste Authorized Methods for Payload Control (TRAMPAC) can be a separate document or can be embodied in the site waste certification plan. The 10-160B SAR does not require the preparation of a site-specific TRAMPAC. Instead, acceptable methods for payload compliance for the 10-160B package are implemented by a Nuclear Regulatory Commission (NRC)-approved site-specific Appendix to the 10-160B SAR.

2.0 ORGANIZATION OF THE CCP

The responsibilities for TRU waste management of the CCP are distributed within various organizations. This section identifies the organizations involved in the CCP and describes the responsibilities of and interactions between these organizations.

2.1 Organization and Responsibilities

2.1.1 CCP Management

[A] CCP management has overall responsibility for successfully accomplishing activities subject to the QAPD. Management provides the necessary planning, organization, direction, control, resources, and support to achieve their defined objectives. Management is responsible for planning, performing, assessing, and improving the work.

[B] CCP management is responsible for establishing and implementing policies, plans, and procedures that control the quality of work, consistent with the provisions of the CBFO QAPD.

[C] Ensuring that adequate technical and QA training is provided for personnel performing activities subject to the CBFO QAPD.

[D] CCP management is responsible for ensuring that individual workers are knowledgeable of requirements for work they perform and are provided the necessary resources and administrative controls needed to accomplish assigned tasks.

[E] Ensuring compliance with all applicable regulations, DOE orders and requirements, and applicable federal, state, and local laws.

[F] Ensuring that personnel adhere to procedures for the generation, identification, control, and protection of QA records.

[G] Exercising the authority and responsibility to STOP unsatisfactory work such that cost and schedule do not override environmental, safety, or health considerations.

[H] Developing, implementing, and maintaining plans, policies, and procedures that implement the CBFO QAPD.

[I] Identifying, investigating, reporting, and correcting quality problems.

[J] Members of CCP management are responsible for achieving and maintaining quality in their area. Quality achievement is the responsibility of those performing the work. Quality achievement is verified by persons or organizations not directly responsible for performing the work.

[K] CCP management empowers employees by delegating authority and decision making to the lowest appropriate level in the organization.

[L] Figure 2-1, CCP Organization, is a functional organization chart pertaining to TRU waste characterization and certification activities at the CCP. The following subsections identify the organizations that oversee the CCP and describe the roles and responsibilities of key positions within the CCP charged with implementing the requirements defined in this Plan.

2.1.2 NTPC Certification Manager

[A] The National TRU Program Certification (NTPC) Manager is responsible for the day-to-day management and direction of CCP activities. The NTPC Certification Manager is responsible for:

[A.1] Ensuring successful CCP/site interface.

[A.2] Ensuring CCP plans and operations are coordinated, integrated, and consistent with DOE-CBFO programs, policies, and guidance.

[A.3] Coordinating CCP activities and functioning as principal point-of-contact (POC) with DOE-CBFO and other regulating agencies.

[A.4] Reviewing and approving this Plan.

2.1.3 CCP Certification Manager

[A] The CCP Certification Manager is the principal POC with DOE (including CBFO and National TRU Program [NTP]) for technical activities associated with TRU waste. The CCP Certification Manager performs the Site Project Manager (SPM) duties described in Appendix E of the CBFO QAPD. The CCP Certification Manager may delegate specific individuals within CCP to perform functions that are the responsibility of an SPM. The use of the term “SPM” in this Certification Plan refers to those delegated individuals. This delegation is documented by the completion and approval of an SPM Qualification Card in accordance with CCP-QP-002.

The CCP Certification Manager coordinates with the CCP Waste Certification Official (WCO) and Transportation Certification Official (TCO) and oversees CCP activities to ensure that TRU waste is characterized and certified compliant with WIPP requirements. Specific responsibilities assigned to the CCP Certification Manager include the following:

[A.1] Reviewing and approving this Plan.

[A.2] Developing, maintaining, reviewing, approving, and implementing CCP procedures and plans. Development, approval, and implementation of procedures and plans will occur at the earliest time consistent with the schedule for accomplishing the activities.

[A.3] Scheduling revisions and distributing CCP procedures and plans and forwarding these documents (if significantly revised) to DOE-CBFO for review and approval before implementation. The term "significantly revised" means non-editorial changes in accordance with the CBFO QAPD, Section 1.4.3.

[A.4] Ensuring CCP personnel receive appropriate training and are properly qualified, so that suitable proficiency is achieved and maintained.

[A.5] Obtaining Acceptable Knowledge (AK) information from waste generators regarding U.S. Environmental Protection Agency (EPA) hazardous waste numbers.

[A.6] Reviewing and approving interface documents.

[A.7] Waste selection and tracking.

[A.8] Halting characterization or certification activities if problems affecting the quality of certification processes or work products exist.

[A.9] Validating and verifying characterization data.

[A.10] Reconciling verified data with data quality objectives (DQOs).

[A.11] Evaluating and reconciling AK information with characterization data.

[A.12] Preparing and submitting SPM Data Validation Summaries, Waste Stream Profile Forms (WSPFs), Characterization Information Summaries, Waste Stream Characterization Packages, and QA/Quality Control (QC) reports to DOE-CBFO.

[B] The CCP Certification Manager may delegate any of these activities to another individual; however, the CCP Certification Manager retains ultimate responsibility for ensuring that CCP certification requirements are met.

2.1.4 CCP Transportation Certification Official (TCO)

[A] The CCP TCO documents and certifies that payload containers and assemblies to be transported meet the requirements of CCP-PO-003. Specific responsibilities of the TCO include the following:

[A.1] Reviewing the applicable CCP transportation plans and transportation procedures.

[A.2] Interfacing with the SPM, CCP Certification Manager, WCO, and QA on matters associated with waste transportation.

[A.3] Reviewing and maintaining CCP-PO-003.

[A.4] Ensuring that data used in completion of the transportation documents are accurate and demonstrate that the waste is acceptable for transportation.

[A.5] Preparing and signing Payload Container Transportation Certification Documents (PCTCDs) and Overpack Payload Container Transportation Certification Documents (OPCTCDs).

[A.6] Preparing and signing Payload Assembly Transportation Certification Documents (PATCDs).

[A.7] Assisting QA with preparation of responses to deficiency reports in transportation matters.

[A.8] Ensuring that the transportation data entered into the WIPP Waste Information System/Waste Data System (WWIS/WDS) are accurate and demonstrate that waste is acceptable for disposal at WIPP.

[A.9] Reviewing interface documents.

[A.10] Halting transportation certification activities if problems affecting the certification or work process exist.

2.1.5 NWP Quality Assurance (QA) Manager

[A] The (NWP) Nuclear Waste Partnership QA Manager has the overall responsibility and authority to perform independent assessments to verify the organization's achievement of quality and assure the effective implementation of the QA program. The NWP QA Manager has the responsibilities and authorities described in Section 1.1.5 of WP 13-1, Nuclear Waste Partnership LLC Quality Assurance Program Description (NWP QAPD).

2.1.6 Quality Assurance (QA)

[A] QA provides QA oversight and planning for TRU waste characterization and certification, verifies the implementation of the QAPjP and the QA requirements of this Plan, and provides day-to-day guidance to CCP staff on quality-related matters. QA has the authority to STOP CCP work activities if quality is not assured or controlled. QA has no assigned responsibilities unrelated to the QA Program that would prevent appropriate attention to QA matters. QA is responsible for verifying the achievement of quality by those performing the work. As shown in the organization chart in Figure 2-1, the Assurance Programs Manager reports to the NWP QA Manager, so that required authority and organizational freedom are provided, including sufficient independence from cost and schedule considerations. The Assurance Programs Manager performs the duties and has the responsibilities and authorities described for the site project QA manager in Appendix E of the CBFO QAPD. QA specific responsibilities include the following:

[A.1] Reviewing and approving CCP procedures and plans including this Plan.

[A.2] Coordinating and participating in internal and external audits and assessments to verify compliance.

[A.3] Tracking compliance and evaluating trends in compliance with QA objectives (QAOs).

[A.4] Performing assessments of testing facilities.

[A.5] Tracking and trending CCP nonconformances and corrective action reports (CARs).

[A.6] Verifying CCP corrective actions.

[A.7] Submitting semi-annual and other QA/QC reports to the CCP Certification Manager and DOE-CBFO.

[A.8] Participating in the development of responses to Corrective Action Reports generated by DOE-CBFO or other external assessment organizations.

[A.9] Reviewing and approving supplier and subcontractor QA Plans.

[A.10] Reviewing interface documents.

[A.11] Providing guidance to all CCP organizations concerning identification, control, and protection of QA records.

[A.12] STOPPING work if quality is not ensured or controlled.

[A.13] Providing day-to-day guidance on quality-related matters to CCP staff.

[A.14] Maintaining liaison with participant QA organizations and other affected organizations.

[A.15] Developing, establishing, and interpreting QA policy and ensuring effective implementation.

[A.16] Interfacing, as appropriate, with the DOE-CBFO staff, participants, and other stakeholders on QA matters.

[A.17] Assisting CCP organizations with quality planning, documentation, quality measurement, and problem identification and resolution.

[A.18] Initiating, recommending, or providing solutions to quality problems through designated channels.

[A.19] Ensuring that further processing, delivery, installation, or use is controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred.

[A.20] Coordinating with responsible management on resolution of differences of opinion involving the definition and implementation of QA Program requirements. If not resolved, progressively elevating

the issues to successively higher levels of management as necessary.

[A.21] Ensuring that a graded approach is used to exercise control over activities affecting quality to an extent consistent with their importance.

[A.22] Interfacing with the CCP WCO and TCO on matters related to waste certification and transportation.

[A.23] Providing inspection services for procurement, including source inspections

[A.24] Providing vendor qualification and maintenance of the NWP Qualified Suppliers List (QSL) for vendors used by the CCP.

[B] QA may delegate one or more individuals to perform the above functional responsibilities; however, QA retains ultimate responsibility for ensuring compliance with QA requirements.

2.1.7 CCP Waste Certification Official (WCO)

[A] The CCP WCO is responsible for reviewing data and information necessary to document TRU waste payload containers prepared for shipment to WIPP meet specified criteria. The WCO coordinates activities related to waste certification. Specific duties and responsibilities of the WCO include the following:

[A.1] Certifying that waste packages meet WAC requirements.

[A.2] Interfacing with the CCP Certification Manager, SPM, TCO, and QA on matters related to waste certification.

[A.3] Stopping waste certification activities if problems affecting the quality of certification processes or work products exist.

[A.4] Ensuring that certification data entered into the WIPP WWIS/WDS are accurate and demonstrate the acceptability of the waste for transport to and disposal at the WIPP.

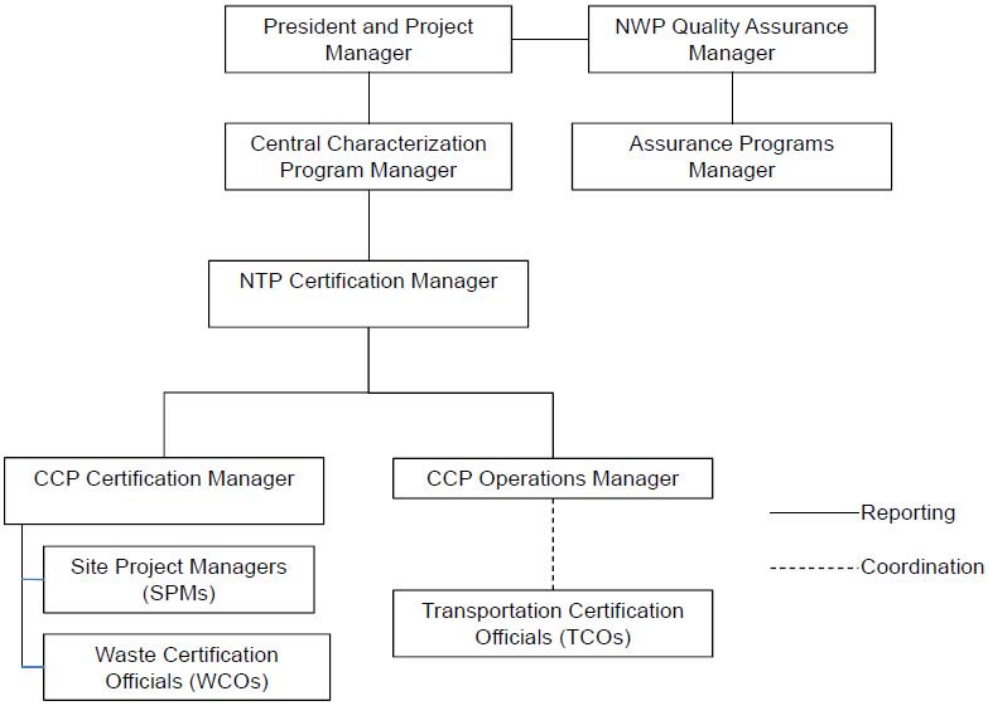
[A.5] Reviewing the applicable CCP plans and procedures and any other waste certification-related documents.

[A.6] Reviewing this Plan.

[A.7] Preparing responses to deficiency reports.

[B] The WCO may delegate one or more individuals to perform the above responsibilities; however, the WCO retains ultimate responsibility for ensuring compliance with WAC requirements.

Figure 2-1. CCP Organization



3.0 COMPLIANCE PLAN FOR CH-WAC

This section describes how the CCP complies with the requirements of the WIPP WAC and associated requirements contained in the WIPP Documented Safety Analysis (DSA) (Reference 4), the Transuranic Package Transporter II (TRUPACT-II), Transuranic Package Transporter III (TRUPACT-III), and/or HalfPACT Certificates of Compliance (References 5 and 6), the WIPP Land Withdrawal Act (LWA) (Reference 2) the WIPP HWFP (Reference 9), the Compliance Recertification Decision (Reference 10), the Initial Report for Polychlorinated Biphenyl (PCB) Disposal Authorization (Reference 11), the EPA letter of approval to land dispose non-liquid PCBs at WIPP (References 12 and 13), and the Revision to the Record of Decision for the DOE's WIPP Disposal Phase and associated WIPP National Environmental Policy Act (NEPA) database (References 14 and 15).

3.1 Organization of Requirements

WAC requirements are organized under five major categories: container properties, radiological properties, physical properties, chemical properties, and data package contents. Sections 3.2 through 3.6 correlate with the organization in the WAC for Contact-Handled (CH) TRU waste requirements and identify methods of compliance to meet each requirement. Procedures that implement the process controls, techniques, tests, and other actions to be applied to each TRU payload container, waste stream, and shipment are also identified. Revisions of requirements in referenced documents controlled by agencies or organizations other than DOE (e.g., EPA, NMED, and NRC) shall have precedence over values quoted in this Plan. Changes incorporated in future revisions of the CH-WAC will be reflected in future revisions of this Plan.

Regarding any discussions of compliance and verification methods, if a requirement is not met, personnel will initiate a Nonconformance Report (NCR) or a CAR in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*. Corrective action will be taken in accordance with CCP-QP-029, *CCP Corrective Action Management,* to resolve nonconformances. Section 5.3 of this Plan provides additional details about the NCR/CAR process. Only waste from a properly characterized waste stream will be certified as meeting the requirements and associated criteria contained in this Plan. Waste containers for a waste stream that has not been represented by an approved WSPF will not be shipped to WIPP for disposal (Reference 9, Part 2, Section 2.3.3.10). The required characterization, certification, and shipment data will be transmitted to WIPP using the WWIS/WDS.

3.1.1 DOE Operations and Safety Requirements for WIPP

[A] The WIPP DSA (Reference 4) addresses TRU waste handling and emplacement operations. The waste acceptance for emplacement in the WIPP will conform to the WAC.

3.1.2 NRC Transportation Safety Requirements for Type B Packages

[A] Acceptable methods for payload compliance control are defined in the TRUPACT-II, TRUPACT-III and HalfPACT Certificates of Compliance and implemented by the CH-TRAMPAC (References 23a and 23b). For shipments to WIPP, the CCP has prepared a CCP CH-TRAMPAC (CCP-PO-003) and a CCP TRUPACT-III TRAMPAC (CCP-PO-050 *CCP Trupact-III TRU Waste Authorized Methods For Payload Control [CCP TRUPACT-III TRAMPAC]*) describing compliance with each payload parameter. The CCP CH-TRAMPAC and CCP TRUPACT-III TRAMPAC will contain sufficient detail to allow reviewers to adequately understand and evaluate the compliance methodology for each payload parameter.

[B] The QA Program in Section 5.0 of this Plan defines the QA activities that apply to the use of NRC-approved transportation packaging in accordance with Title 10 CFR Part 71, Subpart H (Reference 24).

3.1.3 NMED Hazardous Waste Facility Permit Requirements

[A] TRU waste is classified as TRU mixed waste if it contains hazardous constituents regulated under the New Mexico Hazardous Waste Act (Reference 25). Only TRU mixed waste and TRU waste that have been characterized in accordance with WIPP Waste Analysis Plan (WIPP WAP) and that meet the treatment, storage, and disposal facility waste acceptance criteria as presented in permit Sections 2.3.3.1 through 2.3.3.10 will be shipped to WIPP for disposal. The CCP QAPjP describes compliance with the WIPP WAP.

3.1.4 EPA Compliance Recertification Decision Requirements

[A] Title 40 CFR §194.24(c) (Reference 26) requires the DOE to specify the limiting values for waste components to be emplaced in the repository. The EPA's Recertification Decision specifies waste components (including free water,

metals, and cellulose, plastic, and rubber) and their limits that are associated with the waste proposed for disposal at WIPP.

[B] CCP estimates or determines the weight of cellulose, plastics, and rubber, and reports this estimate in the WWIS/WDS on a container basis. In addition, CCP quantifies and reports the activity values of each of the following radionuclides for purposes of tracking the inventory curie content: ^{241}Am, ^{238}Pu, ^{239}Pu, ^{240}Pu, ^{242}Pu, ^{233}U, ^{234}U, ^{238}U, ^{90}Sr, and ^{137}Cs. The presence or absence of these radionuclides is determined using AK documentation and radioassay in accordance with Appendix A of the WAC. The results of these determinations are reported in the WWIS/WDS on a payload container basis. TRU waste payload containers shall contain more than 100 nanocuries per gram (nCi/g) of waste of alpha-emitting TRU isotopes with half-lives greater than 20 years, as specified in Section 3.3.3.

3.1.5 EPA Approval for PCB Disposal

PCB contaminated TRU and PCB contaminated TRU waste mixed with a hazardous waste including PCB remediation waste, PCB Articles, and PCB bulk product waste may be stored and disposed at the WIPP (References 11, 12, 13, 14, and 15). Waste streams identified as containing PCBs shall be brought to the attention of the CBFO in order that a determination can be made regarding their acceptability at WIPP. Applicable waste acceptance criteria are addressed in Sections 3.2.5, 3.4.1, and 3.5.6.

3.1.6 Land Withdrawal Act Requirements (Public Law 102-579)

[A] WIPP can only accept radioactive waste generated by atomic energy defense activities of the United States (Reference 1). A TRU waste is eligible for disposal at the WIPP if it has been generated in whole or in part by one or more of the following functions (References 27 and 28):

- Naval reactors development
- Weapons activities, including defense inertial confinement fusion
- Verification and control technology

- Defense nuclear materials production
- Defense nuclear waste and materials by-products management
- Defense nuclear materials security and safeguards and security investigations
- Defense research and development

Using AK, CCP determines that each waste stream to be disposed at WIPP is “defense” TRU waste.

[B] High-level radioactive waste or spent nuclear fuel shall neither be transported, emplaced, nor disposed of at the WIPP. Also, no TRU waste may be transported by or for the DOE to or from the WIPP, except in Type B packages:

- the design of which has been certified by the NRC, **AND**
- that have been determined by the NRC to satisfy its QA requirements.

3.2 Container Properties Criteria and Requirements

3.2.1 Payload Container Description

[A] Requirements

[A.1] Each payload container shall be assigned to a payload shipping category (References 23a and 23b). Authorized payload containers are listed in Table 1, Authorized Payload Container Contents. Payload containers shall meet U.S. Department of Transportation (DOT) Specification 7A, Type A, packaging requirements delineated in 49 CFR 173.465 (Reference 4, Section 2.6.2; Reference 9, Attachment A1, Section A1-1b, Reference 12, Section VI.F). Payload containers must be made of steel and be in good and unimpaired condition prior to shipment from the generator/storage sites. To demonstrate compliance with the requirement that payload containers be in good and unimpaired condition, the exterior of all payload containers shall undergo 100 percent visual inspection prior to loading into a Type B package. The results of this visual inspection

shall be documented using Appendix 7, Payload Container Integrity Checklist, of this Plan. A payload container in good and unimpaired condition, 1) does not have significant rusting, 2) is of sound structural integrity, and, 3) does not show signs of leakage. Significant rusting is a readily observable loss of metal due to oxidation (e.g., flaking, bubbling, or pitting) that causes degradation of the payload container's structural integrity. Rusting that causes discoloration of the payload container surface or consists of minor flaking is not considered significant. A payload container is not of sound structural integrity if it has breaches or significant denting/deformation. Breaching is defined as a penetration in the payload container that exposes the internals of the container. Significant denting/deformation is defined as damage to the payload container that results in creasing, cracking, or gouging of the metal, or damage that affects payload container closure. Dents or deformations that do not result in creasing, cracking, or gouging or affect payload container closure are not considered significant. CCP will report to the WWIS/WDS the number and types of payload containers planned for shipment to the WIPP.

[B] Compliance and Verification

[B.1] The CCP procures payload containers (e.g., drums, Standard Waste Box [SWBs], Standard Large Box2 [SLB2] and Ten-Drum Overpack [TDOPs]) that meet the following requirements:

(a) SWBs, SLB2s, and TDOPs are procured to the same standards and specifications as the containers used in Type A testing.

(b) New 55-gallon drums are procured as UN1A2 reusable drums, in accordance with applicable requirements of 49 CFR 173, which is allowable per CBFO memo CBFO:NTP:JFS97-1144UFC5822. Drums may also be procured to the same standards and specifications as the drums used in Type A testing.

[B.2] Recovered drums are inspected to ensure that they are DOT Specification 17C or 17H or meet

UN1A2 requirements for reusable drums. Permanent markings embossed on the bottom of the drums are used to verify the drum type if procurement records are not available. Alternatively, if the markings are not visible (e.g., drums that are galvanized through a dipping process, which obscures the embossing), the drums are inspected and inspection results are compared to requirements for 17C, 17H, or UN1A2 drums. Personnel examine retrievably stored containers for compliance with the applicable requirements and verify that the containers are in good condition in accordance with site-specific container management procedures (See Appendix 4, Procedure Tables, Table B-1), and CCP-TP-033, *CCP Shipping of CH-TRU Waste*. CCP-TP-033 contains Appendix D from the WAC, and is used to document compliance with the Payload Container Integrity Checklists.

[B.3] Personnel document their procurement acceptance and/or visual inspections. If packages cannot be shown to meet the above requirements by procurement records and/or physical examination, CCP personnel take corrective action (e.g., repackage the waste into a certifiable container) to resolve the nonconformance.

[B.4] Personnel will report the number and types of containers to WIPP using WWIS/WDS, in accordance with CCP-TP-030, *CCP CH-TRU Waste Certification and WWIS/WDS Data Entry*.

Table 1. Authorized Payload Container Contents

Payload Container	Contents
55-gallon drum	Either direct loaded or containing a pipe component (commonly referred to as a pipe overpack container [POC])
85-gallon drum[1]	Either direct loaded or containing a 55-gallon drum
100-gallon drum	Direct loaded
Shielded container	Containing a 30-gallon steel drum
SWB	Either direct loaded or containing up to four 55-gallon drums, up to three 85-gallon drums, up to two 100-gallon drums, or one bin
SLB2	Direct loaded or containing various individual containers (4 x 4 x 7-foot boxes and 5 x 5 x 8-foot boxes as well as other containers of smaller sizes)
TDOP	Either direct loaded or containing up to ten 55-gallon drums or up to six 85-gallon drums or one SWB

[1]The term "85-gallon drum" includes 75-gallon to 88-gallon drums.

3.2.2 Container Weight and Center-of-Gravity

[A] Requirements

[A.1] See the CH-TRAMPAC for weight limits and center-of-gravity requirements (Reference 23a). See the TRUPACT-III TRAMPAC for applicable weight limits (Reference 23b).

3.2.3 Assembly Configurations

[A] Requirements

[A.1] See the CCP CH-TRAMPAC and TRUPACT-III TRAMPAC for payload assembly configuration requirements (References 23a and 23b).

3.2.4 Removable Surface Contamination (Payload Containers)

[A] Requirements

[A.1] The removable surface contamination for each CH-TRU waste payload container, payload assembly and packaging must be measured and documented prior to shipment. Removable surface contamination

on CH-TRU waste payload containers, container assemblies, and packaging shall not be greater than 20 disintegrations per minute (dpm) per 100 square centimeters (cm^2) for alpha-emitting radionuclides and 200 dpm per 100 cm^2 for beta-gamma-emitting radionuclides (Reference 9, Attachment A1, Section A1-1d[2]; References 29 and 30).

[A.2] Fixing surface contamination to meet the above criterion is not permitted.

[B] Compliance and Verification

[B.1] A Host site Radiological Control Technician (RCT) surveys TRU waste payload containers, payload assemblies and packaging, for removable surface contamination before they are loaded for shipment. The RCT assesses removable contamination and documents the results in accordance with Host site radiological survey procedures. If the RCT determines that removable contamination exceeds 20 dpm per 100 cm^2 for alpha-emitting radionuclides or 200 dpm per 100 cm^2 for beta-gamma-emitting radionuclides, personnel determine whether surface contamination can be removed to meet established limits. If compliance with removable surface contamination limits cannot be achieved, personnel segregate and disposition noncompliant container(s) in accordance with CCP-QP-005. The survey results are added to the container data package. The WCO confirms removable surface contamination survey results in accordance with Host site radiological survey procedures. CCP-TP-033 is utilized to comply with requirements of this section.

3.2.5 Container Identification/Labeling

[A] Requirements

[A.1] Each CH-TRU waste payload container shall be uniquely identified by means of bar code labels permanently attached in conspicuous locations. (Reference 23a, Section 2.4; Reference 23b, Section 2.3). The unique payload container identification number shall include a site identifier as a prefix (References 23a and 23b, Section 6.2.1).

[A.2] The container identification number shall be in medium to low density Code 39 bar code symbology as required by American National Standards Institute (ANSI) Standard ANSI/Association for Automatic Identification and Mobility (AIM) BC1-1995 (Reference 31) in characters at least 1-in. high, and alphanumeric characters at least 0.5-in. [inch] high. In the case of a 55-gallon, 85-gallon, or 100-gallon drum, or a shielded container, a minimum of three bar code identification labels shall be placed at approximately equal intervals around the circumference of the drum or shielded container (e.g.,120 degrees for three labels, 90 degrees for four labels) so that at least one label is clearly visible when drums or shielded containers are assembled into a payload assembly (e.g., a label must be visible after slip sheets and wrapping are applied). The bar code labels are required on the flat sides of SWBs. For TDOPs and SLB2s, a minimum of one bar code is required.

[A.3] Payload containers shall be marked “Caution Radioactive Material” using a yellow and magenta label as specified in 10 CFR Part 835 (Reference 30).

[A.4] Payload containers whose content are also Resource Conservation and Recovery Act (RCRA) regulated (mixed-TRU) shall be additionally marked “Hazardous Waste” as specified in 40 CFR §262.32 (Reference 33).

[A.5] For TRU and mixed-TRU wastes containing PCBs, the payload containers shall be marked in accordance with 40 CFR §761.40 (Reference 13).

[A.6] Additionally, DOT Type B packages (i.e., the TRUPACT-II, TRUPACT-III and HalfPACT) containing PCBs must be properly marked in accordance with the EPA letter of approval and 40 CFR §761.40 (References 12 and 13).

[A.7] If an empty drum or shielded container is used as dunnage to complete a shipment to the WIPP, the drum shall be labeled with a unique payload identification number and “EMPTY” or “DUNNAGE.”

[A.8] If a seven-pack of 55-gallon drums, a four-pack of 85-gallon drums, a three-pack of 100-gallon drums, or a SWB is shipped as dunnage to fill a TRUPACT-II, the drums or SWB will be labeled as "EMPTY" or "DUNNAGE" but will not be labeled with the unique site-specific payload container identification numbers (CINs) or included in WWIS/WDS data.

[B] Compliance and Verification

[B.1] Fifty-five gallon, 85-gallon, 100-gallon drums or shielded container certified will have a minimum of three bar code labels equally spaced around the drum that identify the site and contain a unique identification number in accordance with the Host site-specific container management procedure(s). Bar code labels will be affixed on the flat side of SWBs, while on a TDOP, a minimum of one bar code will be affixed.

[B.2] After verifying payload parameters, personnel ensure each container is marked with the appropriate site and container identification number in accordance with the host site-specific container management procedures. The TCO verifies the container marking (e.g., barcode, Radiation Material, PCB, or Hazardous Waste labels) in accordance with CCP-TP-033.

[B.3] Refer to Section 3.2.6[B] of this Plan for compliance with the dunnage requirements and verifications.

3.2.6 Dunnage

[A] Requirements

[A.1] See the CCP CH-TRAMPAC for dunnage requirements (Reference 23a).

[A.2] The use of dunnage shall be minimized.

[A.3] In the event the use of dunnage cannot be avoided, the preferred practice for maximizing the efficiency of waste handling and the utilization of disposal room capacity is to ship them in assemblies (e.g., a seven-pack assembly of 55-gallon drums).

[B] Compliance and Verification

[B.1] The minimization of the use of dunnage is through load management. The use of dunnage drums is reviewed and approved concurrently with the review and approval of shipment assemblies by the WWIS/WDS Data Administrator on a case-by-case basis.

3.2.7 Filter Vents

[A] Requirements

[A.1] Payload containers that have been stored in an unvented condition (i.e., no filters and/or unpunctured liner) shall be aspirated for a specific length of time as described in the CH-TRAMPAC to ensure equilibration of any gases that may have accumulated in the closed payload container (References 23a and 23b, Section 5.3.1). All payload containers (including overpacks, but not dunnage containers) shall be vented with one or more filters to control gas concentration and pressure (Reference 4, Section 2.6.2; Reference 47, Reference 23a, Section 2.5.1; Reference 23b, Section 2.4.1; Reference 9, Attachment A1, Section A1-1b[2]). Filters shall meet the specifications described in the WIPP Hazardous Waste Facility Permit and the CH-TRAMPAC, and TRUPACT-III TRAMPAC (Reference 9, Attachment A1, Section A1-1d [1]; Reference 23a, Section 2.5.1; Reference 23b, Section 2.4.1). The model number of each filter vent or combination of filter vents will be reported using the WWIS/WDS.

[B] Compliance and Verification

[B.1] Personnel will procure approved filters for use on TRU waste containers. Filters will be selected from the DOE-CBFO-approved filter list. Filters will be procured in accordance with CCP-QP-015, *CCP Procurement*.

[B.2] The personnel visually verify that filter vents, if present, have been installed properly. If filter vents are not installed, personnel procure filter vents that meet specifications and install the correct number of

filter vents. The WCO confirms payload venting in accordance with CCP-TP-030. When a payload container does not meet the payload container filter requirements, an NCR is initiated. Nonconforming filters are replaced as necessary.

3.3 Radiological Properties

3.3.1 Radionuclide Composition

[A] Requirements

[A.1] The radionuclide composition of each waste container being characterized must be quantified and reported for purposes of tracking the inventory curie content. The activities and masses of the following radionuclides must be reported: ^{241}Am, ^{238}Pu, ^{239}Pu, ^{240}Pu, ^{242}Pu, ^{233}U, ^{234}U, ^{238}U, ^{90}Sr, and ^{137}Cs. The estimated activities and masses, including their associated total measurement uncertainties (TMU) expressed in terms of one standard deviation for these ten radionuclides shall be reported to the WWIS/WDS on a payload container basis. For any of these ten radionuclides whose presence can be substantiated from AK, direct measurement, computations, or a combination thereof, and whose measured data are determined to be below the lower limit of detection (LLD) for that radionuclide, the site shall report the character string "< LLD" to the WWIS/WDS for the activity and mass of that radionuclide; otherwise a value of zero shall be reported. Quantitative estimates for LLD shall not be used when calculating related radiological properties of the waste such as TRU alpha activity concentration, ^{239}Pu Fissile Gram Equivalent (FGE), decay heat, etc.

[A.2] In addition, all radionuclides other than the ten WIPP-tracked radionuclides (i.e., ^{241}Am, ^{238}Pu, ^{239}Pu, ^{240}Pu, ^{242}Pu, ^{233}U, ^{234}U, ^{238}U, ^{90}Sr, and ^{137}Cs) that contribute to 95 percent of the radioactive hazard for the payload container shall be reported on the bill of lading or manifest in accordance with Title 49 CFR, *Transportation* §172.203, (Reference 36) and Title 49 CFR §173.433, (Reference 37). The activities and masses of these other radioisotopes shall also be reported to the WWIS/WDS along with their

associated TMU, expressed in terms of one standard deviation for each waste container.

[B] Compliance and Verification

[B.1] CCP uses AK and measurements to determine radionuclide composition. The requirements for nondestructive assay (NDA) are presented in Appendix 1, Radioassay Requirements for Contact-Handled Transuranic Waste. NDA personnel quantify radionuclide values in accordance with the applicable procedures listed in Appendix 1, Table A-2.1, NDA Procedures. NDA personnel use AK data and assay measurements and calculations to create an isotopic profile of each waste container. The activities and masses of the ten WIPP-tracked radionuclides including TMU (one standard deviation) and all radionuclides other than the ten WIPP-tracked radionuclides including TMU (one standard deviation) that contribute to 95 percent of the radioactive hazard for the payload container being characterized will be reported for each container using WWIS/WDS in accordance with procedure CCP-TP-030. In addition, all radionuclides other than the ten WIPP-tracked radionuclides that contribute to 95 percent of the radioactive hazard for the payload container shall be reported on the bill of lading or manifest in accordance procedure CCP-TP-033.

[B.2] For any of the ten WIPP-tracked radionuclides whose presence can be substantiated from AK, direct measurement, or a combination thereof, and whose measured data are determined to be below the LLD for that radionuclide, the CCP will report the character string “< LLD” to the WWIS/WDS for the activity and mass of that radionuclide; otherwise a value of zero will be reported.

3.3.2 Fissile Material Quantity (^{239}Pu FGEs)

[A] Requirements

[A.1] For each payload container, the sum of ^{239}Pu FGE plus two times its associated TMU, expressed in terms of one standard deviation, shall comply with the limits in Table 2, ^{239}Pu FGE Limits for Payload Containers (Reference 4, Section 6.4.2 References 23a and 23b, Section 3.1.1). The values calculated for ^{239}Pu FGE and its associated TMU, expressed in terms of one standard deviation, shall be reported to the WWIS/WDS for each payload container.

[A.2] See the CCP CH-TRAMPAC for ^{239}Pu FGE limits applicable to the TRUPACT-II and/or HalfPACT packaging (Reference 23a).

[A.3] See the CCP CH-TRUPACT-III TRAMPAC for ^{239}Pu FGE limits applicable to the TRUPACT-III packaging (Reference 23b).

Table 2. ^{239}Pu FGE Limits for Payload Containers

Waste Container Type	Be/BeO Limits	Special Waste Container Geometry/Material Requirements	^{239}Pu FGE Limit
Non-Machine Compacted Waste			
55- (excluding pipe overpacks), 85-, and 100-gallon drums	≤ 1% by weight of the waste	None	≤ 200
55-gallon drum configured as a pipe overpack (i.e., a standard, S100, S200, or S300 pipe overpack)	≤ 1% by weight of the waste	None	≤ 200
Shielded Container	≤ 1% by weight of the waste	None	≤ 200
SLB2	≤ 1% by weight of the waste	The minimum ^{240}Pu content in grams for the SLB2 waste container, denoted in the adjacent ^{239}Pu FGE Limit column as a parenthetical, shall be determined after the subtraction of two times the error (i.e., two standard deviations)	≤ 325 ≤ 340 (5) ≤ 360 (15) ≤ 380 (25)
SWB	≤ 1% by weight of the waste	None	≤ 325
TDOP	≤ 1% by weight of the waste	None	≤ 325
55- (excluding pipe overpacks), 85-, and 100-gallon drums	>1% by weight of the waste up to 100 kg	None	≤ 100
SWB	>1% by weight of the waste	None	≤ 100
TDOP	>1% by weight of the waste	None	≤ 100

Table 2. ^{239}Pu FGE Limits for Payload Containers (Continued)

Waste Container Type	Be/BeO Limits	Special Waste Container Geometry/Material Requirements	^{239}Pu FGE Limit
Machine Compacted Waste			
Pipe overpacks (i.e., a standard, S100, S200 , or S300 pipe overpack)	> 1% by weight of the waste	None	≤ 140
55- (excluding pipe overpacks), 85-, and 100-gallon drums	≤ 1% by weight of the waste	Partially compacted waste. Applies to waste that has been compacted such that the distribution and form of polyethylene in the waste does not exceed 0.646 gram/cubic centimeter (g/cm^3), i.e., 70% of the theoretical full density of polyethylene (0.923 g/cm^3).	≤ 200
55- (excluding pipe overpacks), 85-, and 100-gallon drums	≤ 1% by weight of the waste	Fully compacted waste without design vertical spacing. Applies to waste that has been compacted such that the distribution and form of polyethylene in the waste exceeds 0.646 g/cm^3, i.e., 70% of the theoretical full density of polyethylene (0.923 g/cm^3).	≤ 170
55- (excluding pipe overpacks), 85-, and 100-gallon drums	≤ 1% by weight of the waste	Fully compacted waste with design vertical spacing. Applies to waste that has been compacted such that the distribution and form of polyethylene in the waste exceeds 0.646 g/cm^3, i.e., 70% of the theoretical full density of polyethylene (0.923 g/cm^3), and the dimensions of the payload containers (e.g., 100-gallon drums) ensure a minimum 0.5-in. separation between their compacted waste contents and other axially adjacent payload containers.	≤ 200
Shielded Container	≤ 1% by weight of the waste	None	≤ 200

Table 2. ^{239}Pu FGE Limits for Payload Containers (Continued)

Waste Container Type	Be/BeO Limits	Special Waste Container Geometry/Material Requirements	Waste Container
Machine Compacted Waste			
SWB/TDOP	≤ 1% by weight of the waste	Fully compacted waste with design vertical spacing. Applies to waste that has been compacted such that the distribution and form of polyethylene in the waste exceeds 0.646 g/cm^3, i.e., 70% of the theoretical full density of polyethylene (0.923 g/cm^3), and contains one 16-gauge steel 100-gallon drum having a top and bottom design spacing of 0.75 and 0.50-inches, respectively, with no loose material or other drums of waste in the SWB/TDOP.	≤ 250
SWB/TDOP	≤ 1% by weight of the waste	Fully compacted waste with design vertical spacing. Containing one 55-, 85-, or 100-gallon drum whose design ensures a minimum of 0.5-in. vertical spacing between drum contents and the exterior top and bottom of the drum (e.g., a recessed lid) with no loose material or other drums of waste in the SWB/TDOP.	≤ 200
SWB/TDOP	≤ 1% by weight of the waste	Partially compacted waste. Containing one 55-, 85-, or 100-gallon drum whose contents have been compacted such that the distribution and form of polyethylene in the waste does not exceed 0.646 g/cm^3, i.e., 70% of the theoretical full density of polyethylene (0.923 g/cm^3) with no loose material or other drums of waste in the SWB/TDOP.	≤ 200
SWB/TDOP	≤ 1% by weight of the waste	Fully compacted waste with design vertical spacing. Applies to waste that has been compacted such that the distribution and form of polyethylene in the waste exceeds 0.646 g/cm^3, i.e., 70% of the theoretical full density of polyethylene (0.923 g/cm^3).	≤ 185

[B] Compliance and Verification

[B.1] Personnel obtain the CH-TRU waste fissile content in accordance with the processes described in Appendix 1, Radioassay equipment is qualified under the corresponding Performance Demonstration Program (PDP) requirements. CCP calculates the fissile or fissionable radionuclide content of the CH-TRU waste container as ^{239}Pu FGE according to approved calculation methods in accordance with CCP-TP-033.

[B.2] Personnel compile and review AK to make initial determinations about radionuclide content and concentrations. CCP confirms AK by obtaining information on the isotopic composition of the waste through radioassay of the filled payload container.

[B.3] Personnel compute the container ^{239}Pu FGE and container ^{239}Pu FGE TMU manually or using a computational algorithm. Individual radionuclide mass quantities and TMUs are converted to ^{239}Pu FGE by multiplying the mass value (g) by ^{239}Pu FGE conversion factors (FGE/g) listed in Table 3.1.2 of the CH-TRAMPAC (Reference 23a) and Table 3.1-1 of the TRUPACT-III TRAMPAC (Reference 23b). The ^{239}Pu FGE of each payload container shall be calculated from the isotopic composition and quantity of radionuclides. The ^{239}Pu FGE value plus two times the measurement error shall be less than the applicable limit for each payload container.

[B.4] The total ^{239}Pu FGE error is the square root of the sum of the squares of the individual ^{239}Pu FGE TMUs. Two times this error shall be added to the ^{239}Pu FGE of the Type B package payload and compared to the limit. The ^{239}Pu FGE of the radionuclides in each payload container will be reported to the WIPP using the WWIS/WDS and the TRUPACT-II and TRUPACT-III payload total FGE will be recorded on the PATCD. Payload containers shipped to the WIPP will meet both the Type B package and the WIPP repository requirements for criticality.

3.3.3 TRU Alpha Activity Concentration

[A] Requirements

[A.1] TRU waste containers to be disposed of at the WIPP shall contain greater than 100 nCi/g of waste of alpha-emitting TRU isotopes, with half-lives greater than 20 years. Without taking into consideration the TMU, the TRU alpha activity concentration for a payload container is determined by dividing the TRU alpha activity of the waste by the weight of the waste. The weight of the waste is the weight of the material placed into the payload container (i.e., the net weight of the container). The weight of the waste is typically determined by subtracting the tare weight of the payload container (including the weight of the rigid liner and any shielding external from the waste, if applicable) from the gross weight of the payload container. In the event waste containers (e.g., 55-gallon, 85-gallon or 100-gallon drums) that have been radioassayed are overpacked in a payload container (e.g., in a SWB), CCP shall sum the

individual TRU alpha activity values of the individual waste containers and divide by the sum of the individual net waste weights (i.e., less container, shielding, and liner weights as appropriate) to determine the activity per gram for the payload container. Should CCP utilize load management by overpacking waste containers, the determination of the payload container's TRU alpha activity concentration shall be in accordance with Appendix 8, Payload Management of TRU Alpha Activity Concentration. Loading a 55-gallon pipe-overpack with cans is considered direct loading, not overpacking for the purposes of calculating the weight of the container. The TRU alpha activity concentration shall be reported to the WWIS/WDS; however, there are no reporting requirements for its associated TMU (Reference 35, Chapter 4).

[B] Compliance and Verification

[B.1] Personnel measure TRU alpha activity concentration in accordance with the NDA processes described in Appendix 1. Personnel calculate the TRU alpha activity concentration of the CH TRU waste container manually or using computational algorithms. Personnel will subtract the tare weight of the containers before calculating the TRU alpha activity concentration. Personnel validate and verify calculation programs, before the data are used in accordance with CCP-QP-022, *CCP Software Quality Assurance Plan*. Assay data are validated and verified, and submitted in batch data reports (BDRs) to the CCP Project Office. The WCO confirms the reported TRU alpha activity concentration is appropriately calculated and above the specified limit.

3.3.4 ^{239}Pu Equivalent Activity

[A] Requirements

[A.1] ^{239}Pu equivalent curie (PE-Ci) limits are shown in Table 3, PE-Ci Limits. PE-Ci quantities shall be calculated in accordance with Appendix 5 for each payload container and reported to the WIPP using the WWIS/WDS (Reference 4, Section 3.3.2.3.1 and Table 3.3-6). There are no reporting requirements for the associated TMU.

Table 3. PE-Ci Limits

Payload Container	Packing Configuration	PE-Ci Limit
55-, 85-, and 100-gallon drum	Direct loaded – all approved waste forms other than solidified/vitrified waste	≤ 80 PE-Ci
Shielded Container	Direct loaded – vented 30-gallon inner steel drum – all approved waste forms other than solidified/vitrified waste	≤ 80 PE-Ci
SLB2	Direct loaded – all approved waste forms other than solidified/vitrified waste	≤560 PE-Ci
SWB	Direct loaded (or a bin) – all approved waste forms other than solidified/vitrified waste	≤ 560 PE-Ci
TDOP	Direct loaded – all approved waste forms other than solidified/vitrified waste	≤ 800 PE-Ci
85-gallon drum	Overpacking an undamaged[1] 55-gallon drum – all approved waste forms other than solidified/vitrified waste	≤ 1100 PE-Ci
SWB, TDOP	Overpacking an assembly of undamaged[1] 55- or 85-gallon drums with no single payload container within the assembly exceeding 1100 PE-Ci – all approved waste forms other than solidified/vitrified waste	≤ 1200 PE-Ci
TDOP	Overpacking an undamaged[1] SWB – all approved waste forms other than solidified/vitrified waste	≤ 1200 PE-Ci
Pipe Overpacks (Standard, S100, S200, and S300)	All approved waste forms	≤ 1800 PE-Ci
All	Solidified/vitrified waste	≤ 1800 PE-Ci

[1] An undamaged container provides an additional barrier should a breach occur in the overpack. When overpacking one or more damaged waste containers, direct loaded PE-Ci limits apply.

[B] Compliance and Verification

[B.1] Personnel calculate the activity of the CH-TRU waste container as PE-Ci according to the methodology in Appendix 5 of this Plan and CCP-TP-030. Personnel identify payload containers exceeding limits stated in Table 2, segregate them, and disposition them in accordance with approved nonconformance and corrective action management procedures. The WCO verifies compliance of the PE-Ci limits. Personnel will report the PE-Ci activity to the WIPP using the WWIS/WDS.

3.3.5 Radiation Dose Equivalent Rate

[A] Requirements

[A.1] The external radiation dose equivalent rate of individual payload containers shall be:

[A.2] ≤200 milliroentgen equivalent man (mrem)/hour (hr) at the surface with the exception of the S100 and S300 pipe overpacks which are limited to ≤179 mrem/hr and ≤155 mrem/hr, respectively, at the surface (References 23a and 23b, Section 3.2; Reference 4, Sections E1 and 2.1). Internal payload container shielding shall not be used to meet this criterion, except for authorized shielded payload container configurations such as the use of 55-gallon drums containing a pipe component or a shielded container (Reference 23a, Section 2.9). Total dose equivalent rate and the neutron contribution to the total dose equivalent rate shall be reported for each payload container in the WWIS/WDS.

[A.3] See the CCP CH-TRAMPAC and TRUPACT-III TRAMPAC for associated package requirements (References 23a and 23b).

[B] Compliance and Verification

[B.1] A Host site RCT measures surface dose rates of the individual payload containers in accordance with site radiological survey procedures using the beta-gamma and neutron dose rates for each container at the surface, and records the results for each payload container. If the combined beta-gamma and neutron dose rate exceeds the dose rate specified in step 3.3.5[A] at the surface for any container, the container is rejected, marked, and segregated. Total dose equivalent rate and the neutron contributions to the total payload container dose rate will be reported separately using the WWIS/WDS in accordance with CCP-TP-030.

3.3.6 Decay Heat

[A] Requirements

[A.1] See the CCP CH-TRAMPAC and TRUPACT-III TRAMPAC for decay heat requirements (References 23a and 23b).

[B] Compliance and Verification

[B.1] Personnel will compute the payload container decay heat and the measurement error manually or using a computational algorithm in accordance with CCP-TP-030. Personnel will ensure that the results of the calculations are equal to or less than the limits of the assigned shipping category. Individual radionuclide mass quantities and errors are converted to decay heat by multiplying the mass values (g) by decay heat conversion factors (W/g). Table 3.1-2 in the CH-TRAMPAC and TRUPACT-III TRAMPAC (References 23a and 23b) lists ^{239}Pu FGE, decay heat, and specific activity for many radionuclides. The values calculated for decay heat and its associated TMU (expressed in terms of one standard deviation) shall be reported to the WWIS/WDS for each payload container in accordance with CCP-TP-030.

3.4 Physical Properties

3.4.1 Observable Liquid

[A] Requirements

[A.1] Liquid waste is not acceptable at the WIPP. Observable liquid containing PCBs is prohibited at the WIPP.

Liquid in the quantities delineated below is acceptable:

- Observable liquid shall be less than 1 percent[1] by volume of the outermost container at the time of radiography or visual examination (VE) (Reference 9).

[1]The limit of “less than 1 percent” is taken from the CH-TRAMPAC and TRUPACT-III TRAMPAC and is more restrictive than the limit of “no more than 1 percent” in the HWFP.

- Internal containers with more than 60 milliliters (ml) or 3 percent by volume observable liquid, whichever is greater, are prohibited.

- Containers with Hazardous Waste Number U134 assigned shall have no observable liquid.

- Overpacking the outermost container that was examined during radiography or visual examination or redistributing untreated liquid within the container shall not be used to meet the liquid volume limits.

(Reference 9, Part 2, Section 2.3.3.1, Attachment C, Sections C-1c and C-3b; Reference 23a, Section 2.6.1; Reference 23b, Section 2.5.1; Reference 35, Appendix TRU Waste; Reference 12, Conditions of Approval, II.A.2).

[B] Compliance and Verification

[B.1] Initially, AK is used to determine container contents. Personnel estimate liquid volume by radiography and/or VE, in accordance with site-specific radiography and VE procedures (See Appendix 4, Tables B-2 and B-3). During VE, if personnel detect any liquid waste in non-transparent internal containers by shaking the internal container, they will assume that the internal container is completely filled and add the entire volume of the internal container to the total liquid in the container being characterized using VE. Personnel reject payload containers whose liquid volumes exceed the limits defined in 3.4.1 [A.1]. If necessary, personnel repackage noncompliant waste containers in accordance with site-specific VE procedures (See Appendix 4, Table B-3).

3.4.2 Sealed Containers

[A] Requirements

[A.1] Sealed containers that are greater than four liters (L) (nominal) are prohibited except for solid inorganic waste (Waste Material Type II.2) packaged in a metal container (Reference 23a, Section 2.8.1; Reference 23b, Section 2.7.1).

[B] Compliance and Verification

[B.1] Personnel will ensure that payload containers are verified to be free of sealed containers greater than four liters. Personnel use VE and/or Real-Time Radiography to ensure prohibited physical waste forms are not present in waste containers (See Appendix 4, Table B-2 through B-3).

Payload containers rejected for sealed containers greater than four liters or more are marked and segregated. The container is repackaged and reprocessed to verify the criteria are met. The WCO confirms the sealed container criteria in accordance with CCP-TP-030.

3.5 Chemical Properties

3.5.1 Pyrophoric Materials

[A] Requirements

[A.1] Radioactive pyrophoric materials shall be present only in small residual amounts (<1 percent by weight) in payload containers and shall be generally dispersed in the waste. Radioactive pyrophorics in concentrations greater than 1 percent by weight and all nonradioactive pyrophorics shall be reacted (or oxidized) and/or otherwise rendered nonreactive prior to placement in the payload container (References 23a and 23b, Section 4.1.1). Nonradionuclide pyrophoric materials are not acceptable at the WIPP (Reference 4, Section 11.4.1; Reference 9, Attachment C, Section C-1c; Reference 9, Part 2, Section 2.3.3.2; References 23a and 23b, Section 4.1.4).

[B] Compliance and Verification

[B.1] Personnel verify compliance with pyrophorics restriction by obtaining information documented in AK. VE and radiography verify there is no indication and document that waste does not contain pyrophorics or other prohibited material (See list of real-time radiography [RTR] and VE procedures in Appendix 4, Tables B-2 and B-3). Personnel review and evaluate AK to verify that waste-producing processes included

no pyrophorics or other prohibited materials. AK includes sampling and analysis data, documentation of waste stream descriptions, or actions to treat or stabilize the waste to eliminate specific characteristics.

3.5.2 Hazardous Waste

[A] Requirements

[A.1] Hazardous wastes not occurring as co-contaminants with TRU wastes (non-mixed hazardous wastes) are not acceptable at the WIPP. Each CH-TRU-mixed waste container shall be assigned one or more EPA hazardous waste codes as appropriate. Only EPA hazardous waste codes listed as allowable in the WIPP Hazardous Waste Facility Permit may be managed at the WIPP. Some of the waste may also be identified by unique state hazardous waste codes. These wastes are acceptable at the WIPP as long as the Treatment, Storage, and Disposal Facility WAC are met (Reference 9, Attachment C, Section C-1b; Reference 9, Part 2, Section 2.3.4). Wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003) are not acceptable at WIPP. In the context of this Plan, hazardous waste codes are synonymous with hazardous waste numbers (Reference 9, Attachment C, Section C-1c; Reference 9, Part 2, Sections 2.3.3.3, 2.3.3.7, and 2.3.4).

[B] Compliance and Verification

[B.1] Personnel will ensure that each individual waste payload container is assigned to a waste stream identified by acceptable EPA hazardous waste codes and documented on a DOE-approved WSPF. Personnel will report the hazardous waste codes for each container to the WIPP via the WWIS/WDS in accordance with CCP-TP-030. EPA hazardous waste codes are assigned based on AK. CCP uses CCP-TP-005, CCP Acceptable Knowledge Documentation, to compile, review, evaluate, confirm and report AK documentation. The AK Summary Report delineates waste streams and assigns hazardous waste codes. If data are insufficient to

demonstrate that the concentration of the constituent is less than the regulatory level, the EPA hazardous waste number for the identified constituent is applied to the waste stream. CCP will report hazardous waste codes in accordance with CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*; CCP-TP-005 and CCP-TP-030.

3.5.3 Chemical Compatibility

[A] Requirements

[A.1] TRU waste containing incompatible materials or materials incompatible with payload container and packaging materials, shipping container materials, other wastes, repository backfill, or seal and panel closure materials are not acceptable for transport in the TRUPACT-II, TRUPACT-III, or HalfPACT or for disposal at the WIPP. Chemical constituents shall conform to the lists of allowable materials in Tables 4.3-1 through 4.3-8 of the CH-TRAMPAC. Other chemicals or materials not identified in these tables are allowed provided that they meet the requirements as specified in Section 4.3.1 of the CH-TRAMPAC and TRUPACT-III TRAMPAC (Reference 9, Attachment C, Section C-1c; Reference 9, Part 2, Section 2.3.3.4; References 23a and 23b, Sections 4.3 and 4.4).

[B] Compliance and Verification

[B.1] Personnel ensure compliance with the chemical compatibility requirements based on AK. Only wastes that have been shown to meet the approved chemical lists in Tables 4.3-1 through 4.3-8 of the CH-TRAMPAC and Tables 4.3-1 through 4.3-7 of the TRUPACT-III TRAMPAC are acceptable at the WIPP. The WCO confirms compliance with the chemical compatibility criteria in accordance with CCP-TP-030. If necessary, personnel repackage CH TRU waste containers not meeting the chemical compatibility requirement.

3.5.4 Explosives, Corrosives, and Compressed Gases

[A] Requirements

[A.1] Waste shall contain no explosives, corrosives, or compressed gases (pressurized containers) (Reference 9, Attachment C, Section C-1c; Reference 9, Part 2, Sections 2.3.3.5 and 2.3.3.7; References 23a and 23b, Section 4.2.1).

[B] Compliance and Verification

[B.1] Personnel ensure that explosives, compressed gases, and corrosive liquids are not present in payload containers. Chemicals (e.g., oxidizers) capable of forming explosive mixtures under some conditions are also prohibited from the waste. Waste-generation processes are assessed for safety hazards such as potential explosion hazards and potential inadvertent production of explosive materials in accordance with CCP-TP-005. Corrosives must be either excluded from the payload container or processed to neutralize the corrosive material or otherwise render it noncorrosive. CCP operating procedures describe the specific actions taken to ensure compliance with the corrosive material prohibition, (e.g., site-specific radiography and VE procedures [See Appendix 4, Tables B-2 and B-3]).

[B.2] Personnel verify compliance with the prohibited items requirement by obtaining AK information (e.g., administrative, operating, QA procedures, and safety assessments) documenting that waste does not contain explosives, corrosives, or pressurized containers. Personnel review and evaluate AK to verify that waste-producing processes included no prohibited or restricted materials. AK includes sampling and analysis data, documentation of waste stream descriptions, or actions to treat or stabilize the waste to eliminate specific characteristics. Personnel verify that prohibited materials are not in the waste container through radiography or VE (See list of RTR and VE procedures in Appendix 4, Tables B-2 and B-3).

3.5.5 HSG VOC Concentrations

[A] Requirements

[A.1] The headspace gas (HSG) of payload containers shall be determined in accordance with a site-specific TRAMPAC (References 23a and 23b, Section 5.2), as required.

[B] Compliance and Verification

[B.1] CCP Personnel ensure that the required QAOs meet the requirements specified for gas generation rates in the Gas Generation QAPjP. For those payload containers that exceed the flammable volatile organic compound (VOC) limit, a determination of compliance with the flammable (gas/VOC) concentration limit as described in the CH-TRAMPAC allows the payload container to be shipped in the Type B package under the test category.

[B.2] Test category payload containers are tested by direct measurement in accordance with gas generation testing (GGT) procedures (See Appendix 4, Table B-4) to quantify the hydrogen/methane, VOC, and total gas generation rates (as appropriate) for purposes of determining if all applicable limits are met in accordance with CCP-TP-030.

[B.3] Representative sampling of HSG may be used to quantify the hydrogen/methane, VOC, and total gas generation rates (as appropriate) for purposes of determining if all applicable limits are met in accordance with CCP-TP-030.

3.5.6 Polychlorinated Biphenyl (PCB) Concentration

[A] Requirements

[A.1] For TRU and mixed-TRU wastes containing PCBs meeting the condition of approval in Reference 12, the payload container data entered into the WWIS/WDS shall include the earliest date of waste generation (i.e., the date of removal from service for disposal), the date of waste certification for disposal, and the date the waste was sent to the WIPP for disposal (Reference 12, Section III.D.4). Additionally,

the estimated weight of the PCBs in kilograms (kg) (as recorded on the Uniform Hazardous Waste Manifest [UHWM]) and a description of the type of PCB waste (e.g., PCB Articles, PCB remediation waste), shall be entered into the WWIS/WDS (Reference 13, § 761.207 [a][2] and § 761.180). Hanford, Idaho National Laboratory, Savannah River Site, Oak Ridge National Laboratory, Knolls Atomic Power Laboratory, and Los Alamos National Laboratory are authorized to ship their TRU and TRU-mixed wastes containing PCBs to WIPP (References 14 and 15).

[B] Compliance and Verification

[B.1] Personnel use AK obtained from CCP-TP-005, and/or verification, and testing to demonstrate compliance with the PCB requirement. Personnel use nondestructive examination (NDE) (VE and RTR) procedures (See Appendix 4, Tables B-2 and B-3) during packaging of newly generated waste to identify the presence of PCBs. For retrievably stored debris waste, personnel compile, record, and evaluate AK to demonstrate compliance with the PCB limitation. The WCO verifies compliance with the PCB requirements.

3.6 Data Package Contents

3.6.1 Characterization and Certification Data

[A] Requirements

[A.1] Sites shall prepare a WSPF for each waste stream. Each WSPF shall be approved by the DOE-CBFO prior to the first shipment of that waste stream. Characterization and certification information for each payload container shall be submitted to the WWIS/WDS and approved by the WWIS/WDS Data Administrator. Sites are required to estimate the cellulose, plastics, and rubber (CPR) weights and report these estimates in the WWIS/WDS on a payload container basis. Any payload container from a waste stream that has not been preceded by an appropriate certified WSPF is not acceptable at the WIPP (Reference 9, Part 2, Section 2.3.3.10).

[B] Compliance and Verification

[B.1] Personnel will verify compliance with the data package requirements by reviewing data packages in accordance with CCP-TP-001, *CCP Project Level Data Validation and Verification,* and CCP-TP-005. Personnel will prepare and submit the WSPF to DOE-CBFO in accordance with procedure CCP-TP-002. The WCO ensures that the WWIS/WDS data are entered into the system and transmitted to the DOE-CBFO for approval before waste shipment in accordance with CCP-TP-030. Waste containers will be certified under an approved WSPF prior to shipment.

3.6.2 Shipping Data

[A] Requirements

[A.1] Sites shall prepare either a Bill of Lading or a UHWM for CH-TRU waste shipments as required by the transportation requirements. The Land Disposal Restriction (LDR) notification for CH-TRU mixed waste shipments shall state that the waste is not prohibited from land disposal (Reference 9, Attachment C, Section C-5b(2); References 23a and 23b, Section 6).

[B] Compliance and Verification

[B.1] Personnel verify compliance with the data package requirements by reviewing the data packages in accordance with CCP-TP-001 and CCP-TP-005. The TCO and WCO ensure that the WWIS/WDS data are entered into the system and transmitted to DOE-CBFO for approval before waste shipment in accordance with CCP-TP-030 and CCP-TP-033.

[B.2] The TCO prepares a PCTCD/OPCTCD for each payload container and a PATCD for each payload assembly in accordance with the CCP CH-TRAMPAC prior to loading the container into a Type B package. The TCO completes the PCTCD/OPCTCD and PATCD to certify an individual payload container and a PATCD to certify the payload assembly for shipping in accordance with CCP-TP-033, which is based on

Section 6.0 of the CCP CH-TRAMPAC. The PCTCDs, OPCTCDs, and the PATCDs are completed prior to shipping the Type B package. The LDR Exemption Notification form is completed for mixed waste shipments in accordance with CCP-TP-033. The shipping site's transportation personnel or personnel prepare a bill of lading or UHWM. For non-mixed waste shipments, a Bill of Lading is prepared. A UHWM is prepared for mixed waste shipments. If the TCO is the shipper of record, shipping data are prepared in accordance with CCP-TP-033.

[B.3] CCP Transportation is tasked with the final review of the payload assembly and documentation. The final approval of the assembly and documentation (UHWM or Bill of Lading) is done by CCP Transportation or other certified Host site program.

4.0 WASTE ACCEPTANCE REQUIREMENTS AND CRITERIA FOR RH WASTE

This section describes how the CCP complies with the requirements of the WIPP WAC for RH waste and associated requirements contained in the WIPP DSA (Reference 4), RH TRU 72-B and 10-160B Certificates of Compliance (References 7 and 8), WIPP LWA (Reference 2), WIPP Hazardous Waste Facility Permit (Reference 9), Compliance Recertification Decision (Reference 10), Initial Report for PCB Disposal Authorization (Reference 11), EPA letter of approval to land dispose non-liquid PCBs at WIPP (References 12 and 13), Revision to the Record of Decision for the DOE's WIPP Disposal Phase and associated WIPP NEPA database (References 14 and 15), EPA's letter of approval of DOE's RH TRU Waste Characterization Program (Reference 16), and the WCPIP (Reference 17).

4.1 Organization of Requirements

The purpose of Section 4.0 and related appendices is to describe the compliance methods and rationale for the requirements and associated criteria that must be met for RH TRU waste to be transported to, managed at, and disposed of in the WIPP. The requirements/criteria and associated compliance methods are organized under five major headings: Container Properties, Radiological Properties, Physical Properties, Chemical Properties, and Data Package Contents. Sections 4.7 through 4.11 correlate with the organization in the WIPP WAC for RH TRU waste requirements and identify methods of compliance to meet each requirement. Procedures that implement the process controls, techniques, tests, and other actions to be applied to each RH-TRU payload container, waste stream, and shipment are also identified. Revisions of requirements in referenced documents controlled by agencies or organizations other than DOE (e.g., EPA, NMED and NRC) shall have precedence over values quoted in this Plan. Changes incorporated in future revisions of the WIPP WAC for RH waste will be reflected in future revisions of this Plan.

In addition to the discussion described in this section, a CCP RH-TRU Waste Certification Plan for 40 CFR Part 194 compliance is presented in Appendix 11, CCP RH TRU Waste Certification Plan for 40 CFR Part 194 Compliance to this Plan. This Appendix satisfies the WCPIP requirement for a waste certification plan that provides, among other things, a listing of the DQOs specified in the WCPIP and the identification of methods and a description of the rationale that will be used to assess compliance with those DQOs.

Regarding any discussions of compliance and verification methods, if a requirement is not met, personnel will initiate an NCR or a CAR in accordance with CCP-QP-005. Corrective action will be taken in accordance with CCP-QP-029 to resolve nonconformances. Section 5.3

provides additional details about the NCR/CAR process. Only waste from a properly characterized waste stream will be certified as meeting the requirements and associated criteria contained in this Plan. Waste containers for a waste stream which has not been represented by an approved WSPF will not be shipped to WIPP for disposal (Reference 9, Part 2, Section 2.3.3.10). The required characterization, certification, and shipping data will be transmitted to the WIPP using the WWIS/WDS.

4.2 DOE Operations and Safety Requirements for WIPP

4.2.1 The WIPP DSA addresses waste handling and emplacement operations. Waste acceptance for emplacement in the WIPP will conform to the WAC to meet the DSA (Reference 4).

4.3 NRC Transportation Safety Requirements

4.3.1 Acceptable methods for payload compliance are defined in the RH-TRU 72-B and 10-160B Certificates of Compliance (References 7 and 8).

Acceptable methods for payload compliance for the RH-TRU 72-B are implemented by the RH-TRAMPAC (Reference 41). CCP-PO-505 describes how CCP will ensure compliance with each payload parameter. The CCP RH-TRAMPAC contains sufficient detail to allow reviewers to adequately understand and evaluate the compliance methodology for each payload parameter.

The payload requirements for the 10-160B package and site-specific compliance are specified by the 10-160B SAR (Reference 38). Prior to use of the 10-160B package, CCP will prepare a CCP Appendix if applicable. For shipments in the 10-160B package, CCP verifies compliance to the requirements for the applicable site-specific appendix to the 10-160B SAR. The 10-160B SAR does not require the preparation of a site-specific "TRAMPAC."

4.3.2 The QA Program described in Section 5.0 defines the QA activities that apply to the use of NRC-approved transportation packaging in accordance with 10 CFR Part 71, Subpart H (Reference 24).

4.4 NMED Hazardous Waste Facility Permit Requirements

4.4.1 TRU waste is classified as TRU-mixed waste if it contains hazardous constituents regulated under the New Mexico Hazardous Waste Act (Reference 25). Only TRU-mixed waste and TRU waste that have been characterized in accordance with the WIPP WAP and that meet the Treatment, Storage and Disposal Facility (TSDF) WAC as presented in permit Sections 2.3.3.1 through 2.3.3.10 will be shipped to WIPP for disposal. The CCP QAPjP describes compliance with the WIPP WAP.

4.5 EPA Compliance Recertification Decision Requirements

4.5.1 Title 40 CFR § 194.24(c) requires the DOE to specify the limiting values for waste components to be emplaced in the repository (Reference 26). The EPA's Compliance Recertification Decision (Reference 10) identifies the repository limits for several waste components including free water, metals, and CPR.

4.5.2 CCP estimates or determines the weight of CPR and reports this estimate in the WWIS/WDS on a container basis. The repository limit for CPR is a maximum of 2.2×10^7 kg. In addition, CCP quantifies and reports the activity values of each of the following radionuclides for purposes of tracking the inventory curie content: ^{241}Am, ^{238}Pu, ^{239}Pu, ^{240}Pu, ^{242}Pu, ^{233}U, ^{234}U, ^{238}U, ^{90}Sr, and ^{137}Cs. The presence or absence of these radionuclides is determined using AK documentation and radiological characterization techniques performed in accordance with the WCPIP. The results of these determinations are reported in the WWIS/WDS on a payload container basis. TRU waste payload containers shall contain more than 100 nCi/g of alpha-emitting TRU isotopes with half-lives greater than 20 years, as specified in Section 4.8.3 (Reference 47).

4.5.3 EPA Approval for PCB Disposal

PCB-contaminated TRU and PCB-contaminated TRU waste mixed with a hazardous waste including PCB remediation waste, PCB articles, and PCB bulk product waste may be stored and disposed at the WIPP (References 11, 12, 13, 14 and 15). Applicable waste acceptance criteria are addressed in Sections 4.7.5 (Identification/Labeling), 4.9.1 (Observable Liquids), and 4.10.6 (Polychlorinated Biphenyls).

Waste streams identified as containing PCBs shall be brought to the attention of the CBFO in order that a determination can be made regarding their acceptability at WIPP.

4.6 WIPP Land Withdrawal Act Requirements (Public Law 102-579)

4.6.1 WIPP can accept only radioactive waste generated by atomic energy defense activities of the United States (Reference 2, Section 2[19]). A TRU waste is eligible for disposal at WIPP if it has been generated in whole or in part by one or more of the following functions (References 27 and 28):

- naval reactors development
- weapons activities, including defense inertial confinement fusion
- verification and control technology
- defense nuclear materials production
- defense nuclear waste and materials by-products management
- defense nuclear materials security and safeguards and security investigations
- defense research and development

Using AK, CCP determines that each waste stream to be disposed of at WIPP is "defense" TRU waste (Reference 2).

4.6.2 High-level radioactive waste or spent nuclear fuel shall neither be transported, emplaced, nor disposed of at WIPP (Reference 2, Section 12). Also, no TRU waste may be transported by or for the DOE to or from WIPP, except in packages:

- the design of which has been certified by the NRC, and
- that have been determined by the NRC to satisfy its QA requirements.

4.7 Container Properties

4.7.1 Description

[A] Requirements

[A.1] The only payload containers authorized for receipt of RH-TRU waste in the RH bay of the Waste Handling Building at WIPP include 55-gallon drums and RH-TRU waste canisters shipped in 10-160B and RH-TRU 72-B packaging, respectively (references 7 and 8). The site shall report the number and type of payload containers to WIPP using the WWIS/WDS.

[A.2] Payload containers must meet DOT Type 7A standards (Reference 4, Section 2.5.2). Prior to loading in the transportation packaging, the exterior of a payload container must undergo 100 percent visual inspection to ensure compliance with the requirement that payload containers be in good and unimpaired condition. The results of this visual inspection must be documented. Inspection of 55-gallon drums shall be documented using the payload container integrity checklist contained in Appendix 7. A payload container is in good and unimpaired condition if it does not have significant rusting, is of sound structural integrity, and does not show signs of leakage.

The RH-TRU waste canister shall comply with the specifications in the CCP RH-TRAMPAC (Reference 7).

[B] Compliance and Verification

[B.1] CCP only uses RH-TRU 72-B waste canisters for use in the RH-TRU 72-B cask as payload containers for RH waste. The only authorized payload container of RH-TRU waste for shipment in the 10-160B to WIPP is a 55-gallon drum. CCP reports the number and type of payload containers to WIPP using the WWIS/WDS in accordance with procedure CCP-TP-530, *CCP RH TRU Waste Certification and WWIS/WDS Data Entry*.

[B.2] The CCP procures canisters in accordance with procedure CCP-QP-015 to comply with specifications

of Appendix 1.3.4 of the DSA for the RH-TRU 72-B Cask.

One hundred percent visual inspection of the exterior of the payload container is performed to ensure that the payload container is in good and unimpaired condition. The results of this inspection are documented. Inspection of payload containers for compliance to requirements is performed in accordance with CCP-TP-507, *CCP Shipping of Remote-Handled Transuranic Waste*.

All payload containers are assigned to a Content Code per procedure CCP-TP-530.

4.7.2 Weight Limits

[A] Requirements

[A.1] Each payload container shall comply with the following maximum weight limit:

- Removable Lid Canister (direct loaded or drum loaded) – 4,240 lbs (Reference 39)
- Welded Lid Canister (direct loaded) – 5,250 lbs (Reference 40)
- Welded Lid Canister (drum loaded) – 5,980 lbs (Reference 40)
- NS15 Neutron Shielded Canister – 3100 lbs (Reference 41)
- NS30 Neutron Shielded Canister – 3100 lbs (Reference 41)
- 1,000 lbs (453.59 kg) per 55-gallon drum (Reference 17, Section 2.4.1; Reference 4, Section 2.5.2.2)

See the RH-TRU 72-B and/or 10-160B packaging Certificates of Compliance for applicable package weight limits (References 7 and 8).

[B] Compliance and Verification

[B.1] CCP verifies the weight limits of the canister and the RH-TRU 72-B cask are within tolerance using DOE/WIPP 02-3284, *RH Packaging Operations Manual.* The TCO certifies compliance to applicable weight limits on the Packaging Transportation Certification Document (PTCD) in accordance with CCP-TP-507.

[B.2] CCP verifies the weight limits of the payload containers and the 10-160B cask are within tolerance using DOE/WIPP 06-3336, 10-160B RH Cask Program Guidance. The TCO certifies compliance to applicable weight limits in accordance with CCP-TP-507.

4.7.3 Assembly Configurations

[A] Requirements

[A.1] See the RH-TRU 72-B and/or 10-160B packaging Certificates of Compliance for assembly configuration requirements (References 7 and 8).

[B] Compliance and Verification

[B.1] Loading of waste, either direct loading or loading with drums, into RH-TRU canisters is performed in accordance with site-specific canister loading procedures.

[B.2] Loading of waste drums, into a 10-160B Cask is performed in accordance with 10-160B loading procedures.

4.7.4 Removable Surface Contamination

[A] Requirements

[A.1] Removable surface contamination on TRU waste payload containers, payload assemblies, and packagings shall not exceed 20 dpm/100 cm^2 alpha and 200 dpm/100 cm^2 beta-gamma (Reference 9, Attachment A1, Section A1-1d[2]; References 29 and 30). The fixing of surface contamination to meet these criteria is not allowed by WIPP in accordance

with best management practices for ensuring worker radiation dose is within the as low as reasonably achievable (ALARA) guidelines.

[B] Compliance and Verification

[B.1] Compliance is achieved by measurement using radiological contamination surveys. Specifically, a Host site RCT surveys RH-TRU waste canisters for removable surface contamination prior to loading into the cask. Packaging (i.e., cask) is surveyed for removable surface contamination after completion of cask loading and prior to shipment. Survey results are then compared to removable surface contamination limits to determine compliance per procedure CCP-TP-530. If removable contamination exceeds limits, surfaces may be wiped and cleaned and resurveyed to achieve compliance. Fixing of surface contamination is prohibited.

4.7.5 Identification/Labeling

[A] Requirements

[A.1] Each payload container shall be labeled with a unique payload container identification number permanently applied in a conspicuous location. The unique payload container identification number shall include a site identifier as a prefix.

[A.2] For the RH-TRU waste canisters, payload container labeling shall be as follows:

- Each canister shall be labeled with a unique payload container identification number (ID) that includes a site identifier as a prefix.
- The characters composing the canister ID number shall be approximately 2-inches high and of a color contrasting with their background.
- A minimum of three canister ID numbers shall be placed at approximately equal intervals around the circumference of the canister and within 18-inches of the top of the canister.

[A.3] Exceptions to the labeling/identification requirements may be granted upon request to and approval from the CBFO.

[A.4] The 10-160B 55-gallon payload container identification shall be in medium to low density Code 39 bar code symbology as required by ANSI, standard ANSI/AIM BC1-1995 (Reference 31) in characters at least 1-in. high and alphanumeric characters at least ½-in. high. In the case of 55-gallon drums, the labels must be placed approximately 120 degrees apart so that one label is visible once the containers are assembled into a 5-drum carriage.

[A.5] Payload containers shall be marked "Caution Radioactive Material" using a yellow and magenta label as specified in 10 CFR Part 835 (Reference 30). Those payload containers whose contents are also RCRA regulated (mixed-TRU), shall be additionally marked "Hazardous Waste" as specified in 40 CFR §262.32 (Reference 33). For TRU and TRU-mixed wastes containing PCBs, the payload containers shall be marked in accordance with 40 CFR §761.40 (References 12 and 13). Additionally, DOT Type B packages containing PCBs must be properly marked in accordance with 40 CFR §761.40 (References 12 and 13).

[A.6] If an empty 55-gallon drum is used as dunnage to complete a payload configuration in the 10-160B package, the dunnage container shall be labeled with the following information:

- Unique payload container identification number
- “EMPTY” or “DUNNAGE”

[A.7] If a five-drum carriage of only dunnage 55-gallon drums is used in the 10-160B, the containers shall be labeled only “EMPTY” or “DUNNAGE,” and the unique container identification number label is not required for these containers.

[B] Compliance and Verification

[B.1] CCP verifies canisters are labeled in accordance with CCP-TP-507 procedure. This procedure must include instructions to satisfy the following requirements:

- Each canister is labeled with a unique ID that includes a site identifier as a prefix.
- Characters composing the canister ID number on labels are approximately 2-inches high and of a color contrasting with their background.
- A minimum of three canister ID labels are placed on a canister at approximately equal intervals around the circumference of the canister and within 18-inches of the top of the canister.
- Alternate labeling of payload containers may be used only after a request to use an alternate labeling approach is submitted and approved by CBFO on a case-specific basis.

[B.2] CCP verifies payload containers are marked in accordance with CCP-TP-507 procedure. These procedures must contain instructions to ensure the following:

- All RH-TRU and TRU mixed payload containers are marked “Caution Radioactive Material” using a yellow and magenta label.
- All RH-TRU mixed waste payload containers are marked “Hazardous Waste.”
- All RH-TRU DOT Type B packages containing PCBs are marked in accordance with 40 CFR § 761.40.

[B.3] CCP verifies 10-160B 55-gallon payload containers are labeled in accordance with procedure CCP-TP-507.

4.7.6 Dunnage

[A] Requirements

[A.1] See the 10-160B packaging Certificate of Compliance for dunnage requirements (Reference 8).

To maximize the efficiency of operations at the WIPP, CCP will minimize the use of dunnage drums.

[B] Compliance and Verification

[B.1] The use of dunnage is not applicable to the RH-TRU 72-B shipping package. The minimization of the use of dunnage for the 10-160B Cask is through payload configuration. The use of dunnage drums is reviewed and approved concurrently with the review and approval of shipment assemblies by the WWIS/WDS Data Administrator on a case-by-case basis.

[B.2] CCP verifies 10-160B 55-gallon dunnage containers are labeled in accordance with procedure CCP-TP-507.

4.7.7 Filter Vents

[A] Requirements

[A.1] Each payload container and any sealed secondary or internal containers (greater than four liters in size), in the payload container shall meet the filter vent specifications of Reference 4, Section 2.5.2; Reference 7; Reference 8; Reference 9, Attachment A1, Section A1-1b[2]; and Reference 41; Section 2.4.1. These filter vents shall meet the specification of the 10-160B SAR and RH-TRAMPAC (Reference 38; Reference 41, Section 2.4.1).

The model number of each filter vent or combination of filter vents installed on a payload container shall be reported to the WWIS/WDS database (Reference 48).

[B] Compliance and Verification

[B.1] The TCO verifies the presence and model of filter(s) installed on individual payload containers in accordance with CCP-TP-507. CCP verifies any sealed secondary or internal containers (greater than

four liters in size), overpacked in the payload container shall be either vented or filtered to meet the specifications of Reference 7 or Appendix 1.3.5 of Reference 8 by VE using CCP-TP-500, *CCP Remote-Handled Waste Visual Examination,* or an evaluation of the AK record. CCP procures filters in accordance with CCP-QP-015 to specifications that comply with all applicable requirements for filter vents. Only filters identified on the listing of approved CBFO filter vent models are procured by CCP.

[B.2] The model numbers of each filter vent or combination of filter vents installed on a payload container (and internal containers, as applicable) are reported to the WWIS/WDS in accordance with procedure CCP-TP-530.

4.8 Radiological Properties

With respect to the required radiological properties identified within this Section, they can be divided into two distinct groups.

The first group includes the activities and masses of the ten WIPP-tracked radionuclides (i.e., ^{241}Am, ^{238}Pu, ^{239}Pu, ^{240}Pu, ^{242}Pu, ^{233}U, ^{234}U, ^{238}U, ^{90}Sr, and ^{137}Cs), and the TRU alpha activity concentration (i.e., >100 nCi/g of alpha-emitting TRU isotopes with half lives greater than 20 years), of the waste. Total activity will be quantified and tracked to ensure compliance with the LWA limits for RH-TRU waste including limiting activity to 23 curies per liter (Ci/l) per canister, limiting disposed RH-TRU waste to 5.1 million curies, and limiting surface dose rates of canister to 1000 roentgen equivalent man per hour (rem/hr). No more than 5 percent by volume of the RH-TRU waste received at WIPP may have a surface dose rate in excess of 100 rem/hr. Estimates of their activities and masses shall be derived from a system of controls certified by CBFO that includes AK, computations, measurements, and sampling (Reference 35). CCP RH-TRU Waste Certification Plan for 40 CFR Part 194, Compliance, provides the methods and requirements used to characterize the radiological composition of the RH-TRU waste.

The second group includes the remaining radionuclides contributing to the FGE, the PE-Ci, and the decay heat of the payload container. This set of radiological data is regulated both by the NRC as specified in the RH transportation documentation (References 7 and 8), and the CBFO as required by the WIPP DSA (Reference 4). PE-Ci quantities shall be calculated for each payload container in accordance with Appendix 5. Any method that complies with the Certificate of Compliance may be used to quantify the remaining radiological properties at the discretion of the shipping facility.

However, the resulting data (e.g., AK from Safeguards and Security data), the source and method from which the data was generated, and the basis for the reliability of the data shall be submitted to and approved by CBFO prior to use.

4.8.1 Radionuclide Composition

[A] Requirements

[A.1] RH-TRU waste received at the WIPP shall not exceed 23 curies per liter maximum activity level (averaged over the volume of the canister) (Reference 2, Section 7).

[A.2] Contents of the 10-160B may include fissile material contaminants provided the mass limits of the 10 CFR 71.15 are not exceeded and the plutonium content does not exceed 0.74 tera-bequerel (20 curies) (Reference 8). The quantity of radioactive material must not exceed 3,000 times the Type A quantity (Reference 8).

[A.3] The activities and masses of ^{241}Am, ^{238}Pu, ^{239}Pu, ^{240}Pu, ^{242}Pu, ^{233}U, ^{234}U, ^{238}U, ^{90}Sr, and ^{137}Cs shall be established on a payload container basis for purposes of tracking their contributions to the total WIPP radionuclide inventory (Reference 35). The estimated activities and masses, including their associated TMU expressed in terms of one standard deviation, for these ten radionuclides shall be reported to the WWIS/WDS on a payload container basis. For any of these ten radionuclides whose presence can be substantiated from AK, direct measurement, computations, or a combination thereof, and for which measured data are determined to be below the LLD for that radionuclide, the site shall report the character string "< LLD" to the WWIS/WDS for the activity and mass of that radionuclide; otherwise a value of zero shall be reported (Reference 17, Section 2.4.6).

[A.4] In addition, all radionuclides other than the ten WIPP-tracked radionuclides (i.e., ^{241}Am, ^{238}Pu, ^{239}Pu, ^{240}Pu, ^{242}Pu, ^{233}U, ^{234}U, ^{238}U, ^{90}Sr, and ^{137}Cs), that contribute to 95 percent of the radioactive hazard for the payload container shall be reported on the RH-TRU 72-B or 10-160B bill of lading or manifest. The activities and masses of these other

radioisotopes shall also be reported to the WWIS/WDS along with their associated TMU, expressed in terms of one standard deviation, for each waste container (Reference 35).

[B] Compliance and Verification

[B.1] CCP determines the radionuclide composition and quantity through a combination of AK and established radionuclide measurement methods (e.g., CCP-TP-504, *CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste*). The radionuclide measurement methods that may be used are described in greater detail in Appendix 11. Radionuclide measurement is either performed directly on the payload container or on all of the smaller waste containers composing the payload container. If radionuclide measurement is not performed directly on the payload container itself, then, the measurement values (and uncertainties) for the payload container are calculated from the associated measurement results for all of the smaller containers composing the payload container.

CCP uses radionuclide measurement results to calculate and quantitate the total activity averaged over the volume of the payload container in the RH-TRU 72-B Cask to determine compliance with the 23 Ci/l limit.

CCP uses radionuclide measurement results to quantitate the activity and masses of the ten WIPP-tracked radionuclides and all other radionuclides that contribute to 95 percent of the radioactive hazard in a payload container. The activities and masses of these radionuclides, including their associated TMU (expressed in terms of one standard deviation), are reported to the WWIS/WDS on a payload container basis per procedure CCP-TP-530 and are reported on the Bill of Lading or UHWM. For any of the ten WIPP-tracked radionuclides that are measured below the LLD and whose presence can be substantiated from AK, direct measurement, computations, or a combination thereof, are reported as “< LLD” for its activity and mass to the WWIS/WDS.

[B.2] The contents of the 10-160B may include fissile material contaminants provided the mass limits of the 10 CFR 71.15 are not exceeded and the plutonium content does not exceed 0.74 tera-bequerel (20 curies) (Reference 8). The quantity of radioactive material must not exceed 3,000 times the Type A quantity (Reference 8). Compliance to these requirements are accomplished and verified through procedures CCP-TP-507 and 10-160B loading procedures.

4.8.2 ^{239}Pu Fissile Gram Equivalent/^{235}U Fissile Equivalent Mass (FEM)

[A] Requirements

[A.1] Each canister must comply with the limits in either Table 4 or Table 6. For a canister, either the sum of the ^{239}Pu FGE plus two times its associated TMU, expressed as one standard deviation, shall comply with the applicable limits in Table 4 or the ^{235}U Fissile Equivalent Mass (FEM) weight percentage plus two times is associated TMU, with TMU expressed in terms of one standard deviation, shall comply with the applicable limit in Table 6 (Reference 7).

[A.2] See the 10-160B packaging Certificates of Compliance for applicable ^{239}Pu FGE requirements (Reference 8 and Table 5 for associated drum requirements).

[A.3] The values calculated for the ^{239}Pu FGE or ^{235}U FEM and their associated TMUs (expressed in terms of one standard deviation) shall be reported to the WWIS/WDS for each payload container.

Table 4. ^{239}Pu FGE Limits for a Canister Shipped in an RH-TRU 72-B Package

Payload Contents	^{239}Pu FGE Limit (Removable/Welded Lid Canister)	^{239}Pu FGE Limit (Neutron Shielded Canister)
Non-Machine-Compacted Waste		
Be/BeO limited to ≤ 1 percent by weight of the waste	≤ 315	≤ 245
Be/BeO limited to ≤ 1 percent by weight of the waste including credit taken for ≥ 5g of ^{240} Pu Poisoning[1]	≤ 325	≤ 245
Be/BeO limited to ≤ 1 percent by weight of the waste including credit taken for ≥ 15g of ^{240}Pu Poisioning[1]	≤ 350	≤ 245
Be/BeO limited to ≤ 1 percent by weight of the waste including credit taken for ≥ 25g of ^{240}Pu Poisioning[1]	≤ 370	≤ 245
Be/BeO > 1 percent by weight of the waste and is chemically or mechanically bound	≤ 305	Unauthorized
Be/BeO > 1 percent by weight of the waste and is not chemically or mechanically bound	≤ 100	Unauthorized
Machine-Compacted Waste		
Be/BeO limited to ≤ 1 percent by weight of the waste	≤ 245	≤ 245
Be/BeO > 1 percent by weight of the waste	Unauthorized	Unauthorized

[1]The minimum ^{240} Pu content for the RH-TRU waste canister shall be determined after the subtraction of two times the error.

Table 5. ^{239}Pu FGE Limits for Drums Shipped in a 10-160B Package

Payload Contents	^{239}Pu FGE Limit
Non-Machine-Compacted Waste	
55-gallon drum (Be/BeO limited to ≤ 1 percent by weight of the waste)	≤ 200 g
55-gallon drum (Be/BeO > 1 percent by weight of the waste)	≤100 g
Machine-Compacted Waste	
55-gallon drum (Be/BeO limited to ≤1 percent of the weight of the waste)	≤ 170 g
55-gallon drum (Be/BeO limited ≤ 1 percent of the weight of the waste). 1.0-in. design spacing must be maintained between drum content and exterior top and bottom	≤ 200 g

Table 6. ^{235}U FEM Limit for a Canister Shipped in an RH-TRU 72-B Package

Payload Contents	Weight % ^{235}U FEM (Removable/Welded Lid Canister)	Weight % ^{235}U FEM (Neutron Shielded Canister)
Non-machine compacted homogenous solid/sludge with a particle size characteristic dimension of 1 in. or less that is primarily uranium (in terms of heavy metal component) with waste matrix distributed to not exceed enrichment limit (Reference 41).	≤ 0.96	Not Applicable

[B] Compliance and Verification

[B.1] CCP determines the quantity of fissile material in a payload container using established radionuclide measurement methods performed on the contents of the payload container as described in Appendix 11. Radionuclide measurement results are used to calculate the ^{239}PuFGE and associated uncertainty (expressed as one standard deviation) for a payload container.

[B.2] CCP determines the presence and quantity of beryllium on a waste stream basis by AK and is documented in the associated waste stream AK Summary Report. AK documentation is collected, evaluated and reported in accordance with CCP-TP- 005 and is summarized on a waste stream basis in AK Summary Reports.

[B.3] CCP compares the measured/calculated FGE plus two times uncertainty for a payload container and cask to the applicable FGE limits based on beryllium content.

[B.4] CCP reports the values calculated for the FGE and its associated uncertainty for each payload container to the WWIS/WDS as two separate items in accordance with CCP-TP-530.

4.8.3 TRU Alpha Activity Concentration

[A] Requirements

[A.1] TRU waste payload containers shall contain more than 100 nCi/g of alpha-emitting TRU isotopes with half-lives greater than 20 years (Reference 2, Section 2 [18]). Without taking into consideration the TMU, the TRU alpha activity concentration for a payload container is determined by dividing the TRU alpha activity of the waste by the weight of the waste.

The TRU alpha activity concentration shall be reported to the WWIS/WDS (Reference 35, Chapter 4; Reference 17, Section 2.4.5).

[B] Compliance and Verification

[B.1] CCP uses established radionuclide measurement methods (see Appendix 11) to quantitate the amount of alpha-emitting TRU isotopes with half-lives greater than 20 years (i.e., TRU alpha activity) in the waste contents of payload containers. Calibrated scales are used to determine the weight of waste material in payload containers (i.e., determine the net weight). The TRU alpha activity concentration is calculated by dividing the measured TRU alpha activity (without uncertainty) in a payload container by its net weight. Calculations are performed either manually or with the use of validated computational algorithms. If containers (e.g., 55-gallon or 30-gallon drums) are loaded into a canister, the TRU alpha activity concentration for the canister is determined by dividing the summation of the individual TRU alpha activity values of the individual waste containers by the summation of the individual net weights. Methods used to determine the TRU alpha activity

concentration have a lower limit of detection of 100 nCi/g or less.

The TRU alpha activity concentration for a payload container is reported to the WWIS/WDS in accordance with CCP-TP-530.

4.8.4 ^{239}Pu Equivalent Activity

[A] Requirements

[A.1] PE-Ci limits are shown in Table 7.

[A.2] PE-Ci quantities shall be calculated for each payload container (see Appendix B), and reported to WIPP using the WWIS/WDS (Reference 4, Section 3.3.2.3.1 and Table 3.3-6). There are no reporting requirements for the associated TMU (Reference 44).

Table 7. PE-Ci Limits

Payload Container	Packing Configuration	PE-Ci Limit
RH TRU Waste Canister	All approved waste forms other than solidified/vitrified waste	≤ 240
55-Gallon Drum (shipped in a 10-160B)		≤ 80
RH TRU Waste Canister 55-Gallon Drum (shipped in a 10-160B)	Solidified/vitrified waste	≤ 1,800

[B] Compliance and Verification

[B.1] CCP uses established radionuclide measurement methods (see Appendix 11) to quantitate the amount of radioactive material in payload containers. The measurement results are used to calculate the PE-Ci for each payload container as specified in Appendix 5. CCP compares the calculated PE-Ci (without uncertainty) value to the applicable PE-Ci limits for a payload container, assembly or drum to determine compliance with applicable limits.

CCP reports the calculated PE-Ci quantities for each payload container to WIPP using the WWIS/WDS in accordance with CCP-TP-530.

4.8.5 Radiation Dose Equivalent Rate

[A] Requirements

[A.1] The external surface radiation dose equivalent rate of individual containers must be ≥ 200 mrem/hr and ≤ 1,000 rem/hr (Reference 2, Sections 2 and 7).

[A.2] Total dose equivalent rate and the neutron contribution to the total dose equivalent rate shall be reported for each payload container in the WWIS/WDS (Reference 2, Section 16 and Reference 17, Section 2.4.4).

[A.3] See the RH-TRU 72-B and/or 10-160B packaging Certificates of Compliance for applicable radiation dose equivalent rate requirements (References 7 and 8).

[B] Compliance and Verification

[B.1] CCP using Host site personnel or records, measure container dose equivalent rates in accordance with site radiological survey procedures. The measurements are compared to applicable radiation dose equivalent rate limits and restrictions to determine compliance. The total dose equivalent rate and the neutron contribution to the total dose equivalent rate for each payload container are reported to the WWIS/WDS in accordance with CCP-TP-530.

4.8.6 Decay Heat

[A] Requirements

[A.1] See the RH-TRU 72-B and/or 10-160B packaging Certificates of Compliance for applicable decay heat requirements (References 7 and 8).

[B] Compliance and Verification

[B.1] CCP uses established radionuclide measurement methods (see Appendix 11) to quantitate the activity and mass of the radionuclides contained within the payload container. The measurement results are used to calculate the total decay heat (and TMU) for each payload container and payload assembly.

CCP compares the calculated decay heat value plus TMU (expressed in terms of one standard deviation) to the applicable decay heat limit for a payload container and payload assembly, as applicable, to determine compliance.

CCP reports the calculated decay heat values and associated TMU (expressed in terms of one standard deviation) for each payload container to WIPP using the WWIS/WDS in accordance with CCP-TP-530.

4.9 Physical Properties

4.9.1 Observable Liquid

[A] Requirements

[A.1] Liquid waste is not acceptable at the WIPP. Observable liquid containing PCBs is prohibited at the WIPP. Liquid in the quantities delineated below is acceptable.

- Observable liquid shall be less than 1 percent[1] by volume of the outermost container at the time of radiography or visual examination (Reference 9).
- Internal containers with more than 60 ml or 3 percent by volume observable liquid, whichever is greater, are prohibited.
- Containers with Hazardous Waste Number U134 assigned shall have no observable liquid.

[1]The limit of “less than 1 percent” is taken from the RH-TRAMPAC and is more restrictive than the limit of “no more than 1 percent” in the HWFP.

- Overpacking the outermost container that was examined during radiography or visual examination or redistributing untreated liquid within the container shall not be used to meet the liquid volume limits.

For sites that use VE, the detection of any liquid in non-transparent internal containers, detected from shaking the internal container, will be handled by assuming that the internal container is filled with liquid and adding this volume to the total liquid in the container being characterized using VE (Reference 9, Part 2, Section 2.3.3.1; Reference 9, Attachment C, Sections C-1c and C-3b; Reference 41, Section 2.5.1; Reference 35; Reference 12, Conditions of Approval, II.A.2).

[B] Compliance and Verification

CCP initially uses AK to determine container contents. AK documentation is collected and compiled in accordance with DOE/WIPP-02-3214 and/or CCP-TP-005. Personnel estimate liquid volume by AK, radiography or VE of the waste. Personnel reject payload containers found to exceed the criteria in 4.9.1[A.1].

4.9.2 Sealed Containers

[A] Requirements

[A.1] Sealed containers that are greater than four liters (nominal), are prohibited except for metal containers packaging solid inorganic waste: this packaging configuration does not generate flammable gas (Reference 41, Section 2.7.1).

[B] Compliance and Verification

[B.1] CCP achieves compliance through AK, radiography or VE of the waste contents of payload containers. VE is performed in accordance with procedure CCP-TP-500 and radiography is performed in accordance with procedure CCP-TP-508, *CCP RH Standard Real-Time Radiography Inspection Procedure*. Unvented rigid containers greater than four liters in volume are identified and controlled by an

NCR in accordance with CCP-QP-005 and dispositioned appropriately.

4.9.3 Physical Form

[A] Requirements

[A.1] Debris waste (S5000), shall be reported in WWIS/WDS as plastic using the volume of the waste container multiplied by 620 kg/cubic meters (m^3), up to the net weight of the waste. Soils and gravel (S4000) shall be reported to WWIS/WDS as the net weight of the waste with the waste material parameter type of "soil." Homogeneous solids (S3000) shall be reported to the WWIS/WDS as the net weight of the waste with the waste material parameter type appropriate to the waste. Debris included in containers of S3000 or S4000 waste shall be reported to WWIS/WDS as plastic with an estimated weight. Plastic packaging will also be reported to WWIS/WDS (as packaging), (Reference 17, Section 2.4.3).

[B] Compliance and Verification

[B.1] CCP using CCP-TP-530, reports the data to WWIS/WDS as follows: Debris waste (S5000), as plastic using the volume of the waste container multiplied by 620 kg/m^3, up to the net weight of the waste. If the net weight of the waste is greater than the calculated plastic, the excess is assigned to the material parameters by the percentages described in the AK Report. Soils and gravel (S4000), as the net weight of the waste with the waste material parameter type of "soil." Homogenous solids (S3000), as the net weight of the waste with the waste material parameter type appropriate to the waste. Debris included in containers of S3000 or S4000 waste shall be reported to WWIS/WDS as plastic with an estimated weight. Plastic packaging will also be reported to WWIS/WDS (as packaging).

4.10 Chemical Properties

4.10.1 Pyrophoric Materials

[A] Requirements

[A.1] Radioactive pyrophoric materials shall be limited to residual amounts (<1 percent by weight), in payload containers and shall be generally dispersed in the waste. Radioactive pyrophorics in concentrations ≥1 percent by weight and all nonradioactive pyrophorics shall be reacted (or oxidized), and rendered nonreactive prior to placement in the payload container (Reference 41, Section 4.4.1). Nonradionuclide pyrophoric materials are not acceptable at WIPP (Reference 4, Section 11.4.1; Reference 9, Attachment C, Section C-1c; Reference 9, Part 2, Section 2.3.3.2.

[B] Compliance and Verification

[B.1] CCP demonstrates compliance through acceptable knowledge documentation. Radiography and VE will be used, when necessary, to examine a waste container to verify its physical form. Specifically, AK is used to demonstrate that nonradionuclide pyrophoric materials are not present in a waste stream and that pyrophoric radioactive materials are limited to residual amounts. Waste streams for which AK documentation indicates the possible presence of radioactive pyrophorics in concentrations greater than or equal to 1 percent by weight are reacted (or oxidized), and rendered nonreactive. AK documentation is collected and compiled in accordance with DOE/WIPP-02-3214 and CCP-TP-005 and is summarized on a waste stream basis in AK Summary Reports.

4.10.2 Hazardous Waste

[A] Requirements

[A.1] Hazardous wastes not occurring as co-contaminants with TRU wastes (non-mixed hazardous wastes), are not acceptable at WIPP. Each RH-TRU mixed waste container shall be assigned one or more hazardous waste numbers as appropriate. Only EPA hazardous waste numbers listed as allowable in the Hazardous Waste Facility Permit may be managed at WIPP. Some of the waste may also be identified by unique state hazardous waste codes. These wastes are acceptable at WIPP as long as the TSDF waste acceptance criteria are met (Reference 9, Attachment C, Section C-1b; Reference 9, Part 2, Sections 2.3.3.3 and 2.3.4). Wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003), are not acceptable at WIPP (Reference 9, Attachment C, Section C-1c; Reference 9, Part 2, Sections 2.3.3.7 and 2.3.4).

[B] Compliance and Verification

[B.1] CCP assigns EPA hazardous waste numbers to waste streams based on AK. AK is the basis for demonstrating compliance that hazardous waste, if present in TRU waste, occurs only as co-contaminants with the TRU waste. A more detailed description of the AK process used to assign EPA hazardous waste numbers to a waste stream is presented in the QAPjP. AK documentation is compiled, evaluated and reported in accordance with DOE/WIPP-02-3214 and CCP-TP-005 and is summarized by waste stream in an AK Summary Report.

4.10.3 Chemical Compatibility

[A] Requirements

[A.1] TRU waste containing incompatible materials or materials incompatible with payload container and packaging materials, shipping container materials, other wastes, repository backfill, or seal and panel closure materials are not acceptable for transport in

the RH-TRU 72-B or 10-160B packages or for disposal at the WIPP. Chemical constituents shall conform to the lists of allowable materials in the RH-TRU 72-B RH-TRAMPAC and Appendix 4.10.2 of the 10-160B SAR (References 41 and 38).

[A.2] The total quantity of the trace chemicals/materials (materials that occur in the waste in quantities less than 1 percent [weight]), not listed in Table 4.3-1, in the payload container is restricted to less than 5 percent weight (Reference 41). Chemical constituents in a payload of a particular waste-specific content code shall conform to the allowable chemical list for that content code. The content code must be reported to the WWIS/WDS for each payload container (References 7 and 8).

[B] Compliance and Verification

[B.1] Personnel ensure compliance with the chemical compatibility requirements based on AK. The WCO confirms compliance with the chemical compatibility criteria in accordance with CCP-TP-530. If necessary, personnel repackage waste containers not meeting the chemical compatibility requirement.

4.10.4 Explosives, Corrosives, and Compressed Gases

[A] Requirements

[A.1] Waste shall contain no explosives, corrosives, or compressed gases (pressurized containers), (Reference 9, Attachment C, Section C-1c; Reference 9, Part 2, Sections 2.3.3.5 and 2.3.3.7; Reference 41, Section 4.2.1).

[B] Compliance and Verification

[B.1] CCP assesses compliance through acceptable knowledge documentation. Specifically, AK is used to determine if explosives, corrosives, and/or compressed gases may be present in a waste stream. Radiography and VE will be used, when necessary, to examine a waste container to verify its physical form. AK documentation is collected and compiled in accordance with procedure CCP-TP-005 and is

summarized on a waste stream basis in AK Summary Reports.

4.10.5 Headspace Gas Concentrations

[A] Requirements

[A.1] The headspace gas of payload containers shall meet the requirements of the TRAMPAC (if shipping in RH-TRU 72-B packaging), or Appendix 4.10.2 (if shipping in the 10-160B packaging) (References 9, 41, and 38 respectively).

[B] Compliance and Verification

[B.1] CCP demonstrates compliance through the following methods:

- AK that demonstrates that the concentration of flammable VOCs in the headspace of waste containers of a waste stream is less than 500 parts per million (ppm).

AK documentation is collected, evaluated and reported in accordance with DOE/WIPP-02-3214 and CCP-TP-005 and is summarized on a waste stream basis in AK Summary Reports. Headspace gas sampling is performed in accordance with approved procedures.

4.10.6 Polychlorinated Biphenyls (PCBs)

[A] Requirements

[A.1] For TRU and TRU-mixed wastes containing PCBs meeting the conditions of approval in Reference 12, the payload container data entered into the WWIS/WDS shall include the earliest date of waste generation (i.e., the date of removal from service for disposal), the date of waste certification for disposal, and the date the waste was sent to the WIPP for disposal (Reference 12, Section III.D.4). Additionally, the estimated weight of the PCBs in kilograms (as recorded on the UHWM) and a description of the type of PCB waste (e.g., PCB remediation waste, PCB bulk product waste, etc.), shall be entered into the WWIS/WDS (Reference 13, §761.207(a)(2) and

§761.180). Hanford, Idaho National Laboratory, Savannah River Site, Oak Ridge Reservation, Knolls Atomic Power Laboratory, and Los Alamos National Laboratory are authorized to ship their TRU and TRU-mixed wastes containing PCBs to WIPP (References 14 and 15).

[B] Compliance and Verification

[B.1] CCP uses AK (which may include results of sampling and analysis) to identify waste streams that may contain PCBs. For waste streams that are identified as PCB contaminated, the AK record also includes a description of the type of PCB waste present (e.g., PCB remediation waste, PCB bulk product waste). AK documentation is collected, evaluated and reported in accordance with DOE/WIPP-02-3214 and CCP-TP-005 and is summarized on a waste stream basis in AK Summary Reports. Special information identified below is entered into the WWIS/WDS for each affected payload container in accordance with procedure CCP-TP-530.

1. Date of removal from service.
2. Date of waste certification for disposal.
3. Date the waste was sent to the WIPP for disposal.
4. The estimated weight of the PCBs in kilograms.
5. Description of the type of PCB waste.

CCP only certifies and ships PCB contaminated TRU waste from sites with an approved EPA PCB waste disposal authorization.

4.11 Data Package Contents

4.11.1 Characterization and Certification Data

[A] Requirements

[A.1] Sites shall prepare a WSPF for each waste stream. Each WSPF shall be approved by the Permittees prior to the first shipment of that waste stream.

Characterization and certification information for each payload container shall be submitted to the WWIS/WDS and approved by the Data Administrator. Any payload container from a waste stream that has not been preceded by an appropriate certified WSPF is not acceptable at WIPP (Reference 9, Part 2, Section 2.3.3.10).

[A.2] See the WCPIP (Reference 17) for additional characterization and certification data requirements.

[B] Compliance and Verification

[B.1] CCP prepares and submits WSPFs to the Permittees for review and approval per the instructions given in procedure CCP-TP-002. Characterization data for each payload container used to prepare the WSPF and the Characterization Reconciliation Report is submitted to the WWIS/WDS in accordance with procedure CCP-TP-530. CPR weights are estimated and input into the WWIS/WDS as described in Section 4.5.

4.11.2 Shipping Data

[A] Requirements

[A.1] Sites shall prepare either a bill of lading or a UHWM for RH TRU waste shipments as required by the transportation requirements. The land disposal restriction notification for RH TRU mixed waste shipments shall state that the waste is not prohibited from land disposal (Reference 9, Attachment C, Section C-5b(2); Reference 41).

[B] Compliance and Verification

[B.1] CCP prepares and completes the UHWM and/or Bill of Lading in accordance with CCP-TP-507. The Land Disposal Restriction Exemption Notification is completed for mixed waste shipments in accordance with procedure CCP-TP-507 and states that the waste is not prohibited from land disposal.

5.0 QUALITY ASSURANCE PLAN

The CBFO QAPD establishes QA program requirements for the programs, projects, and activities sponsored by CBFO. The NWP QAPD describes how NWP applies the QA program requirements of the CBFO QAPD to NWP activities, including CCP. This QA plan describes and implements the NWP QAPD requirements for the CCP. It is based on the NWP QAPD as it applies to the characterization, certification, and transportation of TRU waste as performed by CCP, and therefore incorporates the applicable requirements from the regulatory and commitment QA program source documents identified in the CBFO QAPD. This QA plan also fulfills the requirements for a transportation QA plan as required in 10 CFR Part 71, Subpart H. The scope of the integrated Quality Assurance Program Requirements for Nuclear Facilities (NQA)-1 Program is to ensure that all items and activities that are important to the safe containment of TRU Waste in the WIPP are in compliance with Program objectives. Applicable criteria are also identified in the individual element descriptions contained in this QA Plan.

The QA program is developed and maintained through an ongoing process that selectively applies QA criteria as appropriate to the function or work activity being performed. The organization of this QA Plan is generally based on the CBFO QAPD elements.

The QA program is implemented in accordance with a set of Quality Procedures that are applicable to all CCP activities, independent of the location where these activities are performed. The QA program also includes Technical Procedures and other documentation, some of which are site-specific and some of which are applicable across CCP. Implementing Technical Procedures are listed in the tables in Appendix 4.

QA program document references are included, as applicable, in each of the individual QA element descriptions throughout this QA Plan.

5.1 Organization and Quality Assurance Program

(Applicable Criteria: 10 CFR 830.122 Criterion 1
40 CFR 194.22(a)(2)(i)
ASME NQA-1-1989, Criterion 1
DOE O 414.1 Criterion 1
CBFO QAPD, Section 1.1
NWP QAPD, Section 1.1)

This QA program applies to items and activities affecting waste characterization, certification, and transportation by the CCP. The QA program elements are integrated into CCP items and activities through reviews, assessments, inspections, and approval and control of records and documents. The CCP has identified the Program Manager, the

Certification Program Manager, SPM, Assurance Programs Manager, TCO, and WCO as being responsible for ensuring QA within CCP. The responsibilities of each of these positions, as well as other personnel involved with TRU waste characterization and certification, are summarized in this Plan (Section 2.1).

Figure 1-1 (see Section 1.0) illustrates the hierarchy and interrelationships of QA documents governing the QA program. Quality management documents are audited and/or assessed to ensure they meet CCP requirements.

Personnel plan certification activities and document the planning process. Planning documentation is subject to review by subject matter experts (SMEs). CCP planning documentation consists of this Plan, the WIPP WAP, the WAC, the QAPjP, the CH-TRAMPAC, RH-TRAMPAC, the GGT QAPjP, implementing procedures, QA plans, training plans, and facility and certification process designs.

5.1.1 Organization

(Applicable criteria: 10 CFR Part 830.122 Criterion 1
DOE O 414.1 Criterion 1
ASME NQA-1-1989, Criterion 1
CBFO QAPD Section 1.1.1
NWP QAPD, Section 1.1)

The organization structure, functional responsibilities, levels of authority, and lines of communication for activities affecting quality are documented in this Plan, and CCP implementing procedures. Specific duties and responsibilities assigned to CCP management are summarized in the Plan, Section 2.1.1, and in CCP-PO-001.

The QA organization is responsible for ensuring the implementation of the QA program and verifying that activities affecting quality have been correctly performed. They have sufficient authority, access to work areas, and organizational freedom to identify quality problems; initiate, recommend, or provide solutions to quality problems; verify implementation of solutions; and ensure that further processing, delivery, installation, or use is controlled until proper disposition of nonconformances, deficiencies, or unsatisfactory conditions has occurred. QA personnel have direct access to responsible management at a level where appropriate action can be effected. They report to a management level such that required authority and organizational freedom are provided, including sufficient independence from cost and schedule considerations. Specific duties and responsibilities assigned to QA are summarized in the Plan, Section 2.1.4, and in CCP-PO-001.

The organizational structure of CCP, and the assignment of responsibilities, is based on the following QA principles, such that:

- Quality is achieved and maintained by those who have been assigned responsibility for performing work.
- Quality achievement is verified by personnel or organizations that are not directly responsible for performing the work.
- The individuals or organizations responsible for establishing and executing the QA program may delegate any or all of the work, but shall retain responsibility therefore.
- Responsibility for the control of further processing, delivery, installation, or operation of nonconforming items shall be designated in writing.
- When more than one organization is involved in the execution of activities covered by this document, the responsibility and authority of each organization shall be clearly established and documented.
- The external interfaces between organizations and the internal interfaces between organizational units, and changes thereto, shall be documented.
- Interface responsibilities shall be defined and documented.

All personnel involved with TRU waste certification and packaging are responsible for achieving and maintaining the quality of their activities and products. All personnel are responsible for promptly reporting existing, developing, or potential conditions adverse to quality to responsible management for evaluation and action. Management personnel are responsible for achieving and maintaining quality in the work activities under their control.

[A] Communication and Interface Responsibilities

(Applicable Criteria: CBFO QAPD Section 1.1.1.4
NWP QAPD, Section 1.1.10 and 1.1.11)

CCP management communicates to all levels of the organization timely information pertinent to quality performance, including status of the quality program, status and resolution of significant quality problems, lessons learned, quality management practices and improvements, and trend analysis results.

The responsibility and authority of the CCP and each participating organization are clearly established and documented in an interface document for each site. The external interfaces between CCP participant organizations, the internal interfaces between organizational units, and interface changes are documented. Interface responsibilities are defined and documented and include the requirements for management, performance, and assessment. Interfaces between CCP and the waste generating sites are detailed in project-level Interface Agreement documents specifically written for each site. Interfaces between CCP and NWP support organizations are defined in CCP implementing procedures.

[B] Reports to Management

(*Applicable Criteria: CBFO QAPD Appendix E, Section 8*
NWP QAPD, Section 1.1.8)

QA provides the QA interface between facilities and the CCP Certification Manager and SPM. QA oversees the NCR/CAR process for CCP related deficiencies and coordinates with the CCP Certification Manager and SPM to track and notify the appropriate personnel of nonconformances, and verify corrective action completion in accordance with CCP-QP-005. QA at project sites report the results of their surveillance assessments to the Assurance Programs Manager, and together they track assessment results and corrective actions. QA prepares and transmits a semi-annual QA report to the CCP Certification Manager and the DOE.

[C] Delegation of Work

(Applicable Criteria: CBFO QAPD Section 1.1.1.5
NWP QAPD, Section 1.1.6)

Management empowers employees by delegating authority and decision making to the lowest appropriate level in the organization. If work is delegated, the individual making the delegation retains responsibility for the delegated work. QA is responsible for determining the effectiveness of the QA program, which is accomplished through internal reporting procedures, audits, and assessments.

[D] Resolution of Disputes

(Applicable Criteria: CBFO QAPD Section 1.1.1.6
NWP QAPD, Section 1.1.7)

Disputes related to QA program requirements will be resolved by QA and cognizant personnel. If not resolved, the issues will be elevated progressively to successively higher levels of management as necessary.

[E] QA Management

(Applicable Criteria: CBFO QAPD, Section 1.1.3.A
NWP QAPD, Section 1.1.5)

QA Management shall:

[E.1] Schedule and conduct QA assessments.

[E.2] Maintain liaison with participant QA organizations and other affected organizations.

[E.3] Ensure preparation, review, and issuance of QA plans and procedures that implement the provisions of the NWP QAPD.

[E.4] Review and approve supplier and subcontractor QA plans.

[E.5] Track or perform trend analysis of quality problems, and report quality problem areas.

[E.6] Provide for the administrative processing of documentation of concerning conditions adverse to quality.

[E.7] Have direct access to responsible management at a level where appropriate action can be effected.

[E.8] Be sufficiently independent from cost and schedule considerations.

[E.9] Have the organizational freedom to communicate with management.

[E.10] Have no assigned responsibilities unrelated to the QA program that would prevent appropriate attention to QA matters.

[E.11] Develop, establish, and interpret QA policy and ensure effective implementation.

[E.12] Interface, as appropriate, with the CBFO staff, participants, and other stakeholders on QA matters.

[E.13] Assist subordinate organizations with quality planning, documentation, quality measurement, and problem identification and resolution.

[E.14] Provide guidance to all applicable subordinate organizations concerning identification, control, and protection of QA records.

[F] The QA organization shall have sufficient authority, access to work areas, and organizational freedom to:

(Applicable Criteria: CBFO QAPD, Section 1.1.1.3.B
NWP QAPD, Section 1.1.5)

[F.1] Identify quality problems.

[F.2] Recommend solutions.

[F.3] Verify implementation of solutions.

[F.4] Ensure that unsatisfactory conditions are controlled until proper disposition has occurred.

5.1.2 Implementation of the QA Program

(Applicable criteria: 40 CFR 194.22(a)(1)
ASME NQA-1-1989, Criterion 2
CBFO QAPD Section 1.1.2
NWP QAPD, Section 1.1.8)

The QA program is planned, implemented, and maintained in accordance with the requirements found in the CBFO QAPD, NWP QAPD, American Society of Mechanical Engineers (ASME) NQA-1-1989, 40 CFR § 194.22, and 10 CFR § 830.122. The QA program identifies the activities and items to which it applies, and provides control over activities affecting quality to an extent consistent with their importance. The QA program has been implemented during the process of program development, start-up, and operation.

The QA program provides for the planning and accomplishment of activities affecting quality under suitable controlled conditions.

Controlled conditions include the use of appropriate equipment, suitable environmental conditions for performing waste characterization and transportation activities, and assurance that prerequisites have been satisfied. This program also provides for special controls, processes, test equipment, tools, and skills to attain the required quality and for verification of quality.

[A] Grading Items and Activities and Applying Management Controls

(Applicable Criteria: CBFO QAPD Section 1.1.2.3
NWP QAPD, Section 1.1.8.2)

The graded approach to application of QA controls is used by the CCP to determine the importance of the item or activity with respect to the CCP mission, regulatory requirements, hazards, and life-cycle of the item or activity. Management controls are applied commensurate with the determined importance of the item or activity. The CCP uses the graded approach in accordance with CCP-QP-001, *CCP Graded Approach*, to comply with CBFO QAPD and NWP QAPD requirements for grading items and activities and applying management controls. Revisions to CCP-QP-001 are submitted to CBFO for approval prior to implementation.

[B] Work Planning

(Applicable Criteria: CBFO QAPD Section 1.1.2.4
NWP QAPD, Section 1.1.12)

CCP performs and documents planning to ensure that work is accomplished under suitably controlled conditions. CCP implements planning in accordance with CCP-QP-010, *CCP Document Preparation, Approval and Control,* and CCP-QP-026*, CCP Inspection Control*. As appropriate, planning elements include:

[B.1] Definition of work scope, objectives, and a listing of the primary tasks involved.

[B.2] Identification of scientific approaches or technical methods used to collect, analyze or study results of applicable work.

[B.3] Identification of field and testing standards and quality criteria.

[B.4] Identification of applicable implementation documents; appropriate nationally recognized standards will be used whenever possible.

[B.5] Identification of field and testing equipment or other equipment.

[B.6] Identification of, or provisions for the identification of, required records and the recording of objective evidence of the results of the work performed.

[B.7] Identification of prerequisites, special controls, specific environmental conditions, processes, or skills.

[B.8] Identification of computer software.

[C] Peer Review

(Applicable criteria: CBFO QAPD Section 1.1.2.5
NWP QAPD, Section 1.1.12)

When peer reviews are required, they are accomplished in accordance with CCP-TP-511, *CCP Peer Review*.

5.2 Personnel Qualification and Training

(Applicable criteria: 10 CFR 830.122 Criterion 2
ASME NQA-1-1989, Criterion 2
DOE O 414.1 Criterion 2
CBFO QAPD Section 1.2
NWP QAPD, Section 1.2)

The QA program provides for training and qualification, as necessary, of personnel performing activities affecting quality to ensure that suitable proficiency is achieved and maintained. Personnel performing work in support of CCP receive QA training and are qualified to ensure that proficiency is achieved and maintained in the performance of their assigned tasks. Records documenting qualifications and completed training programs are maintained and controlled. Training and qualification are performed in accordance with CCP-QP-002, *CCP Training and Qualification Plan* and CCP-QP-040, *Support Training.*

5.2.1 Qualification Requirements

(*Applicable criteria: CBFO QAPD Section 1.2.1*
NWP QAPD, Section 1.2.1)

The CCP Certification Manager and Training determine qualification standards for each job category relevant to the CCP and ensure that qualifications of personnel, including minimum education and experience, have been verified. Personnel maintain minimum qualifications in accordance with CCP-QP-002. The CCP Certification Manager determines which positions relevant to the CCP require minimum qualifications. The period of effectiveness for qualification associated with special processes and operations that require special skills and the requalification criteria are specified or referenced in CCP-QP-002. The CCP Certification Manager ensures that auditable records documenting personnel qualifications are maintained as described in CCP-QP-008, *CCP Records Management*. Records of qualified personnel, their areas of qualification, and qualification periods (as appropriate) are retained in the records files.

5.2.2 Training Requirements

(Applicable criteria: CBFO QAPD Section 1.2.2
NWP QAPD, Section 1.2.2)

The CCP Certification Manager and Training ensure that personnel receive indoctrination and training on the scope, purpose, and objectives and the specific QAOs of the tasks being performed. Personnel performing activities affecting quality are trained according to the training plan to ensure they achieve and maintain proficiency. Personnel receive initial and continuing training requisite with their activities and level of responsibility, as described in CCP-QP-002.

Training is designed, developed, conducted, and evaluated in accordance with requirements described in CCP-QP-002. Training programs may include classroom instruction; practical hands-on experience; supervised on-the-job training (OJT); self-paced individual study; and written, oral, or practical demonstration of worker competence. The CCP Certification Manager analyzes job positions and determines task responsibilities for personnel to ensure education, experience, and training is commensurate with minimum requirements specified. The CCP Certification Manager is responsible for ensuring that auditable records documenting the required training and qualifications are maintained in accordance with CCP-QP-002.

5.3 Quality Improvement

(Applicable Criteria: 10 CFR 830.122 Criterion 3
ASME NQA-1-1989, Criteria 15 & 16
DOE O 414.1 Criterion 3
CBFO QAPD Section 1.3
NWP QAPD, Section 1.3)

Quality improvement is a management process, carried out to improve items, services, products, or processes. All aspects of quality work activities and the management system are subject to continuous improvement through the assessment and feedback processes.

Conditions adverse to quality are identified promptly and corrected as soon as practical. In the case of a significant condition adverse to quality, the cause of the condition is determined and corrective action taken to preclude recurrence. The identification, cause, and corrective action for significant conditions adverse to quality are documented and reported to appropriate levels of management. Follow-up action is taken to verify implementation of corrective actions.

Items that do not conform to specified requirements are controlled to prevent inadvertent installation or use. Controls are provided for identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and for notification to affected organizations.

Personnel continually evaluate and improve project activities. QA ensures that quality improvement is achieved by identifying and controlling conditions adverse to quality, analyzing trends, reporting and tracking nonconformances, and implementing corrective actions. These quality improvement activities detect and prevent unacceptable quality problems and thereby increase accuracy and reliability, and reduce variability. Data analysis and trending are performed in accordance with CCP-QP-014, *CCP Quality Assurance Trend Analysis and Reporting.*

A condition adverse to quality is an all-inclusive term used in reference to failures; malfunctions; deficiencies; and nonconforming items, materials, parts, or components, and processes. Personnel ensure that nonconforming items, materials, parts, or components are adequately identified and segregated from acceptable items and materials to preclude their inadvertent use. CCP and Host site personnel have the authority to stop certification, packaging, and transportation activities and/or refuse to accept work products or services (e.g., procured items, documentation, packaging, and waste shipments) that do not conform to requirements. Personnel report conditions adverse to quality to QA personnel, who ensure that the condition adverse to quality is investigated and that corrective action is taken as described in this section. Employees have

the responsibility to stop work that poses a clear and imminent danger to the safety and health of employees, subcontractors, visitors, or the environment.

Personnel notify QA of conditions adverse to quality affecting waste to be shipped to WIPP and forward CARs related to violations of the WIPP Hazardous Waste Facility Permit to QA for tracking. Conditions adverse to quality are documented, evaluated for significance, corrected, tracked, and reported in accordance with CCP-QP-029 and CCP-QP-005. All violations of the WIPP Hazardous Waste Facility Permit will be managed as significant conditions adverse to quality.

Deficiencies are uncontrolled and unapproved deviations from an approved plan, procedure, or expected result. Deficiencies specific to the CCP also include documentation or management practices that do not meet the requirements related to waste certification or payload container preparation, which are identified in the WIPP WAP, RH-TRAMPAC, CH-TRAMPAC, WAC, QAPD, and applicable federal and state regulations. Personnel are responsible for identifying any condition that affects compliance with these requirements. Assessments may often identify systems, processes, products, or services that do not meet performance criteria established in planning documents. When deficiencies are found, personnel take prompt action to rectify the situation.

Any individual who identifies a condition adverse to quality initiates an NCR or CAR in accordance with CCP-QP-005 or CCP-QP-029. If the safety or quality of the certification process could be compromised by continued use of a nonconforming item, the item is taken out of service and tagged or otherwise identified to prevent reuse or acceptance until the nonconformance is corrected. QA or the QA personnel at the facility where the nonconformance is identified ensures that an NCR is initiated and that corrective action is taken to resolve the nonconformance.

NCRs and CARs are forwarded to the CCP Project Office QA personnel. QA is responsible for validating and tracking CCP-related deficiencies to ensure that corrective action is implemented and that the corrective action resolves the nonconformance. Significant conditions adverse to quality are evaluated by QA and other affected organizations to determine if a work suspension is necessary. If necessary, work will be suspended until the condition is corrected and verified by QA. Personnel notify DOE-CBFO within seven calendar days of identification of any non-administrative nonconformance related to applicable requirements specified in the WIPP WAP, which are first identified at the SPM's signature release level. Personnel submit the NCR to DOE-CBFO within 30 calendar days of identification of the deficiency. QA ensures dissemination of information that may prevent problems or help improve

parallel processes in other waste generator or activities and re-evaluates system performance after corrective actions have been implemented. The CCP Certification Manager provides the resources necessary to accomplish corrective actions. Any containers with unresolved discrepancies associated with waste characterization cannot be certified for disposal; this includes containers affected by CAR's applicable to WIPP WAP and WAC requirements.

QA and the CCP Certification Manager are jointly responsible for identifying the following:

- Trends in nonconformances
- Root causes of nonconformances
- Specific, measurable corrective actions to resolve current problems and prevent recurrence
- Personnel responsible for implementing corrective actions
- Schedules for completing corrective actions

5.4 Documents

(Applicable Criteria: 10 CFR 830.122 Criterion 4
ASME NQA-1-1989, Criteria 6
DOE O 414.1 Criterion 4
CBFO QAPD Section 1.4
NWP QAPD, Section 1.4)

The preparation, issue, and change of documents that specify quality requirements or prescribe activities affecting quality are controlled to assure that correct documents are being employed. These documents, including changes, are reviewed for adequacy and approved for release by authorized personnel.

Personnel prepare and control documents supporting the quality of the CCP in accordance with CCP-QP-010. Document control coordinators will ensure that:

- Documents are controlled during the review and approval process.
- Applicable criteria for the review are identified. Criteria will consider technical adequacy, accuracy, completeness and compliance with requirements.
- Pertinent background information or data is made available to the reviewer.

- Reviews are performed by individuals other than the originator, who are also technically competent in the subject area.
- Organizations or technical disciplines affected by the document review the document.
- QA reviews documents that translate CBFO QAPD, WAC, WIPP WAP, CH-TRAMPAC, RH-TRAMPAC and WCPIP requirements.
- Review comments are resolved and evidence of review comment resolution is maintained.
- Documents are approved for release and distributed in accordance with CCP-QP-010. These documents include:
  - Program planning documents such as this Plan, the QAPjP, the TRAMPAC
  - Plans and procedures implementing TRU waste characterization, certification and packaging
  - Procedures implementing QA requirements
- Changes to documents, other than those designated as editorial changes, are reviewed by the same organizations that performed the original review and approval.

NWP controlled procedures are used for functions that NWP performs in support of CCP. These functions include procurement support, source inspection support, independent assessments, vendor audits, and QSL maintenance.

5.5 Records

(Applicable Criteria: 10 CFR Part 21
10 CFR Part 71
10 CFR 830.122 Criterion 4
ASME NQA-1-1989, Criterion 17
ASME NQA-2a-1990, Addenda, Part 2.7
ASME NQA-3 1989
Waste Isolation Pilot Plant Hazardous Waste Facility Permit
DOE O 414.1 Criterion 4
CBFO QAPD Section 1.5
NWP QAPD, Section 1.5
DOE O 414.1
DOE O 266.1
DOE G-414.1-2A
SNT-TC-1A-1980
NRC Certificate Number 9212
NRC Certificate Number 9218
NRC Certificate Number 9279
NRC Certificate Number 9204
NUREG-1297 (1988)
NUREG/BR-0167 (1993)
40 CFR Part 191
40 CFR Part 194)

Records that furnish documentary evidence of quality are specified, prepared, and maintained. Records are legible, identifiable, and retrievable. Records are protected against damage, deterioration, or loss. Requirements and responsibilities for record transmittal, distribution, retention, maintenance, and disposition are established and documented.

A QA record is an authenticated record that provides objective evidence of the quality of items and/or activities. The minimum lifetime and nonpermanent QA records are identified in the QAPjP. QA records are controlled and maintained to certify compliance with requirements and to reflect completed work. QA records are indexed, classified, controlled, and maintained by records management personnel as described in CCP-QP-008. The Records Inventory and Disposition Schedule (RIDS) is also defined in CCP-QP-028, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning*.

Waste characterization data and QA/QC records related to TRU waste to be shipped to WIPP are designated as either Lifetime Records, or Non-Permanent Records. Records that are designated as Lifetime Records are maintained for the life of the waste characterization program

plus six years; **OR** transferred for permanent archival storage to the WIPP Records Archive. Waste characterization records designated as Non-Permanent Records will be maintained for ten years from the date of record generation and then dispositioned according to their approved RIDS.

5.6 Work Process

(Applicable Criteria: 10 CFR 830.122 Criterion 5
DOE O 414.1 Criterion 5
CBFO QAPD Section 2.1
NWP QAPD, Section 2.1)

The work processes and items supporting and affecting quality are controlled through plans and procedures identified in this Plan, the QAPjP, and the TRAMPAC.

Characterization, fabrication, installation, and inspection processes affecting the quality of items or services are controlled by procedures. Special processes that control or verify quality, such as those used in welding, heat treating, and nondestructive examination, are performed by qualified personnel using qualified procedures in accordance with specified requirements.

5.6.1 Work

(Applicable Criteria: CBFO QAPD Section 2.1.1
ASME NQA-1-1989, Criterion 1
NWP QAPD, Section 2.1.1)

The CCP Certification Manager ensures that activities are controlled and conducted in accordance with facility-specific procedures that describe and control work processes applicable to TRU waste characterization or certification.

Individual operating procedures provide controls for performance of special processes. Special process training and qualification requirements are described in CCP-QP-002.

Each individual performing work is responsible for ensuring that work processes are controlled and comply with established criteria. The CCP Certification Manager is responsible for ensuring that workers have the correct procedures, materials, and training to perform the required work. Instructions and procedures are maintained current with a documented and controlled method of revision. Instructions, procedures, and drawings are readily

available to personnel at locations requiring their use through either hard copy or electronic media.

5.6.2 Implementing Procedures

(Applicable criteria: ASME NQA-1-1989, Criterion 5
CBFO QAPD Section 2.1.2
NWP QAPD, Section 2.1.2)

Activities affecting quality are prescribed by and performed in accordance with documented instructions, procedures, or drawings of a type appropriate to the circumstances. These documents include or reference appropriate quantitative or qualitative acceptance criteria for determining that the prescribed activities have been satisfactorily accomplished.

Procedures and plans are developed, reviewed, approved, revised, and distributed in accordance with CCP-QP-010. CCP technical and QA personnel comply with the applicable technical standards and administrative controls described in procedures, which are reviewed and approved by the CCP Certification Manager and QA in accordance with CCP-QP-010. The CCP Certification Manager ensures personnel perform work following established procedures. For work processes such as procurement, source inspection, and independent assessments, applicable NWP non-CCP specific procedures are also used. CCP specific implementing procedures describe the required interfaces with applicable NWP general use procedures.

The procedures identified in this Plan, the QAPjP, and the TRAMPAC provide the following information:

- organizational and individual responsibilities
- training and qualification requirements
- technical, regulatory, and QA requirements
- step-by-step instructions for the process
- equipment specifications
- identification and control of items used or installed
- prevention of damage or loss and minimization of deterioration of items and materials during handling, storage, and shipment of items

- methods and criteria for ensuring and verifying the acceptability of equipment and materials used in the process (e.g., calibration)
- prerequisites, precautions, process parameters, and other limiting conditions
- products of the process
- quantitative and/or qualitative criteria for determining that prescribed process activities have been performed satisfactorily
- records generated by the process
- package and design control of equipment and materials

5.6.3 Item Identification and Control

(Applicable Criteria: ASME NQA-1-1989, Criterion 8
CBFO QAPD Section 2.1.3
NWP QAPD, Section 2.1.3)

Controls have been established to assure that only correct and accepted items are used or installed. Identification is maintained on items or in documents traceable to the items, or in a manner which assures that identification is established and maintained.

Items are identified and traced from time of receipt through end use. Physical markings, labels, tags or segregation are used to provide item identification and status. Specific details are provided in CCP-QP-017, *CCP Identification and Control of Items*.

5.6.4 Special Processes

(Applicable Criteria: ASME NQA-1-1989, Criterion 9
CBFO QAPD Section 2.1.4
NWP QAPD, Section 2.1.5)

Special processes that control or verify quality, such as those used in nondestructive examination, are performed by qualified personnel using qualified procedures in accordance with specified requirements.

Processes are considered to be special processes if:

- results are highly dependent on the control of the process
- results are highly dependent on the skill of the operator, or

- quality of the results cannot be readily determined by inspection or test of the product.

Implementing procedures have been developed to control special processes: NDE, NDA, DTC, Flammable Gas Analysis, GGT, and Helium Leak Detection. Training and qualification requirements for operators are identified in CCP-QP-002.

5.6.5 Handling, Storage, and Shipping

(Applicable Criteria: ASME NQA-1-1989, Criterion 13
CBFO QAPD Section 2.1.5
NWP QAPD, Section 2.1.6)

Handling, storage, cleaning, packaging, shipping, and preservation of items are controlled to prevent damage or loss and to minimize deterioration. Controls are provided through work and inspection procedures, shipping instructions, or other appropriate documents.

Measures are established in CCP-QP-015 and CCP-QP-023, *CCP Handling, Storage and Shipping*, to ensure that systems, components and items used for repair work for maintenance purposes or packaging purposes are adequately identified to preclude the use of incorrect or defective items. Also, where replacement of limited shelf life items is specified, measures are established to preclude use of items whose shelf life or time in operation has expired. Handling, storage, cleaning, shipping, and other means of preserving, transporting, and packaging of items are controlled in accordance with CCP-QP-023.

5.7 Configuration Management

(Applicable Criteria: CBFO QAPD Section 2.2
NWP QAPD, Section 2.2)

5.7.1 Equipment Configuration

CCP applies configuration management controls to characterization equipment, including vendor owned equipment, operated by CCP and its subcontractors on behalf of CBFO. In accordance with CCP-CM-001, *CCP Equipment Change Authorization and Documentation*, personnel:

- Coordinate the reviews of new equipment and changes/modifications/repairs to existing equipment.
- Establish and apply unique equipment numbering.

- Develop all required equipment change/modification/repair requests.
- Determine training needs due to equipment changes/modifications/repairs.
- Obtain appropriate approvals for equipment modifications, changes, repairs, and process drawing and document changes when required.
- Coordinate with host facility representatives in their reviews to ensure that proposed modifications comply with host facility Authorization Basis requirements.
- Oversee the implementation of approved changes.
- Ensure appropriate technical documentation is maintained on equipment changes/modifications/repairs.

5.7.2 Software Configuration

CCP applies configuration management controls to computer software and hardware/software configurations in accordance with the requirements of CCP-QP-022, as described in Section 5.14 of the Plan.

5.8 Procurement

(Applicable Criteria: 10 CFR 830.122 Criterion 7
ASME NQA-1-1989 Criteria 4 & 7
DOE O 414.1 Criterion 7
CBFO QAPD Section 2.3
NWP QAPD, Section 2.3)

Applicable design bases and other requirements necessary to ensure adequate quality are included or referenced in documents for procurement of items and services. Procurement documents require suppliers to have a QA program consistent with the graded application of quality requirements. Procurements are controlled to ensure conformance with specified requirements. Procurement controls provide for source evaluation and selection, evaluation of objective evidence of quality furnished by the supplier, source inspection, audit, and examination of items or services upon delivery or completion.

CCP implements procedures to ensure that procurement of items and services important to safety and quality meet requirements and perform as intended. Procurement controls are applicable to equipment and services,

including commercial grade items that directly affect testing, and data quality. Other NWP organizations provide support to the CCP for procurement process elements such as procurement planning, supplier selection and evaluation, bid evaluation, supplier performance evaluation, requisition review and processing, and procurement records. Personnel adhere to procurement and record keeping practices established in written procedures. The procurement criteria are implemented according to CCP-QP-015, NWP procedure WP 15-PC3609, *Preparation of Purchase Requisitions and Purchase Requisition Change Notices*, and the procedures specified in the following subsections.

When deemed appropriate, CCP may permit some or all supplier work to be performed under the NWP QA program, provided that the requirements are adequately implemented. In these cases, procurement documents shall specify the NWP QA implementing procedures, including CCP specific procedures that are applicable to the supplier and that CCP will provide these applicable documents to the supplier.

5.8.1 Procurement Document Review and Approval

(Applicable Criteria: CBFO QAPD Section 2.3.5
NWP QAPD, Section 2.3.2)

The CCP Certification Manager ensures that personnel control procurement documents in accordance with CCP-QP-015. Procurements are planned and controlled to ensure that suppliers have QA programs consistent with the intended use of the item being procured. Procurement activities shall be planned as early as possible. At a minimum, the activities shall be planned no later than the start of those procurement activities that are required to be controlled. Procurement documents supporting waste management and packaging and transportation activities must include required specifications and acceptance criteria. Procurement documents are reviewed by appropriate organizations and engineering disciplines to ensure that they contain adequate scope of work, technical requirements, supplier QA program requirements, and provisions for acceptance. Qualified personnel verify suppliers' conformance to procurement document requirements.

5.8.2 Acceptance of Items or Services
(Applicable Criteria: CBFO QAPD Section 2.3.7
NWP QAPD, Section 2.3.4)

The SPM ensures that personnel control items and services purchased (including supplier evaluations and inspections) in accordance with CCP-QP-015, NWP Procedure

WP 15-PC3609, and CCP-QP-001. Methods shall be established for the acceptance of an item or service being furnished by a supplier. Prior to offering an item or service for acceptance, the supplier shall verify that the item or service complies with the procurement requirements. Documentary evidence of conformance to the procurement specifications is provided before installation or use of systems, components, items, and services, and is retained in accordance with CCP-QP-015. Acceptance of quality related systems, components, items and services will be through source verification, receipt inspection, post-installation testing, or supplier certificate of conformance as appropriate to the quality level. Supplier nonconformances will be documented, tracked, and dispositioned in accordance with CCP-QP-015. An example of conditions requiring a report of nonconformance include: The item does not conform to the original requirement even though the item can be restored to a condition such that its capability to function is unimpaired (i.e., a waiver is requested).

5.8.3 Control of Supplier Nonconformances

(Applicable Criteria: CBFO QAPD Section 2.3.8
NWP QAPD, Section 2.3.5)

Subcontractors perform work that directly affects the quality of characterization and certification data. CCP-QP-015, describes how personnel control subcontractor services. Subcontractors may support activities under a “staff augmentation” role or for procurement of products and services. Staff augmentation subcontractors operate under the umbrella of the QA program and are subject to applicable requirements for functions that they perform. Subcontractors who support the CCP will be informed of the need to perform operations in compliance with requirements.

If subcontractors are authorized to perform procurements of quality-affecting items and services, they are required to establish procurement controls and a QA program to ensure that purchased materials, equipment, and services conform to the procurement and QA program documents. NWP adds and maintains such subcontractors on the NWP QSL, to support the scope of work and ensure that the appropriate subcontractor QA controls are applied. The controls must include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products on delivery. Subcontractors are subject to periodic assessments and audits at intervals consistent with the importance, complexity, and quantity of the product or services provided to ensure compliance with

procurement requirements. Subcontractors shall submit copies of CCP-related, quality affecting documents to the CCP Certification Manager.

Items and services procured are subject to control of nonconformances. Quality Levels are determined for items and services procured for use, and quality-affecting items are evaluated for adequacy prior to use through receipt inspection, source inspection, functional testing, or other appropriate means. Items that are found deficient are documented, controlled to prevent use, evaluated, and corrective actions performed.

A combination of CCP specific and NWP general use procedures are used to exercise controls over supplier nonconformances. They include:

- CCP-QP-015, *CCP Procurement*
- CCP-QP-029, *CCP Corrective Action Management*
- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- WP 15-PC3609, *Preparation of Purchase Requisitions and Purchase Requisition Change Notices*

5.8.4 Commercial Grade Items

(Applicable Criteria: CBFO QAPD Section 2.3.9
NWP QAPD, Section 2.3.6 and 2.3.7)

Commercial grade items may be used when specified by design. Commercial grade items are identified in procurement documents using manufacturer or distributor catalog numbers or descriptions. Data collection and test instruments procured as commercial grade items that are intended for use in quality related applications are calibrated by qualified suppliers of calibration services prior to use. Commercial grade items are procured in accordance with CCP-QP-015, CCP-QP-026, WP 13-QA1003, *Quality Assurance Receipt/Source Inspections*, WP 15-PC3609, WP 13-QA3012, *Supplier Evaluation and Qualification,* and NWP Procurement Services Commercial Instruction C1015 *Supplier Selection*.

5.9 Inspection and Testing

(Applicable Criteria: 10 CFR 830.122 Criterion 8
ASME NQA-1-1989, Criteria 10 & 14
DOE O 414.1 Criterion 8
CBFO QAPD Section 2.4
NWP QAPD, Section 2.4)

Inspections required to, verify conformance of an item or activity to specified requirements are planned and executed. Characteristics to be inspected and inspection methods to be employed are specified. Inspection results are documented. Inspection for acceptance is performed by persons other than those who performed or directly supervised the work being inspected.

The status of inspection and test activities is identified either on the items or in documents traceable to the items where it is necessary to assure that required inspections and tests are performed and to assure that items which have not passed the required inspections and tests are not inadvertently installed, used, or operated. Status is maintained through indicators appropriate to the activity or item, such as physical location and tags, markings, travelers, stamps, inspection records, or other suitable means. The authority for application and removal of tags, markings, labels, and stamps is specified.

Equipment is tested, inspected, and maintained in accordance CCP-QP-016*, CCP Control of Measuring, Testing, and Data Collection Equipment*; CCP-QP-026, and CCP-QP-027, *CCP Test Control*. CCP personnel identify and control items (e.g., items with limited shelf or operating lives, materials, equipment, and samples) and ensure that only correct and accepted items are used according to CCP-QP-026. These procedures and documents address planning, parameters for evaluation, techniques to be used qualifications of inspection and test personnel, hold points, documentation, acceptance criteria, and organizational responsibilities.

Personnel routinely test and inspect items and processes and control, calibrate, and maintain equipment to ensure proper operation and data quality. Procedures identified above implement an inspection program that establishes criteria for inspection of activities affecting quality by, or for, the organization performing the activity, and to verify conformance with the requirements for accomplishing the activity. The verification is performed in accordance with written procedures, instructions, or drawings. Personnel performing the inspections are independent from the individuals performing the activity being inspected. Equipment modifications, repairs, and replacement are inspected in accordance with the original design and inspection requirements unless an approved

alternative exists. The inspection program also provides for identification and documentation of deficiencies discovered during the inspection. Measures are established to indicate, by the use of markings, tags, stamps, labels, routing cards, or other suitable means, the status of inspections and tests performed. These measures provide for the identification of items that have satisfactorily passed required inspections and tests, where necessary, to preclude inadvertent bypassing of the inspections and tests.

Quality related procured items are inspected by qualified personnel at receipt or at the source prior to shipment. These inspections may include dimensional verification, functional testing, verification of documentation or other appropriate methods.

5.9.1 Qualification of Inspection and Test Personnel

(Applicable Criteria: CBFO QAPD Section 2.4.1
NWP QAPD, Section 2.4.1)

Inspection and test personnel are trained and qualified in accordance with CCP-QP-002, CCP-QP-030, *CCP Written Practice for the Qualification of CCP Helium Leak Detection Personnel*, and CCP-QP-032, *CCP Written Practice for the Qualification of CCP Pressure Change Leak Testing Personnel*. Candidates for inspection and test positions are evaluated for previous education, experience, training, and testing as appropriate. Minimum qualifications are established, and personnel selected for these activities are documented to have experience or training commensurate with the scope, complexity, or special nature of the inspections or tests performed. Inspection and test personnel are indoctrinated in the technical and QA objectives, requirements, and controls, and formal or OJT is performed as appropriate. Qualifications are documented, and records maintained in the Records System.

Job performance of inspection and test personnel is evaluated at periodic intervals, and is performed through review of evidence of continued satisfactory performance or redetermination of capability. If personnel are found to not perform adequately, they are removed from that function until the required capability is demonstrated. Personnel that have not performed inspection or testing activities in their qualified area for more than a year are re-evaluated for the required capability.

5.9.2 Qualification of Nondestructive Examination Personnel

(Applicable Criteria: CBFO QAPD Section 2.4.2.A
NWP QAPD, Section 2.4.1.2)

Personnel performing NDE are trained and certified in accordance with CCP-QP-002. This procedure implements the requirements of the American Society of Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A, June 1980 edition. Training and certification of NDE personnel are documented and records maintained in the Records System.

5.9.3 Inspection Planning

(Applicable Criteria: CBFO QAPD Section 2.4.3.1
NWP QAPD, Section 2.4.2.1)

Inspections are planned, performed and documented in accordance with CCP-QP-026. Inspection planning includes identification of work operations to be inspected, inspection hold points, identification of characteristics to be inspected, inspection methods, acceptance criteria, sampling requirements, method of documentation of inspection results, Measuring and Testing Equipment (M&TE) to be used, and identification of statistical methods for sampling.

The types of inspections that may be performed include:

- in-process inspections and monitoring
- final inspection
- in-service inspections

Each of these types of inspections may include review of documentation, examination or verification of physical characteristics, performance of tests, or other means of verifying quality and conformance to the applicable requirements. Inspections are documented and records maintained as part of the Records System.

5.9.4 Test Requirements

(Applicable Criteria: ASME NQA-1-1989, Criterion 11
CBFO QAPD Section 2.4.4
NWP QAPD, Section 2.4.3)

Tests required to verify conformance of an item or computer program to specified requirements and to demonstrate satisfactory

performance for service shall be planned and executed. Characteristics to be tested and test methods to be employed are specified. Test results are documented and their conformance with acceptance criteria are evaluated.

Tests required to collect data are planned, executed, documented and evaluated. Test planning includes identification of test procedures, test requirements and acceptance limits, including required levels of precision and accuracy, identification of M&TE, test prerequisites, hold points, and test and data documentation requirements. Test results are documented and their conformance with acceptance criteria are evaluated by qualified personnel.

Testing is performed in accordance with CCP-QP-027.

5.9.5 Monitoring, Measuring, Testing, and Data Collection Equipment

(Applicable Criteria: 10 CFR 830.122, Criterion 5
ASME NQA-1-1989, Criterion 12
CBFO QAPD Section 2.4.5
NWP QAPD, Section 2.5)

Tools, gages, instruments, and other measuring and test equipment used for activities affecting quality are controlled and at specified periods calibrated and adjusted to maintain accuracy within necessary limits. This equipment is controlled in accordance with CCP-QP-016.

[A] Use and Control of M&TE

(Applicable Criteria: CBFO QAPD Section 2.4.6
NWP QAPD, Section 2.5.1)

Measuring and test equipment with the necessary range and accuracy is provided to qualified personnel for the inspection, test, and acceptance of material, parts, components, and systems. The specific controls imposed on measuring and test equipment are described in procedure CCP-QP-016, and CCP-QP-026. M&TE are labeled, and any that are found to be out of calibration are reviewed to determine the impact. Records are maintained in the Records System.

[B] Calibration

(*Applicable Criteria: CBFO QAPD Section 2.4.7*
NWP QAPD, Section 2.5.1)

Equipment accuracy is ensured by periodic calibration that is traceable to national standards or a documented equivalent basis for calibration. M&TE shall be calibrated to provide traceability of the calibration against certified equipment having known valid relationships to nationally recognized standards. If nationally recognized standards do not exist, the basis for calibration shall be documented. The specific controls imposed on measuring and test equipment are described in procedure CCP-QP-016, and CCP-QP-026.

5.10 Management Assessments

(Applicable Criteria: 10 CFR 820.122 Criterion 9
ASME NQA-1-1989 Criterion 2
DOE O 414.1 Criterion 9
CBFO QAPD Section 3.1
NWP QAPD, Section 3.1)

Management regularly assess the adequacy of that part of the QA program for which they are responsible to assure its effective implementation, and ensure compliance with applicable requirements. Management assessments are conducted according to CCP-QP-018, *CCP Management Assessment*. CBFO and external regulatory agencies also conduct assessments. QA tracks deficiencies identified during assessments; identifies corrective actions to resolve deficiencies according to CCP-QP-029 and CCP-QP-005, and ensures the resolutions are reported to the CCP Certification Manager and CBFO. Documentation of deficiencies identified in activities conducted at waste generating sites are also reported to the appropriate organizations at those sites, in accordance with interface documents.

Management periodically assesses the performance of its organization to determine the effectiveness of QA Program provisions that enable the organization to comply with requirements of the WIPP WAP, QAPD, WAC, and applicable procedures and documents. Managers evaluate QA Program effectiveness by focusing on the identification and resolution of both systemic and management issues and problems, and identifying strengths and weaknesses to facilitate actions to improve quality efficiency and cost-effectiveness. Management assessments may include an introspective evaluation to determine whether the entire integrated management system effectively focuses on meeting strategic goals. Management assessments are conducted as described in CCP-QP-018.

Management is responsible for the conduct of these assessments and reports at least annually on relevant findings.

5.11 Independent Assessments

(Applicable Criteria: 10 CFR 830.122, Criterion 10
ASME NQA-1-1989, Criterion 18
DOE O 414.1, Criterion 10
CBFO QAPD Section 3.2
NWP QAPD, Section 3.2)

Planned and scheduled audits are performed to verify compliance with all aspects of the QA program and to determine its effectiveness. These audits and surveillances are performed in accordance with written procedures or checklists by personnel who do not have direct responsibility for performing the activities being audited. Audit and surveillance results are documented and reported to and reviewed by responsible management. Follow-up actions are taken where indicated.

Documented independent assessments (audits and surveillances) are used to measure item service and quality, process adequacy and effectiveness, and to promote improvement.

5.11.1 Surveillances

(Applicable Criteria: CBFO QAPD Section 3.2.1
NWP QAPD, Section 3.2)

Surveillances are conducted primarily to monitor work in progress and to follow up on corrective actions. Surveillance results are reported and monitored similar to other assessment activities. At each host location, surveillances are scheduled as early in the project as practical. Surveillances are performed in accordance with CCP-QP-021, *CCP Surveillance Program*.

5.11.2 Audits

(Applicable Criteria: CBFO QAPD Section 3.2.2
NWP QAPD, Section 3.2)

Internal and external audits are planned and scheduled throughout the life of the CCP and are conducted by qualified personnel.

The CCP is subject to CBFO certification audits. A CBFO audit of is conducted before any waste characterized by the CCP is shipped to the WIPP and annually thereafter. In addition, the CBFO may conduct audits on a random basis. These audits are scheduled

through the CBFO QA Manager who coordinates the plans and schedule through the CCP Certification Manager.

5.12 Sample Control Requirements

(Applicable Criteria: CBFO QAPD Section 4.1
NWP QAPD, Section 4.1)

This section identifies the requirements for controlling samples of waste and environmental media. Control measures stated in site specific container management procedures (see Appendix 4, Table B-1) and analysis procedures include provisions for the identification, handling, storage and shipping, archiving, and identification of nonconforming drums.

Samples/drums are controlled and identified in a manner consistent with their intended use in accordance with container management procedures specific to each site (See Appendix 4, Table B-1).

5.12.1 Sample Identification

(Applicable Criteria: CBFO QAPD Section 4.2
NWP QAPD, Section 2)

[A] Waste containers used as samples are labeled and tracked in accordance with site specific container management procedures. Each waste container used as a sample is checked for physical marking that:

[A.1] Are applied using materials and methods that provide a clear and legible identification.

[A.2] Are not obliterated or hidden on the surface.

[B] If samples/waste containers used as samples are stored, they are controlled in accordance with container management procedures and the method requirements for characterization.

5.12.2 Handling, Storing, and Shipping Samples

(Applicable Criteria: CBFO QAPD Section 4.3
NWP QAPD, Section 4.3)

[A] Handling, storing, cleaning, packaging, and shipping waste containers used as samples is conducted in accordance with

established work and inspection implementing procedures, CCP-QP-023.

5.12.3 Disposition of Nonconforming Samples

(Applicable Criteria: CBFO QAPD Section 4.4
NWP QAPD, Section 4.4)

[A] Waste containers used as samples that do not conform to requirements are reported on an NCR in accordance with CCP-QP-005.

[B] The disposition of waste containers used as samples is identified and documented in accordance with CCP-QP-005.

5.13 Data Documentation, Control, and Validation

(Applicable Criteria: CBFO QAPD Section 5.3
NWP QAPD, Section 4.6 and 4.7)

5.13.1 Data are controlled to prevent loss and ensure integrity, security and freedom from error. Erroneous, rejected or superseded data are controlled to prevent use. Data uncertainty levels are determined prior to use. Data reduction methods are prescribed in technical procedures to allow validation of the reduction process. Data verification and validation is performed to assure accuracy, completeness and traceability in accordance with QA and technical procedures. These procedures include CCP-TP-001 and CCP-TP-002.

5.13.2 Data validation is a systematic process used to review data to ensure that the required data quality characteristics have been obtained. Results of the review may require that qualifiers be placed on the use of the data.

5.13.3 Validation methods shall be planned and documented. The documentation shall include the acceptance criteria used to determine if the data are valid.

5.13.4 All applicable data collected shall be validated. Validation shall include the following:

[A] The relevant documentation is reviewed to evaluate the technical adequacy, the suitability for the intended use, and the adequacy of the QA record.

[B] The results of the data review shall be documented.

[C] The reviewer shall be independent of the collection activities.

5.13.5 Data validation shall be controlled to permit independent reproducibility by another qualified individual.

5.13.6 Data considered as established fact by the scientific and engineering community, such as engineering handbook data, critical tables, etc., do not require validation.

5.14 Software

(Applicable Criteria: ASME NQA-2a-1990 Part 2.7
CBFO QAPD Section 6
NWP QAPD, Section 6)

Computer software and hardware/software configurations used in activities are developed, documented, verified, validated, and tested prior to use in compliance with requirements contained in the QAPD, QAPjP, and NQA-1, Subpart 2.7, *Quality Assurance Requirements of Computer Software for Nuclear Facility Applications* (ASME 1989). CCP-QP-022 describes the processes for computer software development, validation, and verification.

Software used are identified and controlled through inventory and categorization, and configuration management is maintained. CCP-QP-022 provides the controls for configuration management; software procurement and development; software life-cycle management including installation, testing, verification and validation, operation, and retirement; access controls; and required documentation. Software problems are identified and reported, and changes to software are controlled.

5.15 Performance Demonstration Program (PDP)

The CCP participates in the PDP. PDP samples are processed according to procedures applicable to the specific testing and CCP-TP-058, *CCP NDA Performance Demonstration Plan*.

6.0 REFERENCES

NOTE
The current revision of these reference documents is applicable. The Internet links are provided for informational purposes only and may change.

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Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste

A.1 Introduction

Radioassay techniques are used to determine the radionuclide content of waste. Radioassay methods include both nondestructive and destructive techniques. The term "radioassay" includes all types of assay techniques. NDA refers only to nonintrusive assay techniques, whereas radiochemistry (RC) is used to refer to destructive assay techniques. This appendix is intended to apply to NDA activities conducted within the WIPP CCP.

Common NDA techniques rely on detection of gamma rays, neutrons, or heat generated by the waste. NDA is performed on a waste container basis.

RC will not be performed by CCP. If plans change, then RC will be performed in compliance with the requirements of the current WAC, and this Plan will be revised.

The DOE is required to collect radiological characterization data to:

- Track the WIPP radionuclide inventory, by isotopic activity and mass, for those radionuclides listed in Section 3.3.1,
- Demonstrate that each payload container disposed of at the WIPP contains TRU waste as specified in Section 3.3.3, and
- Verify that applicable transportation and facility limits on individual payload containers and assemblies for FGE, PE-Ci, and decay heat are not exceeded, as specified in Section 3.3.2, 3.3.4 and 3.3.6.

The radioassay process quantifies at least one of the more prevalent radionuclides known to be present in the waste. The remaining listed radionuclides present in the waste in significant quantities will be identified by direct measurement of isotopic ratios as discussed in Section A.2. The isotopic ratios are then used to quantify radionuclides based on the assay value.

The requisite data on isotopic ratios and quantities will be derived from AK (see Section A.2), radioassay or both using CBFO approved NDA or RC techniques, instruments and procedures. Each site must technically justify that the AK and/or radioassay techniques, instruments and procedures used:

- Are appropriate for the specific waste stream and waste content code descriptions being assayed, and
- Will result in unbiased values for the cumulative activity and mass of the WIPP radionuclide inventory.

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

Existing radioassay data collected prior to the implementation of a QA program pursuant to 40 CFR §194.22(a)(1) may only be qualified in accordance with an alternate methodology that is approved by CBFO and employs one or more of the following methods:

- Peer review in accordance with NUREG-1297 (Reference A1),
- Corroborating data,
- Confirmatory testing (i.e., testing made on a representative sub-population of payload containers within a waste stream), or
- Demonstrating the equivalence of an alternative QA program (as described in Reference A2, Section 5.4).

Proposals for alternative approaches to identification and quantification of radioisotopes (e.g., quantification of isotopic ratio AK on a waste stream basis) must be submitted to CBFO for review and approval. CBFO will report such proposals to the EPA for consideration prior to issuing approval.

Controlled changes to radioassay (NDA or RC) related plans or procedures are managed through the document control process described in CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*. The CCP Certification Manager and QA shall review all such changes and report to the CBFO those changes that could impact compliance with the criteria in this document. The CCP Certification Manager shall ensure that site approved changes to radioassay related plans or procedures affecting either the performance criteria or data quality of certified systems/processes are not used in the collection of waste certification data prior to CBFO's review and approval. Related testing, calibration, and training performed in accordance with these site-approved changes, however, are not precluded from being conducted prior to CBFO's review and approval. (Memorandum from CBFO to Distribution, CBFO:NTP:RMK:VW:02-2734: UFC:5822, July 29, 2002.)

The CCP program will establish or confirm isotopic ratios by direct measurements and these ratios will be used in conjunction with measured or AK data to calculate WIPP-reportable values.

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

A.2 Radionuclide Isotopic Ratios

Establishing isotopic ratios for use in quantifying radionuclides is performed by direct measurement of the containers using WIPP-certified systems. Sites may opt to qualify AK as permitted by 40 CFR §194.22(b) by performing confirmatory testing using WIPP-certified radioassay systems. When a site performs direct measurements of isotopic ratios, it is expected that all containers in the waste stream will be measured, with the understanding that, in some cases, valid data may not be obtainable for given containers for technical reasons (e.g., lack of sufficient signal or poor counting statistics). All such instances will be documented and appropriately dispositioned by the measurement facility. For those few waste containers for which direct measurement does not yield useable isotopic ratio information, AK may be used. The assay programs will establish or confirm isotopic ratios by direct measurement and these ratios will be used in conjunction with the reported data to calculate WIPP-reportable values.

A.2.1 Methods for Confirmation of Isotopic Ratio AK

As a minimum, to confirm existing AK data, it is necessary to compare ratios of the two most prevalent radionuclides in the isotopic mix. For weapons and reactor grade plutonium, these are typically ^{239}Pu and ^{240}Pu. For heat source waste, the predominant radionuclides are typically ^{238}Pu and ^{239}Pu. Measured isotopic ratios for ^{241}Am may confirm existing AK by waste stream.

However, due to the fluctuation of ^{241}Am in certain waste streams, it may become necessary to measure ^{239}Pu to ^{241}Am isotopic ratios on all containers in that waste stream.

^{241}Am is the daughter of ^{241}Pu, which decays with a half-life of about 14 years. If the time since the chemical separation of the plutonium is known, the quantity of measured ^{241}Am can be used to calculate the quantity of ^{241}Pu. This assumes there was no ^{241}Am in the waste just after the chemical separation and that no ^{241}Am was added to or removed from the waste during the time since the separation. Since ^{241}Am is an indirect measurement of ^{241}Pu, it could be compared (by ratio) to any plutonium isotope (^{239}Pu or ^{240}Pu) associated with weapons and reactor grade plutonium.

For weapons grade and reactor grade waste, isotopic ratio values for ^{238}Pu can be assumed to be valid in AK data if the values for ^{239}Pu and ^{240}Pu have been confirmed. Because ^{242}Pu cannot be measured using NDA methods, the contribution of ^{242}Pu isotopic ratio is calculated by correlation techniques.

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

For some of the generator sites that were involved primarily in weapons production, the fissile isotopes ^{235}U and ^{233}U and the fissionable isotope ^{238}U may not have been measured when the transuranic waste was originally assayed (i.e., using non-WIPP-certified systems), primarily because the plutonium isotopes were the radionuclides of interest to the generator site. However, other forms of AK may be available. If so, then the AK can be confirmed by data generated on a WIPP-certified system. If valid AK does not exist, then the data generated on a WIPP-certified system can only be used to detect or calculate ^{238}U, ^{235}U, and ^{233}U or to confirm their absence. Because ^{234}U cannot be measured using NDA methods, the isotopic ratios for ^{234}U may be calculated from the ^{235}U enrichment. Values or lack thereof, for ^{137}Cs can be confirmed by the data generated on a WIPP-certified system. This is typically done by measuring ^{137}Cs directly, or by comparing the NDA measured ^{241}Am 662 kiloelectron volt (keV) peak to the other ^{241}Am peaks (e.g., the 125 keV or 721 keV peaks) to determine if the 662 keV peak's intensity is consistent with the expected ^{241}Am intensity. A disproportionate response for the 662 keV peak relative to the other ^{241}Am peaks may indicate the presence of ^{137}Cs. ^{90}Sr may be calculated from the value for ^{137}Cs and AK. If detected, a waste container's concentration of ^{137}Cs can be used to derive a value of ^{90}Sr through the application of the appropriate scaling factor(s). All scaling factors used will be technically sound and based on known, documented relationships or correlations. The data report for the waste containers for which the ^{90}Sr, value is derived in this manner shall reflect the use of a scaling factor(s) and provide sufficient documentation to enable its independent calculation. Finally, the gamma spectra must be carefully examined for significant presence of other radionuclides to ensure compliance with transportation requirements. Data obtained for radionuclides other than the WIPP-tracked radionuclides presented above are required to address confounding isotope issues (i.e., masking) with regard to NDA. When RC is used for confirmation radioassay instead of NDA, less reliance on calculated isotopics is required.

CCP will technically justify that the techniques used to confirm the absence or the ratio of non-measurable radionuclides are valid for the particular radioassay method used to confirm AK.

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

A.2.2 Acceptable Knowledge (AK) Documentation

The use of AK information concerning the radiological composition of a waste stream will be documented either in the AK Summary Report for the waste characterization of the waste stream or in another controlled document approved by the SPM. Should this information be contained in AK package(s) prepared to meet other general waste characterization requirements, it need not be duplicated in other controlled documents that address the radiological properties of the waste stream; however, all relevant information must be included in the AK record. CCP uses procedure CCP-TP-005, *CCP Acceptable Knowledge Documentation*, to compile, review, evaluate, confirm, and report AK documentation.

The following discussion is included for the sake of completeness.

A.2.2.1 Required Elements

This section identifies the required radiological information that each TRU waste site or measurement facility must maintain for a waste stream. A TRU waste generator site or waste characterization facility may use AK to delineate the distribution of the 10 WIPP-tracked radioisotopes within a TRU waste stream and the presence or absence of isotopes. The type and quantity of supporting documentation may vary by waste stream and shall be compiled in a written record that shall include a summary identifying all sources of information used to delineate the waste stream's isotopic distribution. The basis and rationale for the delineation shall be clearly summarized in an AK report and traceable to referenced documents. Assumptions made in this delineation shall be identified. The following information shall be included as part of the AK written record:

- Map of the site with the areas and facilities involved in TRU mixed waste generation, treatment, and storage identified
- Facility mission description as related to radionuclide-bearing materials and their management, e.g., routine weapons production, fuel research and development, and experimental processes
- Description of the specific site locations (such as the area or building) and operations relative to the isotopic composition of the TRU wastes they generated, e.g., plutonium recovery, weapons fabrication, pyrochemical operations and waste incineration

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

- Waste identification or categorization schemes used at the facility relevant to the waste material's isotopic distribution, e.g., the use of codes that correlate to a specific isotopic distribution, and a description of the isotopic composition of each waste stream

- Information regarding the waste's physical and chemical composition that could affect the isotopic distribution, e.g., processes used to remove ingrown ^{241}Am or alter its expected contribution based solely on radioactive decay kinetics

- Statement of all numerical adjustments applied to derive the material's isotopic distribution, e.g., scaling factors, decay/ingrowth corrections and secular equilibrium considerations

- Specification of the isotopic ratios for the ten WIPP-tracked radionuclides (^{241}Am, ^{238}Pu, ^{239}Pu, ^{240}Pu, ^{242}Pu, ^{233}U, ^{234}U, ^{238}U, ^{90}Sr, and ^{137}Cs) and, if applicable, the radionuclides that comprise 95 percent of the radiological hazard on a waste stream, waste stream subpopulation, or container basis

A.2.2.2 Supplemental AK Information

Each generator site or measurement facility shall obtain supplemental AK information, dependent on availability. The amount and type of this information cannot be mandated, but sites shall collect information as appropriate to support their contention regarding the waste's isotopic distribution. This information will be used to compile the waste's AK written record. Supplemental AK documentation that may be used includes, but is not limited to, information from the following sources:

- Safeguards & Security, Materials Control & Accountability, and other nuclear materials control systems or programs and the data they generated

- Reports of nuclear safety or criticality, or accidents/excursions involving the use of special nuclear material (SNM) or nuclear material

- Waste packaging, waste disposal, building or nuclear material management area (NMMA) logs or inventory records, and site databases that provide information on SNM or nuclear materials

- Test plans, research project reports, or laboratory notebooks that describe the radionuclide content of materials used in experiments

- Information from site personnel (e.g., documented interviews)

- Historical analytical data relevant to the isotopic distribution of the waste stream

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

A.2.2.3 Discrepancy Resolution

If there is a discrepancy between AK information related to isotopic ratios or composition, the site will evaluate the sources of the discrepancy to determine if the discrepant information is credible. Information that is not credible or information that is limited in its applicability to WIPP characterization will be identified as such and the reasons for dismissing it will be justified in writing. Limitations concerning the information will be documented in the AK record and summarized in the AK Summary Report. In the event that the discrepancy cannot be resolved, the site will perform direct measurements for the impacted population of containers.

If discrepancies result in a change to the original determinations, the AK summary will be updated in accordance with procedure CCP-TP-005.

A.3 Data Quality Objectives (DQOs)

The DQOs for WIPP certifiable radiological characterization data are established in Section 3.3 of this Plan. They are summarized below in Table A-1, Data Quality Objectives (DQOs) for Radioassay, as they apply to individual payload containers.

Table A-1. Data Quality Objectives (DQOs) for Radioassay

Requirement	DQO	Confidence[a]
TRU α-activity concentration > 100 nCi/g[b]	A > LLD	N/A
Fissile mass ≤ FGE limit	$FGE + 2\sigma_{TMU}(FGE) \leq$ FGE limit	97.5%
Decay heat (DH) ≤ CH-TRAMPAC limit	$DH + 1\sigma_{TMU}(DH) \leq L_{CH\text{-}TRAMPAC}$[c]	84%

[a]Confidence means the statistical level of confidence that the limit is exceeded or not exceeded depending on the requirements of the individual data quality objectives (DQOs). The confidence is derived from the specified DQOs which assume contributions to TMU are normally distributed.
[b]TRU waste determinations shall be in accordance with the Policy for the Management of TRU Alpha Activity Concentration when overpacking waste containers (see Appendix 8).
[c]TRAMPAC includes both the CH-TRAMPAC and the TRUPACT-III TRAMPAC.

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

There are no stipulated DQOs for PE-Ci or individual isotope activities (except as they impact the requirements listed above). However, at a minimum, radioassay programs must be capable of identifying, measuring, and reporting the presence or absence of:

- the ten radionuclides identified in Section 3.3.1 for tracking of the WIPP radionuclide inventory (see Section A.2.1),
- ^{235}U, in order to calculate FGE, as required in Section 3.3.2 for compliance with transportation requirements, and
- other radionuclides whose presence contribute to 95 percent of the radioactive hazard, as specified in Section 3.3.1, for compliance with transportation requirements.

In support of the above requirements, each site must evaluate, document and technically justify the following determinations:

Lower Limit of Detection (LLD): The LLD for each radioassay system must be determined. Instruments performing TRU/low-level waste discrimination measurements must have an LLD of 100 nCi/g or less. Site specific environmental background and container specific interferences must be factored into LLD determinations. The LLD is that level of radioactivity which, if present, yields a measured value greater than the critical level with a 95 percent probability, where the critical level is defined as that value which measurements of the background will exceed with 5 percent probability. Because the LLD is a measurement-based parameter, it is not feasible to calculate LLDs for radionuclides that are not determined primarily by measurement, e.g., ^{90}Sr. In such cases, the site shall derive the equivalent of an LLD, i.e., a reporting threshold for a radionuclide(s), when it is technically justified. This value may be based on decay kinetics, scaling factors or other scientifically based relationships and must be adequately documented in site records. For purposes of reporting radionuclide data in the WWIS/WDS, this value will be the equivalent of an LLD. References A3 and A4 provide information in developing the LLD.

Total Measurement Uncertainty (TMU): The method used to calculate the TMU for the quantities in Table A-1 must be documented and technically justified for each CBFO certified radioassay system. Compliance with this requirement will be evaluated in reviews of the TMU documentation package for each assay system by CBFO. General guidance for determining the TMU is provided in References A5 and A6.

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

Calibration Procedures and Frequencies: Each radioassay measurement system shall be calibrated before initial use. During calibration or re-calibration, system correction factors shall be established and algorithms adjusted such that the value of percent recovery (%R) is set equal to 100 percent; i.e., the system is calibrated to 100%R. The range of applicability of system calibrations must be specified in site procedures. The matrix/source surrogate waste combination(s) used for calibration shall be representative of the:

- activity range(s) or gram loading(s), and
- relevant waste matrix characteristics (e.g., densities, moderator content, container size) planned for measurement by the system.

Calibration(s) shall be performed in accordance with consensus standards, when such standards exist. If consensus standards are not used, full documentation of the calibration technique must be provided to and approved by CBFO prior to performing WIPP-related assays. Primary calibration standards shall be obtained from suppliers maintaining a nationally accredited measurement program. When primary standards are not available, the standards used shall be correlated with primary standards obtained from a nationally accredited measurement program. For calorimetry, calibration shall be performed in accordance with Reference A9.

Calibration Verification: Notwithstanding the need to calibrate individual components for replacement, changes or adjustments (e.g., energy calibration of a detector), verification of the radioassay measurement system's calibration shall be performed after any one of the following occurs:

- major system repairs and/or modifications
- replacement of the measurement system's components, e.g., detector, neutron generator or supporting electronic components that have the capacity to affect data
- significant changes to the system's software
- relocation of the system

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

Calibration verification shall consist of demonstrating that the system is within the range of acceptable operation. Secondary standards can be used for the calibration verification if their performance has been correlated with the calibration standard. If a verification of the measurement system's calibration or other test demonstrates that the system's response has significantly changed, a re-calibration of the system shall be performed.

Calibration Confirmation: In order to confirm that the calibration of the NDA system was correctly established, the accuracy and precision of the system are determined after each calibration or re-calibration by performing replicate measurements of a non-interfering matrix. Calibration confirmation replicate measurements shall be performed on containers of the same nominal size as those in which actual waste is assayed and according to approved waste assay procedures. The number of replicate measurements to be performed shall be documented and technically justified. The replicate measurements shall be performed using nationally recognized standards, or certified standards derived from nationally recognized standards that span the range of use. The standards used to calculate accuracy shall not be the same as those used for the system calibration. Accuracy is reported as percent recovery (%R). The applicable range for accuracy shall not exceed ± 30 percent on a non-interfering matrix. Precision is reported as percent relative standard deviation (%RSD). The %RSD shall not exceed the values listed in Table A-2, Upper Limits for %RSD vs. Number of Replicates, for the corresponding number of replicate measurements in a non-interfering matrix.

Table A-2. Upper Limits for %RSD vs. Number of Replicates

Number of Replicates	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Max %RSD	1.8	6.6	10.0	12.3	14.0	15.2	16.2	17.1	17.7	18.3	18.8	19.3	19.7	20.0

[a] The values listed are derived from the measured standard deviation of the replicate measurements using $\frac{s}{\mu} \bullet 100\% < \sqrt{\frac{(0.292) \bullet \chi^2_{0.05,n-1}}{n-1}} \bullet 100\%$ where s is the measured standard deviation, n is the number of replicates, Φ is the true value, $\chi^2_{0.05,n-1}$ is the critical value for the upper 5 percent tail of a one-sided chi-squared distribution with n-1 degrees of freedom, and 0.292 corresponds to a 95 percent upper confidence bound on the true system precision limit of 29.2 percent.

Measurement facilities may develop alternate limits for accuracy and precision subject to approval by CBFO prior to certification of waste.

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

The CCP NDA standard operating procedures (Table A-2.1) demonstrate and justify that the radioassay techniques used are appropriate for specific waste streams.

Table A-2.1. NDA Procedures

Procedure Title	Procedure Number
CCP Waste Assay Gamma Spectrometer (WAGS) and SWEPP Gamma-Ray Spectrometer (SGRS) Calibration Procedure	CCP-TP-010
CCP Waste Assay Gamma Spectrometer (WAGS) Operating Procedure	CCP-TP-019
CCP Mobile IQ3 System Calibration Procedure	CCP-TP-046
CCP Mobile IQ3 Gamma Scanner Operation	CCP-TP-047
CCP Mobile IQ3 System Data Reviewing, Validating and Reporting Procedure	CCP-TP-048
CCP Operating the High Efficiency Neutron Counter Using NDA 2000	CCP-TP-063
CCP Calibrating the High Efficiency Neutron Counter Using NDA 2000	CCP-TP-064
CCP Gamma Energy Assay (GEA) Calibration, Confirmation, and Verification Procedure	CCP-TP-070
CCP Gamma Energy Assay (GEA) Operating Procedure	CCP-TP-071
CCP Gamma Energy Assay (GEA) Data Review, Validation, and Reporting Procedure	CCP-TP-072
CCP Off-Site Source Recovery Project Sealed Source Radiological Characterization	CCP-TP-101
CCP Data Reviewing, Validating and Reporting Procedure for the High Efficiency Neutron Counter Using NDA 2000	CCP-TP-103
Operating the CCP High Efficiency Neutron Counter Using NDA 2000	CCP-TP-107
Calibrating the CCP High Efficiency Neutron Counter Using NDA 2000	CCP-TP-108
CCP Data Reviewing, Validating and Reporting Procedure	CCP-TP-109
CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure	CCP-TP-115
CCP SuperHENC Operating Procedure	CCP-TP-146
CCP SuperHENC Data Reviewing, Validating and Reporting Procedure	CCP-TP-148
CCP Drum Waste Assay System Imaging Passive/Active Neutron Operations	CCP-TP-166
CCP Drum Waste Assay Imaging Passive/Active Neutron Calibration	CCP-TP-167
CCP Drum Waste Assay System Imaging Passive/Active Neutron/Segmented Gamma Scanner Data Generation Level Validation	CCP-TP-168
CCP Operating the Mobile Segmented Gamma Scanner	CCP-TP-169

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

Table A-2.1. NDA Procedures (Continued)

CCP SuperHENC Calibration Procedure	CCP-TP-170
CCP Calibrating the Mobile Segmented Gamma Scanner	CCP-TP-172
CCP Box Segmented Gamma System (BSGS) Operating Procedure	CCP-TP-189
CCP Box Segmented Gamma System (BSGS) Calibration Procedure	CCP-TP-190
CCP Box Neutron Assay System (BNAS) Operating Procedure	CCP-TP-191
CCP Box Neutron Assay System (BNAS) Calibration Procedure	CCP-TP-192
CCP Data Reviewing, Validating, and Reporting Procedure for the Nondestructive Assay Box Counters	CCP-TP-193
Peer Review – Sealed Sources Peer Review Report	Record TWCP-18562

A.4 Quality Control (QC)

To ensure that data of known and documented quality are generated, each participating measurement facility shall implement a documented facility QA program. Any radioassay technique used for TRU waste must be performed in accordance with calibration and operating procedures that have been written, approved, and controlled by the site or testing facility. Laboratory procedures must contain applicable QCs. Facility QA programs shall specify qualitative and quantitative acceptance criteria for the QC checks of this program and corrective action measures to be taken when these criteria are not satisfied. NDA standard operating procedures address QC elements and are listed in Table A-2.1.

A.4.1 General Requirements

Radioassay Training: Only appropriately trained and qualified personnel shall be allowed to perform radioassay and data validation/review. Standardized Training requirements for radioassay personnel shall be based upon existing industry standardized training requirements (e.g., American Society for Testing and Materials [ASTM] C1490, *Standard Guide for Selection, Training and Qualification of Nondestructive Assay [NDA] Personnel* [Reference A8]; American National Standards Institute [ANSI] N15.54, *Radiometric Calorimeters - Measurement Control Program* [Reference A9]) and shall meet the specifications in the QAPD.

Requalification of radioassay personnel shall be based upon evidence of continued satisfactory performance and must be performed at least every two years. The training program is conducted in accordance with procedure CCP-QP-002, *CCP Training and Qualification Plan*.

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

Software QC Requirements: All computer programs and revisions thereof used for radioassay shall meet the applicable requirements in Section 6.0 of the QAPD (Reference A2) and in accordance with procedure CCP-QP-022, *CCP Software Quality Assurance Plan*.

*Comparison Program*s: Sites using radioassay systems shall participate in any relevant measurement comparison program(s) sponsored or approved by the CBFO. Such programs may be conducted as part of the NDA PDP (References A7 and A10) or through other third parties (Reference: WIPP Compliance Recertification Application including Annual Reports to the EPA).

A.4.2 NDA QC Requirements

The assay procedures cited in various ASTM and ANSI standards (References A9, A11-A15) and NRC standard practices and guidelines (Reference A16) as referenced in this appendix are recommended for use at all testing facilities.

Background Measurements: Background measurements must be performed and recorded daily, unless otherwise approved by CBFO. Contributions to background due to radiation from nearby radiation producing equipment, standards or wastes must be carefully controlled or more frequent background checks must be performed. For calorimeters, basepower or baseline measurements shall be conducted at a frequency determined by each site and approved by CBFO.

Instrument Performance Measurements: Performance checks on calibrated and operable gamma and neutron NDA instruments must be performed and recorded once per operational day. Performance checks shall include efficiency checks (when applicable), matrix correction checks and, for spectrometric instruments, peak position and resolution checks.

Both radioactive sources and surrogate waste matrix containers (both non-interfering and interfering) are used. At least once per operational week an interfering matrix must be used to assess the long-term stability of the NDA instrument's matrix correction. Surrogate waste containers must reflect the type of waste, (e.g., debris, sludge) currently being assayed. To verify calibration, radioactivity standards must be selected such that, over a six-month period, the operating range of the assay system is tested in each applicable surrogate waste matrix. The use of interfering and non-interfering matrices provides a realistic assessment of the assay system's performance over time, and will assist measurement personnel in detecting potential problems relative to the matrices currently assayed by the measurement system.

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

Interfering surrogate matrix containers must be constructed in such a way that the waste characteristics do not change over time.

Radioactive sources should be long-lived, easy to position relative to the detector(s), and of sufficient radioactivity to obtain good results with relatively short count times.

Performance checks for calorimetry shall be performed with electrical and/or heat standards traceable to a nationally accredited measurement program at a frequency determined by each site, consistent with Reference A17. This information is specified in site operating procedures and approved by CBFO.

Data Checks: Background (for calorimetry: baseline or base power) and performance measurements shall be reviewed and evaluated at least weekly to determine continued acceptability of the assay system and to monitor performance trends. If daily performance checks result in data that are outside the acceptable range, the required responses in Table A-3 shall be followed.

Table A-3. Range of Applicability

Category	Acceptability Range[a]	Required Response
Acceptable Range	$\ast Data \ast^{c} \# 2\sigma^{b}$	No action required.
Warning Range	$2\sigma^{b} < \ast Data \ast \# 3\sigma^{b}$	The performance check standard shall be rerun no more than two times. If the rerun performance check(s) result in data within ± 2σ, then the additional performance checks shall be documented and work may continue. If the system does not fall within ± 2σ after two rerun performance checks, then the required response for the Action Range shall be followed.
Action Range	$\ast Data \ast > 3\sigma^{b}$	Work shall stop and the occurrence shall be documented and appropriately dispositioned (e.g., initiating a non-conformance report). The radioassay system shall be removed from service pending successful resolution of all necessary actions, and all assays performed since the last acceptable performance check are suspect, pending satisfactory resolution. Recalibration or calibration verification is required prior to returning the system back to service.

[a]Reference A15
[b]"σ" - the standard deviation is only based on the reproducibility of the data check measurements themselves. This is not TMU.
[c]Absolute Value

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

A.5 Data Management

A.5.1 Data Review and Validation

All radioassay data must be reviewed and approved by qualified personnel prior to being reported. At a minimum, the data must be reviewed by a technical reviewer and approved by the SPM. The validation process includes verification that the applicable QCs specified in Section A.4 have been met. Radioassay data is reviewed at the data generation level in accordance with NDA operating procedures listed in Table A-2.1, while data validation and verification at the Project Office is performed in accordance with procedure CCP-TP-001, *CCP Project Level Data Validation and Verification*.

A.5.2 Data Reporting

Radioassay data must be reported to the Site Project Office on a testing batch basis. Batches are defined, for the purpose of the program, as a suite of waste containers undergoing radioassay using the same testing equipment. For NDA, the sites shall specify the size of the testing batch as needed, without regard to waste matrix.

Each radioassay testing facility is required to submit testing BDRs for each testing batch to the site project office on standard forms (either hard copy or electronic equivalent), as provided in approved site-specific documentation. Radioassay testing BDRs shall consist of the following:

- testing facility name, testing batch number, container numbers included in that testing batch, and signature release by the SPM
- table of contents
- background and performance data or control charts for the relevant time period
- data validation per the QAPD (Reference A2, Section 5.3.2) and as described in site procedures (Reference Table A-2.1)
- separate testing report sheet(s) for each container in the testing batch that includes:
  - title “Radioassay Data Sheet”
  - method used for radioassay (i.e., procedure identification)
  - date of radioassay

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

- activities and/or masses of individual radioisotopes present and their associated TMUs (curies and/or grams)
- operator signature/date
- reviewer signature/date

Other radiological properties to be documented for each container include:

- decay heat expressed in Watts (W) and its associated TMU
- total ^{239}Pu FGE expressed in grams (g) and its associated TMU
- TRU alpha activity concentration expressed in curies/gram (Ci/g) and its associated TMU, and
- total ^{239}Pu equivalent activity expressed in Ci

These calculated quantities shall be included in the radioassay BDR or other QA record or database.

When TMU is reported differently on the testing report sheet than in WWIS/WDS, the method of expressing TMU shall be specified on the testing report sheet or associated procedures/QAPjP.

Radioassay data reporting at the data generation level is performed in accordance with NDA operating procedures listed in Table A-2.1, while data validation and verification at the Project Office is performed in accordance with procedure CCP-TP-001. Data reporting in WWIS/WDS is performed in accordance with procedure CCP-TP-030.

A.5.3 Data and Records Retention

QA records are indexed, classified, controlled, and maintained by records management personnel as described in procedure CCP-QP-008, *CCP Records Management*, and the site Records System. Records management is addressed in Section 5.5 of this Plan.

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

The following nonpermanent records shall be maintained at the radioassay-testing facilities or shall be forwarded to the Site Project Office for maintenance, and shall be documented and retrievable by testing batch number, in accordance with the QAPD:

- testing batch reports
- all raw data, including instrument readouts, calculation records, and radioassay QC results
- all instrument calibration reports, as applicable

A.6 Quality Characteristics Assessment

Per 40 CFR §194.22(c), there are five "quality characteristics" that must be assessed. These quality characteristics and the method by which they are assessed are described in the following sections.

A.6.1 Data Accuracy

Per 40 CFR §194.22(c)(1), *Data Accuracy* is defined as "the degree to which data agree with an acceptable reference or true value." For NDA methods, this quality characteristic is met and maintained as described in Section A.3.

A.6.2 Data Precision

Per 40 CFR §194.22(c)(2), *Data Precision* is defined as "a measure of the mutual agreement between comparable data gathered or developed under similar conditions expressed in terms of standard deviation." For NDA methods, this quality characteristic is met and maintained as described in Section A.3.

A.6.3 Data Representativeness

Per 40 CFR §194.22(c)(3), *Data Representativeness* is defined as "the degree to which data can accurately and precisely represent a characteristic of a population, a parameter, variations at a sampling point, or environmental conditions." For NDA methods, this quality characteristic for the waste stream is met and maintained through 100 percent measurement confirmation on a payload container basis. For NDA, since the entire waste container is subjected to measurement, representativeness pertaining to the actual measurement is not applicable.

Appendix 1 – Radioassay Requirements for Contact-Handled Transuranic Waste (Continued)

A.6.4 Data Completeness

Per 40 CFR §194.22(c)(4), *Data Completeness* is defined as "a measure of the amount of valid data obtained compared to the amount that was expected." For NDA methods, this quality characteristic is met and maintained by requiring 100 percent valid results. Any results indicating the NDA measurement was invalid require re-measurement.

A.6.5 Data Comparability

Per 40 CFR §194.22(c)(5), *Data Comparability* is defined as "a measure of confidence with which one data set can be compared to another." For NDA and RC methods, this quality characteristic is addressed by ensuring that all data are produced under the same system of controls. These controls apply to all aspects of the data generation process, including: procurement of analytical instruments; calibration and operation of assay equipment according to industry standards; preparation and use of standardized instrument and data review procedures; and, training of equipment operators and technical/data review personnel to the QAPD, as specified in Section A.4.1. All NDA systems and methods are approved by CBFO prior to use in generating waste characterization data. Additionally, comparison of measured data with AK derived or based values, as applicable, provides a means to assess comparability on a waste stream basis. Although no specific confidence level is specified, these controls provide comparability among all data generated under this program. Sites using radioassay systems shall participate in measurement comparison programs as specified in Section A.4.1.

Appendix 2 – Appendix 1 References

A1 U.S. Nuclear Regulatory Commission. *Peer Review for High-Level Nuclear Waste Repositories,* NUREG-1297, Washington D.C., Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission

A2 U.S. Department of Energy. *Quality Assurance Program Document*. DOE/CBFO-94-1012. Carlsbad, New Mexico, Carlsbad Field Office, U.S. Department of Energy. (http://www.wipp.energy.gov/library/qapd/qapd.pdf)

A3 Currie, Lloyd A., 1968. *Limits for Qualitative Detection and Quantitative Determination*. *Anal.Chem.* 40: 586-93

A4 EPA, 1980. *Upgrading Environmental Radiation Data.* EPA 520/1-80-012, Washington D.C., Office of Radiation Programs, U. S. Environmental Protection Agency

A5 K. C. Smith, R. A. Stroud, K. L. Coop, and J. F. Bresson. 1998. *Total Measurement Uncertainty Assessment for Transuranic Waste Shipments to the Waste Isolation Pilot Plant*. Proceedings of the 6th Nondestructive Assay Waste Characterization Conference, Salt Lake City, Utah, Nov. 17-19, 1998, pp. 21-37

A6 K. L. Coop, J. F. Bresson, M. E. Doherty, B. M. Gillespie, and D. R. Davidson. *Standardized Total Measurement Uncertainty Reporting for WIPP*. Nondestructive Assay Interface Working Group, Salt Lake City, Utah, May 22, 2000

A7 U.S. Department of Energy. *Performance Demonstration Program Plan for Nondestructive Assay of Boxed Wastes for the TRU Waste Characterization Program*. DOE/CBFO-01-1006, Current Revision. Carlsbad, New Mexico, Carlsbad Field Office, U.S. Department of Energy. (http://www.wipp.energy.gov/Documents NTP.htm)

A8 American Society for Testing and Materials. *Standard Guide for Selection, Training and Qualification of Nondestructive Assay (NDA) Personne*l, ASTM C1490, Annual Book of ASTM Standards, Philadelphia, Pennsylvania, American Society for Testing and Materials

A9 American National Standards Institute. *Radiometric Calorimeters - Measurement Control Program*, ANSI N15.54, American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018

Appendix 2 – Appendix 1 References (Continued)

A10 U.S. Department of Energy. *Performance Demonstration Program Plan for Nondestructive Assay of Drummed Wastes for the TRU Waste Characterization Program*. DOE/CBFO-01-1005, Current Revision. Carlsbad, New Mexico, Carlsbad Field Office, U.S. Department of Energy. (http://www.wipp.energy.gov/Documents_NTP.htm)

A11 American Society for Testing and Materials. *Standard Test Method for Determination of Plutonium Isotopic Composition by Gamma-Ray Spectrometry*. ASTM C1030, Annual Book of ASTM Standards, Philadelphia, Pennsylvania, American Society for Testing and Materials

A12 American Society for Testing and Materials. *Standard Test Method for Nondestructive Assay of Nuclear Material in Scrap and Waste by Passive-Active Neutron Counting Using a 252Cf Shuffler*. ASTM C1316, Philadelphia, Pennsylvania, American Society for Testing and Materials

A13 American Society for Testing and Materials. *Standard Test Method for Nondestructive Assay of Special Nuclear Material in Low Density Scrap and Waste by Segmented Passive Gamma-Ray Scanning*. ASTM C1133, Annual Book of ASTM Standards, Philadelphia, Pennsylvania, American Society for Testing and Materials

A14 American Society for Testing and Materials. *Standard Test Method for Nondestructive Assay of Plutonium, Tritium and 241 Am by Calorimetric Assay*. ASTM C1458, Annual Book of ASTM Standards, Philadelphia, Pennsylvania, American Society for Testing and Materials

A15 American National Standards Institute. *Nondestructive Assay Measurement Control and Assurance*, ANSI N15.36. American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018

A16 U.S. Nuclear Regulatory Commission. 1984. *Nondestructive Assay of Special* Nuclear *Material Contained in Scrap and Waste.* Regulatory Guide 5.11, Washington, DC, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission

A17 American National Standards Institute. *Plutonium-Bearing Solids Calibration Techniques for Calorimetric Assay.* ANSI N15.22, American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018

Appendix 3 – Acronyms and Abbreviations

AK	Acceptable Knowledge
ALARA	as low as reasonably achievable
AMAD	activity mean aerodynamic diameter
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
BDR	Batch Data Report
CBFO	Carlsbad Field Office
CAR	Corrective Action Report
CCP	Central Characterization Program
CFR	Code of Federal Regulations
CH	Contact-Handled
CH-TRAMPAC	Contact-Handled Transuranic Waste Authorized Methods for Payload Control
CH-TRU	Contact-Handled Transuranic
Ci	curies
Ci/g	curies/gram
CIN	Container Identification Number
cm^2	Square centimeters
cm^3	Cubic centimeters
CPR	cellulose, plastic, and rubber
DA	Destructive assay
DSA	Documented Safety Analysis
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DPM	disintegrations per minute
DQO	Data Quality Objective
DSA	Documented Safety Analysis
EPA	U.S. Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FEM	fissile equivalent mass
FGE	fissile gram equivalent
g	gram
GGT	gas generation testing
hr	hour
HSG	Headspace Gas
HWFP	Hazardous Waste Facility Permit
ID	identification number
in.	inch
keV	Kiloelectron Volt
kg	kilogram(s)
L	Liter
LLD	lower limit of detection

Appendix 3 – Acronyms and Abbreviations (Continued)

LDR	Land Disposal Restriction
LWA	Land Withdrawal Act
M^3	cubic meter(s)
ml	milliliter(s)
mrem	milliroentogen equivalent man
M&TE	Measuring and Testing Equipment
nCi/g	nanocurie(s) per gram
NDA	nondestructive assay
NCR	Nonconformance Report
NDE	Nondestructive Examination
NEPA	National Environmental Policy Act
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMMA	nuclear material management area
NRC	U.S. Nuclear Regulatory Commission
NTP	National TRU Program
NWP	Nuclear Waste Partnership
OJT	on-the-job training
OPCTCD	Overpack Payload Container Transportation Certification Document
PATCD	Payload Assembly Transportation Certification Document
PCB	polychlorinated biphenyl
PCTCD	Payload Container Transportation Certification Document
PDP	Performance Demonstration Program
PE-Ci	^{239}Pu equivalent curie(s)
POC	point-of-contact
ppm	parts per million
QA	Quality Assurance
QAO	Quality Assurance Objective
QAPD	Quality Assurance Program Document
QAPjP	Quality Assurance Project Plan
QC	Quality Control
QSL	Qualified Suppliers List
%R	Percent Recovery
%RSD	percent relative standard deviation
RC	radiochemistry
RCRA	Resource Conservation and Recovery Act
RCT	Radiological Control Technician
rem	roentgen equivalent man
RH	Remote-Handled
RH-TRAMPAC	Remote-Handled Transuranic Waste Authorized Methods for Payload Control
RIDS	Records Inventory and Disposition Schedule

Appendix 3 – Acronyms and Abbreviations (Continued)

RPD	relative percent difference
RSD	relative standard deviation
RTR	Real-Time Radiography
SAR	Safety Analysis Report
SEIS	Supplemental Environmental Impact Statement
SLB2	standard large box 2
SME	subject matter expert(s)
SNM	Special Nuclear Material
SOW	Statement of Work
SPM	Site Project Manager
SWB	Standard Waste Box
TCO	Transportation Certification Official
TDOP	ten-drum overpack
TMU	total measurement uncertainty
TRAMPAC	Transuranic Authorized Methods for Payload Control
TRU	Transuranic
TRUPACT-II	Transuranic Package Transporter-II
TRUPACT-III	Transuranic Package Transporter-III
TSDF	Treatment, Storage, and Disposal Facility
VE	visual examination
VOC	volatile organic compound
UHWM	Uniform Hazardous Waste Manifest
VEE	Visual Examination Expert(s)
WAC	Waste Acceptance Criteria
WCO	Waste Certification Official
WDS	Waste Data System
WCPIP	*Remote-Handled TRU Waste Characterization Program Implementation Plan*
WIPP	Waste Isolation Pilot Plant
WIPP WAP	Waste Isolation Pilot Plant Waste Analysis Plan
WSPF	Waste Stream Profile Form
WWIS	WIPP Waste Information System

Appendix 4 – Procedure Tables

Table B-1. Container Management Procedures

Procedure Title	Procedure Number
CCP Container Management	CCP-TP-035
CCP Standardized Container Management	CCP-TP-068
CCP Container Management	CCP-TP-120

Table B-2. Radiography Procedures

Procedure Title	Procedure Number
CCP Standard Real-Time Radiography (RTR) Inspection Procedure	CCP-TP-053

Table B-3. VE Procedures

Procedure Title	Procedure Number
CCP Visual Examination Technique for Idaho National Laboratory (INL) Newly Generated TRU Waste	CCP-TP-006
CCP Sealed Source Visual Examination and Packaging	CCP-TP-069
CCP Standard Contact-Handled Waste Visual Examination	CCP-TP-113

Table B-4. GGT Procedures

Procedure Title	Procedure Number
CCP Gas Generation Testing	CCP-TP-083
CCP Execution of Long-Term Objective for the Unified Flammable Gas Test Procedure	CCP-TP-138

Table B-5. Certification Procedures

Procedure Title	Procedure Number
CCP Transuranic Authorized Methods For Payload Control (CCP-CH-TRAMPAC)	CCP-PO-003
CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)	CCP-PO-505
CCP CH-TRU Waste Certification and WWIS/WDS Data Entry	CCP-TP-030
CCP RH-TRU Waste Certification and WWIS/WDS Data Entry	CCP-TP-530

Appendix 4 – Procedure Tables (Continued)

Table B-6. Remote-Handled Procedures

Procedure Title	Procedure Number
CCP Remote-Handled Waste Visual Examination	CCP-TP-500
CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste	CCP-TP-504
CCP Removable Lid Canister Loading	CCP-TP-505
CCP Shipping of Remote-Handled Transuranic Waste	CCP-TP-507
CCP RH Standard Real-Time Radiography Inspection Procedure	CCP-TP-508
CCP Remote-Handled Waste Sampling	CCP-TP-512

Appendix 5 – PE-Ci Activity

The concept of PE-Ci is intended to eliminate the dependency of radiological analyses on specific knowledge of the radionuclide composition of a TRU waste stream. A unique radionuclide composition and/or distribution are associated with most TRU waste streams at each site. By normalizing all radionuclides to a common radiotoxic hazard index, radiological analyses that are essentially independent of these variations can be conducted for the WIPP facility. ^{239}Pu, as a common component of most defense TRU wastes, was selected as the radionuclide to which the radiotoxic hazard of other TRU radionuclides could be indexed.

Modeled operational releases from the WIPP facility, including both routine and accident-related, are airborne. There are no known significant liquid release pathways during the operational phase of the facility. This, and the fact that TRU radionuclides primarily represent inhalation hazards, allows a valid relationship to be established, which normalizes the inhalation hazard of a TRU radionuclide to that of ^{239}Pu for the purpose of the WIPP radiological analyses. In effect, the radiological dose consequences of an airborne release of a quantity of TRU radioactivity with a known radionuclide distribution will be essentially identical to that of a release of that material expressed in terms of a quantity of ^{239}Pu. To obtain this correlation, the 50-year effective whole-body dose commitment or dose conversion factor for a unit intake of each radionuclide will be used.

For a known radioactivity quantity and radionuclide distribution, the ^{239}Pu equivalent activity is determined using radionuclide-specific weighting factors. The ^{239}Pu equivalent activity (AM) can be characterized by:

$$AM = \sum_{i=1}^{K} A_i / WF_i$$

where K is the number of TRU[1] radionuclides, A_i is the activity of radionuclide i, and WF_i is the PE-Ci weighting factor for radionuclide i.

WF_i is further defined as the ratio

$$WF_i = E_o / E_i$$

where E_o (roentgen equivalent man [rem]/µCi) is the 50-year effective whole-body dose commitment due to the inhalation of ^{239}Pu particulates with a 1.0 µm activity median aerodynamic diameter (AMAD) and a weekly pulmonary clearance class, and E_i

[1]TRU as designated in this equation refers to any radionuclide with an atomic number greater than 92 and including ^{233}U.

Appendix 5 – PE-Ci Activity (Continued)

(rem/µCi) is the 50-year effective whole-body dose commitment due to the inhalation of radionuclide (*i*) particulates with a 1.0 µm activity median aerodynamic diameter and the pulmonary clearance class resulting in the highest 50-year effective whole-body dose commitment.

Weighting factors calculated in this manner are presented in Table C-1 for radionuclides typically present in CH-TRU waste. If other TRU radionuclides are determined to be present in the payload container, their weighting factors can be obtained from the values of E_o and E_i contained in DOE/EH-0071 (Reference B1).

Table C-1. PE-Ci Weighting Factors for Selected Radionuclides

Radionuclide	Pulmonary Clearance Class[a]	Weighting Factor
^{233}U	Y	3.9
^{237}Np	W	1.0
^{236}Pu	W	3.2
^{238}Pu	W	1.1
^{239}Pu	W	1.0
^{240}Pu	W	1.0
^{241}Pu	W	51.0
^{242}Pu	W	1.1
^{241}Am	W	1.0
^{243}Am	W	1.0
^{242}Cm	W	30.0
^{244}Cm	W	1.9
^{252}Cf	Y	3.9

[a](W) Weekly, (Y) Yearly

Reference for Appendix 5

B1. U.S. Department of Energy. *Internal Dose Conversion Factors for Calculation of Dose to the Public.* DOE/EH-0071, July 1988.

Appendix 6 – Glossary

10-160B Packaging – An NRC-certified Type B transportation packaging used for transportation of TRU wastes.

Acceptable knowledge (AK) – Any information about the process used to generate waste, material inputs to the process, and the time period during which the waste was generated, as well as data resulting from the analysis of waste, conducted prior to or separate from the waste certification process authorized by EPA's Certification Decision, to show compliance with Condition 3 of the certification decision (Appendix A of this part) (40 CFR §194.2 and 194.67).

Activity – A measure of the rate at which a material emits nuclear radiation, usually given in terms of the number of nuclear disintegrations occurring in a given length of time. The common unit of activity is the curie, which amounts to 37 billion (3.7×10^{10}) disintegrations per second. The International Standard unit of activity is the becquerel and is equal to one disintegration per second.

Administrative controls – Provisions relating to organization and management, procedures, record keeping, assessment, and reporting necessary to ensure the safe operation of the facility.

Atomic energy defense activities – Activities of the Secretary of Energy (and predecessor agencies) performed in whole or in part in carrying out any of the following functions: naval reactors development; weapons activities, including defense inertial confinement fusion; verification and control technology; defense nuclear material production; defense nuclear waste and materials by-product management; defense nuclear materials security investigations; and defense research and development.

Authorization basis – Those aspects of the facility design and operational requirements relied upon by DOE to authorize the operation of nuclear facilities and processes.

Characterization – Sampling, monitoring, and analysis - whether by review of AK, nondestructive examination, NDA, or RC - to identify and quantify the constituents of a waste material.

Chemical compatibility – Assessing the properties of chemicals in a payload container (>1 weight percent); there must be no adverse safety or health hazards produced as a result of any mixtures that occur.

Appendix 6 – Glossary (Continued)

Completeness – The percentage of measurements made that are judged to be valid measurements. The completeness goal is to generate a sufficient amount of valid data based on program needs. Valid results for radioassay, and radiography data are those that were obtained when the laboratory or testing facility demonstrated that the instrumentation and method were in control; that is, that all calibration, verification, interference, and zero matrix checks met acceptance criteria.

Compressed gas – Compressed gases are those materials defined as such by 49 CFR Part 173, Subpart G.

Contact-Handled transuranic waste – Transuranic waste with a surface radiation dose equivalent rate not greater than 200 mrem/h.

Contact-Handled Transuranic Waste Authorized Methods for Payload Control (CH-TRAMPAC) – The governing document for shipments in the TRUPACT-II and the HalfPACT packagings.

Content code – A uniform system applied to waste forms to group those with similar characteristics for purposes of shipment in the TRUPACT-II, TRUPACT-III, HalfPACT, and RH-TRU 72-B packagings.

Corrosive/Corrosivity – A solid waste exhibits corrosivity if a sample of the waste is either aqueous and has a pH $\leq$2 or $\geq$ 12.5, or it is a liquid and corrodes steel at a rate >6.35 millimeter (0.250 in.) per year at a test temperature of 55°Celsius (130°Fahrenheit) (40 CFR §261.22).

Curie – A unit of activity equal to 37 billion (3.7×10^{10}) disintegrations per second.

Disposal – Permanent isolation of TRU waste from the accessible environment with no intent of recovery, whether or not such isolation permits the recovery of such waste (Reference 2, Section 2[5]).

Dose conversion factor – A numerical factor used in converting radionuclide uptake (curies) in the body to the resultant radiation dose (rem).

Dose equivalent rate – The radiation dose equivalent delivered per unit time (e.g., rem per hour).

Drum – Includes 55-gallon, 85-gallon, and 100-gallon drums as described in the CH-TRAMPAC and HWFP.

Fissile gram equivalent – An isotopic mass of radionuclide normalized to ^{239}Pu.

Appendix 6 – Glossary (Continued)

Fissile material – Any material consisting of or containing one or more radionuclides that can undergo neutron-induced fission with neutrons of essentially zero kinetic energy (e.g., thermal neutrons) such as ^{233}U, ^{235}U, and ^{239}Pu.

HalfPACT – An NRC-certified Type B transportation packaging used for transportation of CH-TRU wastes.

Hazardous waste – Those wastes which are designated hazardous by EPA (or state) regulations. For a detailed description, see 40 CFR § 261.3. Hazardous wastes are listed in 20.4.1 New Mexico Administrative Code (NMAC), subpart II (40 CFR Part 261) and/or exhibit one of the four characteristics in 20.4.1 NMAC, subpart II (40 CFR Part 261) (i.e., ignitability, corrosivity, reactivity, and toxicity).

Headspace – The total contained volume of a container minus the volume occupied by the waste material.

Headspace gas – The gas within the headspace of a container.

Internal container – A container inside the outermost container examined during radiography or VE. Drum liners, liner bags, plastic bags used for contamination control, capillary-type lab ware, and debris not designed to hold liquid at the time of original waste packaging are not internal containers (Reference 9, Part 1, Section 1.5.17).

Lower Limit of Detection – The level of radioactivity which, if present, will yield a measured value greater than the critical limit with a 95 percent probability. The critical limit is defined as that value which measurements of the background will exceed with a 5 percent probability.

Machine-Compacted Waste – Waste whose volume has been reduced using a mechanical process.

Observable liquid – Liquid that is observable using radiography or VE (Reference 9, Part 1, Section 1.5.18)

Overpack - A container put around another container.

Package – (1) A packaging plus its contents. (2) The reusable Type B shipping container (i.e., TRUPACT-II, TRUPACT-III, HalfPACT, RH-TRU 72-B, and 10-160B) loaded with TRU waste payload containers, which has been prepared for shipment in accordance with the package QA program. (3) In the regulations governing the transportation of radioactive materials, the packaging, together with its radioactive contents, as presented for transport.

Appendix 6 – Glossary (Continued)

Packaging – The reusable Type B shipping container for transport of TRU waste payload containers (i.e., TRUPACT-II, TRUPACT-III, HalfPACT, RH-TRU 72-B, and 10-160B).

Packaging Quality Assurance Program – A site-specific document that defines the quality assurance and quality control activities applicable to usage of the NRC-approved packaging. This program shall meet the requirements of 10 CFR Part 71, Subpart H.

Payload container – The outermost container (i.e., a drum, shielded container, SLB2, SWB, TDOP, or canister) for TRU waste material that is placed in a reusable Type B shipping container (i.e., a TRUPACT-II, TRUPACT-III, HalfPACT, RH-TRU 72-B, and 10-160B) for transport.

Payload assembly – An assembly of payload containers qualified for transport in a TRUPACT-II, HalfPACT, or 10-160B.

Pipe overpack – A packaging configuration consisting of a vented cylindrical pipe component surrounded by dunnage within a vented 55-gallon drum with a rigid polyethylene liner and vented lid.

Plutonium-239 equivalent activity – An equivalent radiotoxic hazard of a radionuclide normalized to ^{239}Pu.

Precision – A measure of mutual agreement among individual measurements of the same property made under prescribed similar conditions; often expressed as a standard deviation or relative percent difference (RPD).

Pyrophoric – Materials that may ignite spontaneously in air or that emit sparks when scratched or struck, especially with materials such as steel. A flammable solid that, under transport conditions, might cause fires through friction or retained heat or that can be ignited readily and, when ignited, burns vigorously and persistently so as to create a serious transportation hazard. Included in the pyrophoric definition are spontaneously combustible materials, water reactive materials, and oxidizers. Examples of nonradioactive pyrophorics are organic peroxides, sodium metal, and chlorates.

Radioassay – Methods used to identify and quantify radionuclides in TRU waste. Radioassay includes NDA and RC.

Radiography – A nondestructive testing method that uses x-rays to inspect and determine the physical form of waste.

Radionuclide – A nuclide that emits radiation by spontaneous transformation.

Remote-Handled transuranic waste – Transuranic waste with a surface dose rate of 200 millirem per hour or greater (Reference 2, Section 2[12]).

Appendix 6 – Glossary (Continued)

Remote-Handled Transuranic Waste Authorized Methods for Payload Control (RH-TRAMPAC) – The governing document for shipments in the RH-TRU 72-B packaging (Reference 41).

RH-TRU Waste Canister – Container that is transported in the RH-TRU 72B Cask.

RH-TRU 72-B Packaging – An NRC-certified Type B transportation packaging used for transportation of RH TRU wastes.

Shielded container – A metal payload container authorized for use within the HalfPACT packaging, that has been tested by DOE to meet DOT Specification 7A Type A requirements. It is approximately the same size as a standard 55-gallon drum, contains one 30-gallon steel drum, and incorporates a nominal 1-inch layer of lead lining to shield waste forms with high gamma energies. Although the shielded container is managed during handling, shipment, storage, and disposal as a CH payload container, the waste contained in a shielded container is characterized and inventoried in the WWIS as RH waste.

Shipper – A TRU waste site that releases an NRC-approved packaging to a carrier for shipment.

Shipping category – A shipping category is defined by the following parameters: chemical composition of the waste (waste type), gas generation potential of the waste material type (quantified by the g-value for hydrogen), and gas release resistance (type of payload container and type and maximum number of confinement layers used).

Sites – Department of Energy TRU waste generator/storage sites.

Standard large box 2 – A specialized metal payload container with a top-loading and a bottom-loading option for use within the TRUPACT-III packaging, that has been tested by DOE to meet DOT Specification 7A Type A requirements.

Standard waste box – A metal payload container authorized for use within the TRUPACT-II or HalfPACT packaging, that has been tested by DOE to meet DOT Specification 7A Type A requirements.

Summary Category Group – Used to segregate TRU mixed wastes into broad groups having similar physical forms. The summary category groups include homogeneous solids (S3000) that are at least 50 percent by volume solid process residues, soil/gravel (S4000) that is at least 50 percent by volume soil/gravel, and debris (S5000) that is at least 50 percent by volume materials that meet the criteria specified in 20.4.1.800 New Mexico Administrative Code (incorporating 40 CFR §268.2[g]). Categorization is based on the Summary Category Group constituting the greatest volume of waste for a waste stream (Reference 9, Attachment C).

Appendix 6 – Glossary (Continued)

Ten-drum overpack – A metal payload container authorized for use within the TRUPACT-II packaging, that has been tested by DOE to meet DOT Specification 7A Type A requirements.

Test Category – Payload containers that do not meet the analytical category decay heat limits or whose concentration of flammable volatile organic compounds (VOCs) in the headspace exceeds 500 ppm are classified as test category (References 23a and 23b, Section 5.2.2).

Trace chemicals/materials – Chemicals/materials that occur individually in the waste in quantities less than 1 weight percent. The total quantity of trace chemicals/materials not listed as allowed materials for a given waste material type in any payload container is restricted to less than 5 weight percent (References 23a and 23b, Section 4.3.1, Reference 41, Section 4.3.1).

TRU isotope – An isotope of any element having an atomic number greater than uranium (i.e., 92).

TRU waste – Waste containing more than 100 nCi of alpha-emitting TRU isotopes per gram of waste, with half-lives greater than 20 years, except for (1) high-level radioactive waste, (2) waste that the Secretary has determined, with the concurrence of the Administrator, does not need the degree of isolation required by the disposal regulations, or (3) waste that the NRC has approved for disposal on a case-by-case basis in accordance with 10 CFR Part 61 (Reference 2, Section 2[18]).

TRU mixed waste – TRU waste that is also a hazardous waste as defined by the Hazardous Waste Act and 20.4.1.200 NMAC (incorporating 40 CFR § 261.3) (Reference 9, Part 1, Section 1.5.7).

TRUPACT-II – An NRC-certified Type B transportation packaging used for transportation of CH-TRU wastes.

TRUPACT-III – An NRC-certified Type B transportation packaging used for transportation of CH-TRU wastes in the SLB2 container.

TRUPACT-III Transuranic Waste Authorized Methods for Payload Control (TRUPACT-III TRAMPAC) – The governing document for shipments in the TRUPACT-III packaging (Reference 23b, Section 1).

Verification – The act of authenticating or formally asserting the truth that a process, item, data set, or service is, in fact, that which is claimed. Data verification is the process used to confirm that all review and validation procedures have been completed.

Appendix 6 – Glossary (Continued)

Volatile organic compounds – For the purposes of the TRU waste program, those RCRA-regulated VOCs listed in the WIPP WAP and any additional compounds tentatively identified by VOC analytical procedures used to satisfy program requirements (i.e., any compound containing carbon and hydrogen with any other element that has a vapor pressure of 77.6 milliliters (ml) of mercury (1.5 psia) or greater under actual storage conditions).

Waste Acceptance Criteria – Constraints (limits) on the physical, chemical, and radiological properties of TRU waste and its packaging as determined by WIPP's authorization basis requirements. TRU waste will not be approved for shipment to and disposal at the WIPP until it has been certified as meeting these criteria. Waste Acceptance Criteria ensure that TRU waste is managed and disposed of in a manner that protects human health and safety and the environment.

Waste Analysis Plan – The waste analysis plan includes test methods, details of planned waste analysis for complying with the general waste analysis requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.13), a description of the waste shipment screening and verification process, and a description of the QA/QC program. Sites are required to implement the applicable requirements of the WIPP WAP.

Waste characterization – The process of determining that TRU waste meets the requirements of the WAC by the acceptable performance of the activities defined by CBFO-approved site-specific plans.

Waste certification – Formal and documented declaration by sites that waste has been characterized and meets the requirements of the WAC.

Waste matrix code – A DOE-developed coding system for grouping waste streams that have similar matrix constituents, especially for treatment objectives. This coding system allows waste streams within the DOE TRU waste system that have similar physical and chemical waste form properties to be categorized together (Transuranic Waste Baseline Inventory Report - 2004, DOE/TRU-2006-3344).

Waste stream – A waste stream is waste materials that have common physical form, that contain similar hazardous constituents and that are generated from a single process or activity (Reference 9, Appendix C).

WIPP Waste Information System – A computerized data management system used by WIPP to gather, store, and process information pertaining to CH and RH-TRU waste destined for or disposed of at WIPP. The WWIS database is a subsystem of the WDS.

Appendix 7 – Payload Container Integrity Checklist

The Operator is to visually examine 100 percent of the payload container exterior to determine if the payload container meets the criteria of Section 3.2.1. At a minimum, sites shall incorporate the questions and criteria contained in the following checklist into applicable site procedures (see CCP-TP-033, *CCP Shipping of CH-TRU Waste*). This payload container inspection shall be performed and documented as a part of the TRUPACT-II, TRUPACT-III, or HalfPACT loading process. Any YES answer on the inspection checklist will result in the operator discontinuing the inspection, marking the payload container as unacceptable for shipment, and removal of the payload container from the shippable inventory. Before the rejected container can be shipped, it must undergo appropriate corrective actions (e.g., evaluation, repackaging, overpacking), as applicable. All containers must have an acceptable and complete inspection checklist documenting that it meets the DOT 7A criteria. Personnel complete the following payload container integrity checklist in accordance with procedure CCP-TP-033.

CONTAINER EXAMINATION		DISCUSSION OF CRITERIA	COMPLIANCE	
1.	Is the payload container obviously degraded?	Obviously degraded means clearly visible and potentially significant defects in the payload container or payload container surface.	YES	NO
2.	Is there evidence that the payload container is, or has been, pressurized?	Pressurization can be indicated by a fairly uniform expansion of the sidewalls, bottom or top. Past pressurization can be indicated by a notable outward deflection of the bottom or top. Verify that the payload container is not warped.	YES	NO

Appendix 7 – Payload Container Integrity Checklist (Continued)

CONTAINER EXAMINATION		DISCUSSION OF CRITERIA	COMPLIANCE	
3.	Is there any potentially significant rust or corrosion such that wall thinning, pin holes, or breaches are likely or the load bearing capacity is suspect?	Rust shall be assessed in terms of its type, extent, and location. Pitting, pocking, flaking, or dark coloration characterizes potentially significant rust or corrosion. This includes the extent of the payload container surface area covered, thickness, and, if it occurs in large flakes or built-up (caked) areas. Rusted payload containers may not be accepted if: A.1 Rust is present in caked layers or deposits A.2 Rust is present in the form of deep metal flaking, or built-up areas of corrosion products In addition, the location of rust should be noted; for example on a drum: top lid; filter region; locking chine; top one-third, above the second rolling hoop; middle one-third, between the first and second rolling hoops; bottom one-third, below the second rolling hoop; and on the bottom. Payload containers may still be considered acceptable if the signs of rust show up as: A.1 Some discoloration on the payload container A.2 If rubbed would produce fine grit or dust or minor flaking (such that wall thinning does not occur).	YES	NO
4.	Are any of the following apparent? A.1 wall thinning A.2 pin holes A.3 breaches	Wall thinning, pin holes, and breaches can be a result of rust/corrosion (see discussion for #3).	YES	NO
5.	Are there any split seams, tears, obvious holes, punctures (of any size), creases, broken welds, or cracks?	Payload containers with obvious leaks, holes or openings, cracks, deep crevices, creases, tears, broken welds, sharp edges or pits, are either breached or on the verge of being breached. Verify that there is no warpage that could cause the container to be unstable or prevent it from fitting properly in the applicable package.	YES	NO
6.	Is the load-bearing capacity suspect?	The load-bearing capacity could be reduced for excessive rust (see discussion for #3), wall thinning (see discussion for #4), breaches, cracks, creases, broken welds, etc. (see discussion for #5).	YES	NO

Appendix 7 – Payload Container Integrity Checklist (Continued)

CONTAINER EXAMINATION		DISCUSSION OF CRITERIA	COMPLIANCE	
7.	Is the payload container improperly closed?	Inspect the fastener and fastener ring (chine) if applicable for damage or excessive corrosion. Check the alignment of the fastener to ensure that it is in firm contact around the entire lid and the payload container will not open during transportation.	YES	NO
8.	Are there any dents, scrapes, or scratches that make the payload container's structural integrity questionable or prevent the top and bottom surfaces from being parallel?	Deep gouges, scratches, or abrasions over wide areas are not acceptable. If top and bottom surfaces are not parallel, this would indicate that the container is warped. Dents should be less than 1/4 in. deep by 3-inches long and between ½ in. to 6-inches wide. All other dents must be examined to determine impact of structural integrity.	YES	NO
9.	Is there discoloration which would indicate leakage or other evidence of leakage of material from the payload container?	Examine the payload container regions near vents, top lid fittings, bottom fittings, welds, seams and intersections of one or more metal sheets or plates. Payload containers must be rejected if evidence of leakage is present.	YES	NO
10.	Is the payload container bulged?	For the purposes of this examination, bulging is indicated by: A.1 A fairly uniform expansion of the sidewalls, bottom, or top (e.g., in the case of a drum, either the top or bottom surface protrudes beyond the planar surface of the top or bottom ring. A.2 A protrusion of the side wall (e.g., in the case of a drum, beyond a line connecting the peaks of the surrounding rolling hoops or a line between a surrounding rolling hoop and the bottom or top ring), or A.3 Expansion of the sidewall (e.g., in the case of a drum, such that it deforms any portion of a rolling hoop).	YES	NO

Appendix 7 – Payload Container Integrity Checklist (Continued)

References to Appendix 7

1. INEEL Engineering Design File "*Waste Container Integrity Evaluation for Storage"*, EDF-RWMC-705, September 25, 1996. Idaho National Engineering and Environmental Laboratory, Idaho Falls, ID

2. Title 49 CFR Part 173, Subpart 475. *"Quality Control Requirements Prior to Each Shipment of Class 7 (Radioactive) Materials." Code of Federal Regulations,* Washington, D.C., Office of the Federal Register, National Archives and Records Administration. (http://www.ecfr.gov)

3. DOE/RL-96-57, Section 2.5.5. *"Test & Evaluation Document for the U. S. Department of Transportation Specification 7A type to Packaging"* (Formerly WHC-EP-0558) (http://rampac.energy.gov/certinfo/special/noncertified/dot7a/pdot7a.aspx)

Appendix 8 – Payload Management of TRU Alpha Activity Concentration

1.0 Scope

The policies and methods for the management of TRU alpha activity concentration within each TRU waste payload container disposed of at the WIPP are set out in this appendix. They are based on the definition of TRU waste in the *WIPP LWA*, Public Law 102-579. The LWA defines TRU waste as:

"…waste containing more than 100 nanocuries of alpha emitting transuranic isotopes per gram of waste, with half lives greater than 20 years…" (Sec. 2[18]).

This appendix pertains specifically to the payload management of TRU alpha activity concentration of waste containers selected for overpacking.

2.0 Policies

The Office of National TRU Program has established the following policies for managing TRU alpha activity concentration in compliance with the LWA: (References 1, 2, and 3)

- The TRU alpha activity concentration limit for TRU waste (> 100 nCi/g) applies to the TRU waste stream as a whole.

- Waste containers belonging to a TRU waste stream may vary in their TRU alpha activity concentration, some containing > 100 nCi/g and some containing < 100 nCi/g. Using process knowledge in combination with radioassay measurements to determine the presence of TRU isotopes within the waste stream, generator sites define a TRU waste stream based on its potential to include waste containers with a TRU alpha activity concentration in excess of 100 nCi/g.

- Waste containers belonging to the same TRU waste stream may be overpacked into a payload container (e.g., SWB or TDOP) provided the TRU alpha activity concentration of the payload container exceeds 100 nCi/g.

Appendix 8 – Payload Management of Transuranic (TRU) Alpha Activity Concentration (Continued)

3.0 Prerequisites for Implementation

- Each waste container selected for payload management must be part of the TRU waste stream identified in the AK Summary Report for that waste stream (References 2 and 3).

- Sites shall submit to the CBFO, for its review and approval, applicable plans and procedures for making TRU waste determinations based on payload management practices that involve the overpacking of waste containers (Reference 2).

- CBFO will notify the EPA of sites seeking such authorization prior to CBFO's approval of a site to manage TRU alpha activity concentration using payload management. The WIPP will not accept payload managed waste for disposal until EPA has received notice (Reference 3).

4.0 Implementation and Practice

- Each TRU waste stream selected for payload management must include in its AK Summary Report an estimate of the total waste volume and the percentage of the waste volume that is above and below 100 nCi/g (It should be noted that this information, although based on the best available AK information, is preliminary and subject to the performance of WIPP certified NDA measurements and cannot and will not be used as a measure of AK accuracy) (Reference 3).

- Each waste container selected for payload management must contain at least one TRU isotope (e.g., Pu-238, Pu-239, Pu-240, Pu-242) whose activity exceeds the LLD of the radioassay system used to characterize the waste (References 2 and 3). The applicability of LLD will vary from system to system and may be on a container basis. Sections 3.3.1 and A.3 of this document provide the applicable requirements for determining and reporting LLDs.

- Each waste container selected for payload management may only be overpacked into a payload container (e.g., SWB or TDOP) with other waste containers from the same TRU waste stream.

- The TRU alpha activity concentration of the payload container is determined according to Sections 3.3.3 and 4.3.3 of this document.

Appendix 8 – Payload Management of Transuranic (TRU) Alpha Activity Concentration (Continued)

5.0 References

1. Public Law 102-579, 106 Stat.4777, 1992 (as amended by Public Law 104-201, 1996). *Waste Isolation Pilot Plant Land Withdrawal Act* (http://www.wipp.energy.gov/library/cra/baselinetool/documents/regulatory%20tools/10%20WIPPLWA1996.pdf)

2. Letter to Mr. Frank Marcinowski (Director, Office of Radiation and Indoor Air, U.S. Environmental Protection Agency) from Dr. Ines R. Triay (Manager, Carlsbad Field Office, U.S. Department of Energy), August 4, 2003

3. Letter to Dr. Ines R. Triay (Manager, Carlsbad Field Office, U.S. Department of Energy) from Mr. Frank Marcinowski (Director, Office of Radiation and Indoor Air, U.S. Environmental Protection Agency), August 8, 2003

Appendix 9 – Radiography Requirements for Contact-Handled Transuranic Waste

9.1 Radiography Requirements for Contact-Handled Waste

Radiography aids in the examination and identification of containerized waste. All activities required to achieve radiography objectives shall be described in site Program documents as identified in Appendix 4, Table B-2. These documents shall include instructions specific to the radiography systems used at the site. This appendix applies to radiography of CH waste; requirements for radiography of RH waste are found in the WCPIP.

A radiography system (e.g., real-time radiography or digital radiography/computed tomography), normally consists of an x-ray producing device, an imaging system, an enclosure for radiation protection, a waste container handling system, an audio/video recording system, and an operator control and data acquisition station. Although these six components are required, it is expected there will be some variation within a given component between sites. The radiography system shall have controls or an equivalent process which allow the operator to control image quality. On some radiography systems, it should be possible to vary the voltage between 150 and 400 kilovolts to provide an optimum degree of penetration through the waste.

To perform radiography, the waste container is scanned while the operator views the video monitor. An audio/video recording shall be made of the waste container scan and is maintained as a non-permanent record. A radiography data form shall also be used to document the Waste Matrix Code; verify there are no ignitable, reactive, or corrosive wastes present by verification that there is no observable liquid in excess of the waste acceptance criteria and there are no compressed gases; and estimated waste material parameter weights of the waste.

The estimated waste material parameter and weights for CH waste should be determined by compiling an inventory of waste items and packaging materials. The items on this inventory should be sorted by waste material parameter and combined with a standard weight look-up table to provide an estimate of waste material parameter weights.

Containers whose contents prevent full examination of the remaining contents shall be subject to visual examination unless the site certifies that visual examination would provide no additional relevant information for that container using acceptable knowledge for the waste stream.

For containers which contain classified shapes and undergo radiography, the radiography recording shall be considered classified information. The radiography data forms will not contain classified information.

Appendix 9 – Radiography Requirements for Contact-Handled Waste (Continued)

9.2 Radiography Training

The radiography system involves qualitative and semi-quantitative evaluations of visual displays. Operator training and experience are the most important considerations for assuring quality controls in regard to the operation of the radiography system and for interpretation and disposition position of radiography results. Only trained and qualified radiography operators shall be allowed to operate radiography equipment.

Standardized training and qualification requirements for radiography operators shall be based upon existing industry standard training requirements and shall comply with the training and qualification requirements of this document and the QAPD.

The site shall develop a training program that provides radiography operators with both formal and OJT. Radiography operators shall be instructed in the specific waste generating practices, typical packaging configurations, and associated waste material parameters expected to be found in each Waste Matrix Code at the site.
The OJT and apprenticeship shall be conducted by an experienced, qualified radiography operator prior to qualification of the training candidate. The training programs shall be site-specific due to differences in equipment, waste configurations, and the level of waste characterization efforts. For example, certain sites use digital radiography equipment, which is more sensitive than real-time radiography equipment. In addition, the particular physical forms and packaging configurations at each site will vary; therefore, radiography operators shall be trained on the types of waste that are generated, stored, or characterized at that particular site.

The training program shall contain the following elements:

- Project Requirements
- State and Federal Regulations
- Basic Principles of Radiography
- Radiographic Image Quality
- Radiographic Scanning Techniques
- Application Techniques
- Radiography of Waste Forms
- Standards, Codes, and Procedures for Radiography
- Site-Specific Instruction

Appendix 9 – Radiography Requirements for Contact-Handled Waste (Continued)

The training program shall also contain OJT which addresses:

- System Operation
- Identification of Packaging Configurations
- Identification of Waste Material Parameters
- Weight and Volume Estimation
- Identification of Prohibited Items

Radiography test drums shall contain items common to the waste streams to be generated and stored at the site. The test drums shall be divided into layers with varying packing densities or different drums may be used to represent different situations that may occur during radiography examination at the site. Test drums shall be representative of the waste matrix codes for which WSPF approval is sought. Test drums shall be examined and successfully identified prior to waste stream shipment. The following is a list of required elements of a radiography test drum:

- A punctured aerosol can
- Pigtails on polyliners (horsetail bag)
- Pair of coveralls
- Empty bottle
- Irregular shaped pieces of wood
- Empty one-gallon paint can
- Full container
- Aerosol can with fluid
- One-gallon bottle with three tablespoons of fluid
- One-gallon bottle with one cup of fluid (upside down)
- Leaded glove or leaded apron
- Wrench

These items shall be successfully identified by the operator as part of the qualification process. Qualifications of radiography operators shall, at a minimum, encompass the following requirements:

- Successfully pass a comprehensive exam based upon training enabling objectives. The comprehensive exam will address all of the radiography operations, documentation, characterization and procedural elements stipulated in this WAC.

- Perform a practical capability demonstration in the presence of appointed site radiography SME. The person will be an experienced radiography operator who is also qualified as an OJT trainer.

Appendix 9 – Radiography Requirements for Contact-Handled Waste (Continued)

Re-qualifications of operators are based on evidence of continued satisfactory performance (primarily audio/video recording reviews), and shall be done at least every two years. Unsatisfactory performance will result in disqualification. Unsatisfactory performance is defined as the misidentification of a prohibited item in a training drum or a score of less than 80 percent on the comprehensive exam. Retraining and demonstration of satisfactory performance are required before a disqualified operator is again allowed to operate the radiography system.

A training drum with internal containers of various sizes shall be scanned semiannually by each operator. The audio/video recording shall then be reviewed by a supervisor to ensure that operator's interpretations remain consistent and accurate. Imaging system characteristic shall be verified on a routine basis.

9.3 Quality Control

Independent replicate scans and replicate observations of the video output of the radiography process shall be performed under uniform conditions and procedures. Independent replicate scans shall be performed on one waste container per day or once per testing batch, whichever is less frequent. Independent observation of one scan (not the replicate scan), shall be made once per day or once per testing batch, whichever is less frequent, by a qualified radiography operator other than the individual who performed the first examination. A testing batch is a suite of waste containers undergoing radiography using the same testing equipment. A testing batch can be up to 20 waste containers without regard to waste matrix.

Oversight functions include periodic audio/video recording reviews of accepted waste containers by a qualified radiography operator other than the operator who dispositioned the waste container. The results of this independent verification shall be made available to the radiography operator.

9.4 Data Review and Validation

A testing BDR for data validation and QA purposes is required when radiography is used to characterize waste. A testing BDR (or equivalent), includes data pertaining to radiography for up to 20 waste containers or samples.

Appendix 9 – Radiography Requirements for Contact-Handled Waste (Continued)

All measurement data is reviewed and approved by qualified personnel prior to being reported. Reviews shall meet the requirements of the QAPD. At a minimum, the data is reviewed by an independent technical reviewer and approved by the SPM. This review is performed by an individual other than the data generator who is qualified to have performed the initial work. The independent technical reviewer shall verify, at a minimum, the following information:

- Data generation and reduction is conducted in a technically correct manner in accordance with the methods used (verification of procedure and revision).
- Data is reported in the proper units and correct number of significant figures.
- Calculations are verified by a valid calculation program, a spot check of verified calculation programs, and/or 100 percent check of all hand calculations.
- Values that are not verifiable to within rounding or significant difference discrepancies shall be rectified prior to completion of independent technical review.
- The data is reviewed for transcription errors.
- The testing QA documentation for BDRs is complete and includes, as applicable, raw data, calculation records, calibration records (or references to an available calibration package), list of containers in the batch, and QC sample results. Corrective action is taken to ensure that all BDRs are complete and include all necessary raw data prior to completion of the independent technical review.
- QC sample results are within established control limits and, if not, the data have been appropriately dispositioned using the nonconformance process. This includes complete summarized qualitative and quantitative data for all waste containers with data flags or qualifiers.
- Radiography tapes are reviewed (independent observation) on a waste container basis at a minimum of once per testing batch or once per day of operation, whichever is less frequent.
- The container contains no indication that there is liquid in excess of this waste acceptance criteria, no indication of compressed gas, no indication of incompatible wastes, and the physical form matches the Waste Matrix Code.
- The appropriate QAOs have been met.

Appendix 9 – Radiography Requirements for Contact-Handled Waste (Continued)

All data must be approved by the SPM. The SPM shall verify, at a minimum, the following information:

- Data generation-level independent technical review, validation, and verification have been performed as evidenced by the completed review checklists and appropriate signature release. Batch data review checklists are complete.

- BDRs are complete and data are properly reported (e.g., data are reported in the correct units and with the correct number of significant figures).

- Data meet all applicable Quality Assurance Objectives.

The SPM shall provide a SPM Summary and a Data Validation Summary for each BDR. These reports may be combined and shall consist of a detailed checklist documenting that the batch has been adequately reviewed and that the data meet program objectives.

To ensure that data of known and documented quality are generated, each participating measurement facility shall implement a documented facility QA program. Facility QA programs shall specify qualitative and quantitative acceptance criteria for the QC checks of this program, and corrective actions to be taken when these criteria are not satisfied. Only appropriately trained and qualified personnel shall be allowed to perform data validation/review.

Appendix 10 – Visual Examination Requirements for Contact-Handled Transuranic Waste

10.1 Visual Examination Requirements for Contact-Handled Waste

This appendix applies to visual examination requirements for CH waste; requirements for visual examination of RH waste are found in the WCPIP.

Contact handled waste container contents may be verified directly by performing VE on the waste container contents. Visual examination may also be performed during packaging or repackaging of waste. The CCP performs VE in accordance with the procedures found in Appendix 4, Table B-3.

VE does not require audio/video recordings of the examination; the examination is documented on a data form and certified with signatures from two qualified VE operators. If the second operator cannot verify the descriptions of the first operator, corrective actions will be taken in accordance with the established QA Program.

VE shall be conducted to describe all contents of a waste container and includes estimated or measured weights of the contents. The description shall clearly identify all discernible waste items, packaging materials, and waste material parameters in the waste container. VE activities are documented on VE data forms.

VE video/audio recordings of containers that contain classified shapes shall be considered classified information. Visual examination data forms will not contain classified information.

Appendix 10 – Visual Examination Requirements for Contact-Handled Transuranic Waste (Continued)

10.2 Visual Examination Training

VE shall consist of a semi-quantitative and qualitative evaluation of the waste container contents and may be recorded on audio/video recording media. Standardized training for VE includes both formal classroom training and OJT. Personnel performing VE shall be instructed in the specific waste generating processes, typical packaging configurations, and the waste material parameters expected to be found in each Waste Matrix Code at the site. The OJT and apprenticeship shall be conducted by an operator experienced and qualified in VE prior to qualification of the candidate. The training shall be site-specific to include the various waste configurations at the site. For example, the particular physical forms and packaging configurations at each site will vary so operators shall be trained on types of waste that are generated, stored, or characterized at that particular site. VE operators need only be trained to the physical forms and packaging configurations used on the waste stream that they are examining and packaging. VE personnel shall be requalified once every two years.

Training shall address the following required elements:

- Project Requirements
- State and Federal Regulations
- Application Techniques
- Site-Specific Instruction

Training shall also include OJT that addresses:

- Identification of Packaging Configurations
- Identification of Waste Material Parameters
- Weight and Volume Estimation
- Identification of Prohibited Items

The SPM appoints each Visual Examination Expert (VEE) and ensures the appointment is facility-specific. The VEE shall be familiar with the waste generating processes that have taken place at the site and will also be familiar with all types of waste being characterized at that site. The VEE shall be responsible for the overall direction and implementation of the visual examination at that facility. The VEE shall receive training in the same elements as the visual examination personnel, including both formal training and OJT. Qualification of a VEE shall be based on familiarity with waste generating processes, familiarity with the types of waste being characterized, and meeting the training requirements discussed above. Consistent with other VE personnel, the VEE shall be requalified once every two years. CCP-QP-002 specifies the selection, qualification and training requirements for the VEE.

Appendix 10 – Visual Examination Requirements for Contact-Handled Transuranic Waste (Continued)

10.3 Method

Visual examination recorded on video/audio media meet the following minimum requirements:

- The audio/video media shall record the waste packaging event for the container such that all waste items placed into the container are recorded in sufficient detail and shall contain an inventory of waste items in sufficient detail that another trained VE operator can identify the associated waste material parameters.

- The video/audio media shall capture the waste container identification number.

- The personnel loading the waste container shall be identified on the video/audio media or on packaging records traceable to the loading of the waste container.

- The date of loading of the waste container will be recorded on the video/audio media or on packaging records traceable to the loading of the waste container.

VE performed using two operators shall meet the following minimum requirements:

- At least two site personnel who witnessed the packaging of the waste shall approve the data forms or packaging records attesting to the contents of the waste container.

- The data forms or packaging records shall contain an inventory of waste items in sufficient detail that a trained VE operator can identify the associated waste material parameters.

- The container identification number shall be recorded on the data forms or packaging records.

A description of the waste container contents is recorded on a VE data form. The description clearly identifies all waste material parameters and provides enough information to estimate weights of waste material parameters. In cases where bags are not opened, a brief written description of the contents of the bags shall contain an estimate of the amount of each waste type in the bags. The written records of VE are supplemented with the audio/videotape recording, if applicable.

Appendix 10 – Visual Examination Requirements for Contact-Handled Transuranic Waste (Continued)

10.4 Data Review and Validation

A testing BDR for data validation and QA purposes is required when VE is used to characterize waste. A BDR (or equivalent), includes data pertaining to VE for up to 20 waste containers or samples.

All measurement data is reviewed and approved by qualified personnel prior to being reported. Reviews meet the requirements of the QAPD. At a minimum, the data is reviewed by an independent technical reviewer and approved by the SPM. This review is performed by an individual other than the data generator who is qualified to have performed the initial work. The independent technical reviewer shall verify, at a minimum, the following information:

- Data generation and reduction were conducted in a technically correct manner in accordance with the methods used (verification of procedure and revision).
- Data were reported in the proper units and correct number of significant figures.
- Calculations have been verified by a valid calculation program, a spot check of verified calculation programs, and/or 100 percent check of all hand calculations.
- Values that are not verifiable to within rounding or significant difference discrepancies must be rectified prior to completion of independent technical review.
- The data have been reviewed for transcription errors.
- The testing QA documentation for BDRs is complete and includes, as applicable, raw data, calculation records and list of containers in the batch. Corrective action will be taken to ensure that all BDRs are complete and include all necessary raw data prior to completion of the independent technical review.
- The container contains no indication that there is liquid in excess of this waste acceptance criteria, no indication of compressed gas, no indication of incompatible wastes, and the physical form matches the Waste Matrix Code.
- The appropriate QAOs have been met.

Appendix 10 – Visual Examination Requirements for Contact-Handled Transuranic Waste (Continued)

All data must be approved by the SPM. The SPM shall verify, at a minimum, the following information:

- Data generation-level independent technical review, validation, and verification were performed as evidenced by the completed review checklists and appropriate signature release. Batch data review checklists are complete.

- BDRs are complete and data are properly reported (e.g., data are reported in the correct units and with the correct number of significant figures).

- Data meet all applicable Quality Assurance Objectives.

The SPM shall provide a SPM Summary and a Data Validation Summary for each BDR. These reports may be combined and shall consist of a detailed checklist documenting that the batch has been adequately reviewed and that the data meet program objectives.

To ensure that data of known and documented quality are generated, each participating measurement facility shall implement a documented facility QA program. Facility QA programs shall specify qualitative and quantitative acceptance criteria for the QC checks of this program, and corrective actions to be taken when these criteria are not satisfied. Only appropriately trained and qualified personnel shall be allowed to perform data validation/review.

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CCP-QP-002

Revision 35

CCP
Training and Qualification Plan

EFFECTIVE DATE: 06/06/2013

Mike Ramirez

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RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
9	02/20/2002	Major rewrite to streamline and create a more concise procedure. Document reduced from 57 pages to 16 pages.
10	06/05/2002	Added References. Changes to CCP Technical Supervisor responsibilities. Added Training Evaluations to Records section. Deleted 4.2.5 Audit Personnel Qualifications. Other changes for clarification and consistency.
11	09/12/2002	Deleted Sections 3.3.2 and 3.3.3.
12	10/24/2002	Added Steps 3.8.2 and 3.8.3 in response to SRS Recertification Audit.
13	06/30/2003	Added NDE RTR Section, revised qualification letter and other minor editorial changes. Separated electronically fillable forms and updated references in procedure.
14	12/02/2003	Revision initiated to address CAR# 04-002 identified during CBFO audit A-04-03 and CAR# CCP-0009-03. Added information about RTR audio/videotapes and Capability Demonstrations. Added paragraph 4.2.3[A.5] discussing qualification card addenda. Added section 4.2.4[C] discussing FQAO appointment requirements.
15	03/10/2004	Added Capability Demonstration Instructions (Attachment 2) and CCP Capability Demonstration Data Sheet (Attachment 3 or CCP-QP-002-A1).
16	12/07/2004	Deleted the Technical Supervisor responsibilities section and incorporated them into the Vendor Project Manager responsibilities. Added partial qualification section. Removed requirement for the Site Project Manager to appoint the Facility Quality Assurance Officer by letter.
17	06/06/2005	Addressed CAR 05-029 and CAR 05-033 identified during Carlsbad Field Office (CBFO) Audits A-05-09 and A-05-12. Areas modified were qualification requirements for Nondestructive Assay (NDA) Expert Analyst and examination requirements for Central Characterization Project (CCP) Helium Leak Detection (HLD) Level III.
18	12/13/2005	Clarified roles and responsibilities in reviewing Capability Demonstration training audio/video media and modified Attachment 3 – CCP Capability Demonstration Data Sheet.
19	12/15/2005	Clarification for Level of Qualification in step 4.2.2[B.1].

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RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
20	05/03/2006	Addressed CAR-RHINL-0001-06. Incorporated Remote-Handled waste training and position requirements. Restructured for improved flow.
21	06/13/2006	Updated step 4.2.5 to delete the word “training” from the requirements for VE Operator/ITR/TS/FQAO.
22	11/16/2006	Revised to implement the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/Remote-Handled (RH) Permit Modification Request (PMR). Addressed Carlsbad Field Office (CBFO) Document Review Record (DRR) comments.
23	02/01/2007	Revised to address CCP Quality Assurance Surveillance Number SUR-CCP-0005-06.
24	02/27/2007	Revised to address concern raised during Surveillance #S-07-18.
25	05/08/2007	Revised to address Corrective Action Report (CAR) SRS-0002-07.
26	02/07/2008	Revised to address U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Corrective Action Report (CAR) 08-004.
27	09/30/2008	Revised to change nondestructive examination (NDE) to comply with Management Assessment MA-CCP-0023-08. Also revised Section 5.1.1[J] in response to Carlsbad Field Office (CBFO) Corrective Action Report (CAR) 08-036.
28	05/26/2010	Revised to address Corrective Action Report (CAR)-CCP-0012-09, to clarify Acceptable Knowledge (AK) briefings, training for solids lab, and approval process for training material. References to Central Characterization Project (CCP) Program Manager/Project Manager were removed and the responsibilities assigned to the Lead Site Project Manager and CCP Manager responsible for Training.
29	07/08/2010	Revised to incorporate changes into Attachment 4, CCP Test Drum Data Sheet for Contact-Handled Waste, and other minor editorial changes.
30	12/29/2010	Revised to bring into compliance with the revision of the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit.*

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RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
31	04/21/2011	Revised based on Revision 2 of the DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*.
32	04/03/2012	Revised to simplify the process for tracking waste stream Summary Training in Section 4.2. Added full requalification as an option in Section 4.1.2 [I]. Added the Training Module in Integrated Data Center (IDC) as a source of Training information to the note in Section 4.1. Incorporated Standing Orders CCP-SO-051 in Section 4.4.1[C], CCP-SO-069 in Section 4.2, and CCP-SO-078 in Section 4.1.2[F]. Expanded Section 4.1.1 to add a documented analysis of positions requiring qualification, in response to Carlsbad Field Office (CBFO) Corrective Action Report (CAR) 12-010.
33	08/30/2012	As a corrective action in response to CBFO CAR 12-033, revised the document to remove references to Lead SPMs and Alternate SPMs, so that any qualified SPM may perform the actions in Section 3.1.
34	01/30/2013	Revised to incorporate Standing Order CCP-SO-086, *Clarification of the Time Period for Performance of the RTR Semiannual Training Container Required by CCP-QP-002*; incorporate changes to DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*; update the title of the organization, as appropriate; and minor editorial changes.
35	06/06/2013	Revised to implement the Permit Modification Request Class 2 approved by New Mexico Environment Department (NMED) dated March 13, 2013 and CAR-CCP-0003-13.

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1.0 PURPOSE

NOTE

CCP-QP-040, *Support Training,* applies to those activities that do not fall under the scope of CCP-QP-002, *CCP Training and Qualification Plan* as defined herein. CCP-QP-040 applies to those positions which are not covered by the baseline documents listed in Section 2.1 of this document.

This plan describes the responsibilities of personnel involved in the Central Characterization Program (CCP) Qualification and Training Program. This plan also describes the process for identifying qualification and training requirements for all personnel and technical support personnel, who perform characterization, packaging, certification, and activities.

1.1 Scope

This plan applies to all personnel who conduct quality-affecting activities associated with transuranic (TRU) waste under the CCP, including characterization, packaging, certification, and transportation.

Personnel under this plan are qualified and trained to ensure suitable proficiency is achieved and maintained for assigned tasks. Training and qualification requirements are commensurate with the nature of the activities and level of responsibility.

Training will emphasize the correct performance of work, provide a description of why quality, safety, and TRU waste characterization and certification requirements exist, and describe the fundamentals of the work and its context.

Training will be subject to an on-going evaluation to determine instruction and training program effectiveness and will be upgraded whenever needed improvements or enhancements are identified.

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2.0 REQUIREMENTS

2.1 References

Baseline Documents

- DOE/WIPP 02-3183, *CH Packaging Program Guidance*
- DOE/WIPP 02-3184, *CH Packaging Operations Manual*
- DOE/WIPP 02-3185, *CH Packaging Maintenance Manual*
- NRC Docket 71-9212, *RH-TRU 72-B Safety Analysis Report*, Rev. 3, November 2002
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-003, *CCP Transuranic Authorized Methods For Payload Control (CCP-CH-TRAMPAC)*

Referenced Documents

- DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
- ASNT SNT-TC-1A, *Recommended Practice for Personnel Qualification and Certification in Nondestructive Testing,* American Society for Nondestructive Testing (1980 Edition)
- ASTM C1490, *Standard Guide for the Selection, Training, and Qualification of Nondestructive Assay (NDA) Personnel*
- CCP-QP-008, *CCP Records Management*
- CCP-QP-030, *CCP Written Practice for the Qualification of CCP Helium Leak Detection Personnel*
- CCP-QP-032, *CCP Written Practice for the Qualification of CCP Pressure Change Leak Testing Personnel*
- CCP-TP-028, *CCP Radiographic Test Drum and Training Container Construction*

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3.0 RESPONSIBILITIES

3.1 Site Project Manager (SPM)

3.1.1 Oversees planning, characterization, and certification activities.

3.1.2 Ensures personnel are qualified and trained to perform their assigned job functions.

3.1.3 Determines initial and continuing qualification and training requirements in cooperation with appropriate Cognizant Engineer (CE), Manager Responsible for Training, and Training to ensure job proficiency is maintained.

NOTE

Staffing changes includes situations where individuals are brought into, re-assigned, or are leaving the program (i.e., situations which require a change to a List of Qualified Individuals [LOQI]).

3.1.4 Notifies Training of staffing changes and candidates for job positions and provides supporting documentation (e.g., resumes, certificates, diplomas, training records).

3.1.5 Verifies education/experience requirements for Nondestructive Assay (NDA) Expert Analysts (EA).

3.1.6 Appoints Visual Examination Experts (VEE), NDA Expert Analysts (EA), and the remote-handled (RH) Technical Staff, based on education and experience, if applicable.

3.1.7 Reviews and approves Qualification Cards.

3.1.8 Ensures project personnel who are assigned to perform project activities that affect quality:

[A] Are cognizant of the qualification and training requirements of this plan.

[B] Satisfy qualification and training requirements for the tasks associated with their assigned job classification(s).

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3.1.9 Ensures the requirements of this plan are implemented, as follows:

[A] Personnel receive training and qualification, as necessary, to achieve initial proficiency, maintain proficiency, and adapt to changes in technology, methods, job responsibilities, and quality implementing procedures, prior to performing or verifying any waste characterization, certification, or transportation activities.

3.1.10 Appoints qualified personnel as Subject Matter Expert (SME)/On-the-Job Training (OJT) Instructors.

3.1.11 Ensures qualification and training documentation is complete and is submitted to Training.

3.1.12 Evaluates and documents personnel job performance at periodic intervals (as a minimum, during requalification).

3.1.13 Notifies the Manager Responsible for Training when full requalification is required (e.g., when an individual has been disqualified for unsatisfactory performance).

3.1.14 Analyzes positions to determine major job/task responsibilities as a basis for preparation of qualifications cards (shared responsibility).

3.2 Vendor Project Manager (VPM)

3.2.1 May administer the annual eye examination.

3.3 Training

3.3.1 Determines initial and continuing qualification and training requirements for positions in cooperation with an appropriate SME/OJT Instructor, the CE, and a Site Project Manager (SPM) using a graded approach that is commensurate with scope, complexity, and nature of the work to include:

[A] Descriptions of the fundamentals of the work and the context in which the work is performed.

[B] Identification of the applicable quality and safety requirements related to job performance.

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[C] Emphasis on the correct performance of work in accordance with established procedures and/or other relevant technical documents.

[D] Inclusion of education in both principles and enhancement of skills.

3.3.2 Supports a SPM in evaluating training and qualification requirements of each position. This may be done by, but is not limited to, evaluating training requirements using a training analysis. The analysis will result in an approved task list from which tasks may or may not be selected for training. When completed, the analysis will be signed by participants, and the task list reviewed and approved by the designated SME/OJT, the CE, a SPM, and the Manager Responsible for Training for completeness of training requirements.

3.3.3 Develops, implements, and monitors training required to maintain qualification of personnel.

3.3.4 Ensures project-required training effectiveness is reviewed when the need for improvements or enhancements is identified, and ensures the training program is updated.

3.3.5 Maintains documentation of current personnel training status.

3.3.6 Issues approved training materials and assists in the completion of qualifications and training activities.

3.3.7 Prepares Qualification Cards.

3.3.8 Returns incomplete/incorrect training materials to candidate's manager, as applicable.

3.3.9 Ensures qualification, training records, and supporting documentation (including video and audio recorded media for test drum) are maintained, secured, and controlled in accordance with CCP-QP-008, *CCP Records Management*.

3.3.10 Prepares LOQIs delineating those individuals who have completed Qualification Cards, and distributes to the applicable site.

3.3.11 Reviews, develops, and approves Comprehensive Examinations for thoroughness and adequacy.

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3.3.12 Reviews real-time radiography (RTR) completed Attachment 3, Test Drum Data Sheet for Contact-Handled (CH) Waste, video and audio recorded media in accordance with CCP-QP-008.

3.4 SME/OJT Instructor

NOTE

Before any OJT can be performed, it is necessary to initially qualify one SME/OJT Instructor for each discipline based on education and experience. The basis for SME/OJT Instructor qualification will be provided by an SPM and documented in the applicable Training files. The qualification is by discipline and is non-site specific. The basis for qualification will be used to complete a qualification card for the candidate as an SME/OJT Instructor. The successful candidate will be added to the appropriate LOQI(s) once the qualification card is complete.

The SME/OJT Instructor will have adequate education and/or technical knowledge in the applicable discipline, communication skills, and ability to provide trainees with hands-on experience, as determined by an SPM. Technical knowledge may be based on experience with the applicable process or involvement in development of operational procedures or qualification requirements for the applicable process.

The Mobile Loading Unit (MLU) Field Operations Manager (or designee) will appoint SME/OJTs for Transportation activities.

All SME/OJT candidates must complete the SME/OJT briefing and pass the SME/OJT exam.

3.4.1 Provides supervised hands-on training in the work environment to accomplish performance objectives of the training tasks.

3.4.2 Determines initial and continuing qualification and training requirements for National TRU Program Certification (NTPC) positions in cooperation with a SPM, the CE, the Manager Responsible for Training, and Training.

3.4.3 Ensures trainee(s) have satisfactory knowledge of and competence in skills requirements, as defined on the Qualification Card.

3.4.4 Verifies the correct revision of the qualification card is being used.

3.4.5 Signs and dates Qualification Card, indicating acceptable performance levels are met.

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3.4.6 Provides all training documentation generated to an SPM for review and approval.

3.4.7 Analyzes positions to determine major job/task responsibilities as a basis for preparation of qualifications cards (shared responsibility).

3.5 Personnel

3.5.1 Provides copies of their qualification documents (e.g., resumes, education, and experience) to an SPM or Training as applicable.

3.5.2 Completes initial training in accordance with this procedure, as stated on each individual's Qualification Card.

3.5.3 Ensures qualification requirements are completed and signed off before performing assigned tasks without supervision.

3.5.4 Maintains requisite qualifications throughout the duration of work.

3.5.5 Attends CCP and site-specific training, as necessary.

3.6 Trainee

3.6.1 Completes Qualification Card(s) in a timely manner.

3.6.2 Works only under the supervision of a qualified operator or a SME/OJT Instructor.

3.7 Manager Responsible for Training

3.7.1 Reviews and approves all training material for applicability and technical content.

3.7.2 Determines when full requalification is required.

3.7.3 Analyzes positions to determine major job/task responsibilities as a basis for preparation of qualifications cards (shared responsibility).

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3.8 Cognizant Engineer (CE)

NOTE
A CE is not required for Transportation or Acceptable Knowledge.

3.8.1 The CE is designated for each specific process by the NTPC Manager based on their education, knowledge, and experience for the characterization process.

3.8.2 The CE has overall responsibility for the implementation and quality of the characterization activity.

3.8.3 The CE reviews material developed by Training for applicability and technical content.

3.8.4 Analyzes positions to determine major job/task responsibilities as a basis for preparation of qualifications cards (shared responsibility).

3.8.5 Reviews and evaluates training containers for RTR personnel.

3.8.6 Evaluates the training documentation for RTR personnel and determines if they meet the requirements for certification.

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4.0 PROCEDURE

4.1 General Training Requirements

NOTE

The Training Module in the Integrated Data Center (IDC) provides information that may be used to update and maintain the information in documents provided by training, such as the LOQI. Such usage will be described in the applicable sections of this procedure.

4.1.1 Personnel selected to perform or verify NTPC activities will have the education, experience, and training commensurate with job position requirements. The need for job position Qualification Cards will be determined by a SPM, the CE, and the Manager Responsible for Training.

[A] Job position requirements will be analyzed and documented to determine the major duties and tasks associated with the position, as a basis for developing the Qualification Card for each activity requiring qualification. The analyses will be performed by a SPM, a SME/OJT Instructor, the CE, and the Manager Responsible for Training.

[B] A separate analysis may not be required for new positions where the major duties and tasks are closely-related to those for an existing, already-analyzed position. This determination will be made and documented by the performers identified in [A], above.

4.1.2 All training candidates are required to complete a Qualification Card to verify that they possess the knowledge and skills necessary to competently perform specified tasks.

[A] Qualification Cards technical content will be determined by a SME/OJT Instructor, the CE, the Manager Responsible for Training, and a SPM based on project requirements and federal and state regulations.

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NOTE

The qualification cards for Helium Leak Detection Personnel are issued in accordance with CCP-QP-030, *CCP Written Practice for the Qualification of CCP Helium Leak Detection Personnel*. The qualification cards for Pressure Change Leak Testing (PCLT) personnel are issued in accordance with CCP-QP-032, *CCP Written Practice for the Qualification of CCP Pressure Change Leak Testing Personnel*.

[B] All Qualification Cards shall be issued by Training.

[C] The SME will verify current revision.

[D] Training will verify that prerequisites are met.

[E] Upon completion of the Qualification Card, candidates are considered qualified to perform their respective duties.

[F] The Qualification Cards will contain the following information:

[F.1] Name of job position.

[F.2] Revision number and effective date.

[F.3] Trainee's name.

[F.4] Signature spaces for approvals of format, technical content, and use by a SME/OJT, the CE, a SPM, and the Manager Responsible for Training, as applicable.

[G] The Qualification Card will be divided into the following parts, as applicable:

[G.1] Education/Experience.

[G.2] Job Specific Training (which may include):

- Indoctrination/Orientation
- Initial Reading
- Formal Training
- National Standards Certifications
- OJT
- Signature line and date for trainee
- Approval section for a SME/OJT
- Approval section for a SPM

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[G.3] If a Qualification Card requires changes, the following is performed:

(a) Training, prepare the revised Qualification Card, using the next sequential revision number.

(b) Training, route the revised Qualification Card to the following for review and approval: a SME/OJT, the CE, a SPM, and the Manager Responsible for Training.

(c) Training, upon approval, place a new effective date on the Qualification Card and issue the Qualification Card.

[G.4] Other required formal training materials, such as the Waste Analysis Plan (WAP)/Quality Assurance Project Plan (QAPjP) Briefing or training determined by a training evaluation (i.e., classroom, OJT, or self-paced instruction) shall be approved for format, technical content, and use by a SPM and the Manager Responsible for Training.

(a) As initial and continuing qualification and training requirements change, these approved training materials shall be revised by Training.

(b) All approved training materials shall be maintained, secured, and controlled by Training.

[H] Operational Positions (e.g., RTR, NDA, etc.) require requalification every two (2) years. Exceptions are: Helium Leak Detection (HLD) Level III (Limited) has a three year requalification requirement. If necessary, additional training may be required by a SPM, or the Manager Responsible for Training. The sections of the qualification card that must be re-performed during each requalification are identified on the Qualification Cards.

NOTE

Requalifications are due by the end of the month in which the qualification period falls, unless a specific date is listed on the qualification card.

[I] Requalification of Project Office positions is not required.

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[J] Unsatisfactory performance will result in disqualification by the Manager Responsible for Training. The candidate must successfully complete a full requalification (i.e., repeat the entire Qualification Card) to re-establish qualification.

[K] Full requalification is also required when a SPM and the Manager Responsible for Training jointly determine that an individual has not been performing in the qualified function for a significant period of time, due to re-assignment and return, or extended absence from the position for other reasons. Typically, full requalification would apply after an absence from the position of more than one year; however, there may be extenuating circumstances and each occurrence is reviewed and documented on a case-by-case basis.

4.1.3 Completion of the Waste Isolation Pilot Plant (WIPP) WAP/QAPjP Briefing is a pre-requisite for all personnel before they perform *Waste Isolation Pilot Plan, Waste Analysis Plan* (WIPP-WAP) specific tasks.

NOTE

RTR and visual examination (VE) personnel shall be trained on newly developed and revised waste stream reports which change the waste generating processes, packaging, and expected waste material parameters (WMP) expected to be found in each Waste Matrix.

4.2 Waste Stream Summary Training

4.2.1 An SPM in conjunction with Acceptable Knowledge Expert (AKE), develop the training in the form of a briefing which identifies as a minimum the following:

- Specific waste generating processes
- Packaging
- WMP for the waste matrix code

4.2.2 SPM, provide the briefing to the required RTR and VE personnel.

4.2.3 SPM, submit the briefing materials and the completed briefing sheet(s) (or personnel can send individual e-mail acknowledgements) to Training.

4.2.4 Training, update the LOQI for all personnel who received the briefing, showing that they are qualified to perform work on the identified waste stream.

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[A] Remove the qualified status for the identified waste stream from the LOQI when either:

[A.1] The SPM so directs, because the waste stream is no longer active, or

[A.2] The Training Module in the IDC shows that the waste stream is no longer active.

4.3 Specific Qualification and Training Requirements

4.3.1 Acceptable Knowledge (AK) Personnel

[A] Personnel assigned to compile, evaluate, and resolve discrepancies associated with acceptable knowledge (AK) information, require the following:

[A.1] WIPP-WAP Briefing.

[A.2] Waste Acceptance Criteria (WAC) knowledge.

[A.3] DOE/WIPP 02-3214, *Remote Handled TRU Waste Characterization Program Implementation Plan* knowledge.

[A.4] Training on Federal and State Resource Conservation and Recovery Act (RCRA) regulations associated with solid and hazardous waste determinations. Training requirement will be satisfied by documented completion of a formal RCRA training program, (e.g., a commercially available RCRA Seminar, or a SPM's documented evaluation of adequate training and/or experience).

[A.5] Knowledge of procedures associated with:

(a) Waste characterization using AK.

(b) AK records development including AK discrepancy resolution.

(c) Nonconformance Report (NCR)/Corrective Action Report (CAR) Process

[A.6] Knowledge of resolving and managing prohibited items as noted in nonconformance reporting.

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4.3.2 RTR Operator/Independent Technical Reviewer (ITR)

[A] Qualification Process

[A.1] An individual qualifying as an RTR Operator/ITR is considered a trainee. A trainee will work only under the supervision of a qualified operator or SME/OJT Instructor.

[A.2] All RTR personnel will be trained to the guidance of American Society for Nondestructive Testing (ASNT) Recommended Practice Number SNT-TC-1A, *Recommended Practice for Personnel Qualification and Certification in Nondestructive Testing,* modified to suit the RTR application/method.

[A.3] An RTR Operator/ITR will:

(a) Be able to set up and operate equipment, and qualified to interpret and evaluate results with respect to applicable codes, standards, and specifications.

(b) Be thoroughly familiar with the scope and limitations of RTR.

(c) Exercise the responsibility for OJT and apprenticeship of trainees.

(d) Be able to prepare written instructions.

(e) Be able to organize Batch Data Reports (BDRs) with the results of RTR.

[B] Education, Training, and Experience Requirements for Initial Qualification

[B.1] Personnel considered for qualification in RTR must have sufficient education, training, and experience to ensure understanding of the principles and procedures.

[B.2] Education requirements are listed in Attachment 1, Minimum Training, Education, and/or Experience.

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[B.3] Personnel being considered for qualification as an RTR Operator/ITR will complete organized training to become familiar with the principles and practices of the applicable RTR method.

[B.4] A certificate from an approved vendor stating that the individual operator is a qualified RTR operator Level II SNT-TC-1A.

[B.5] To be considered for qualification as an RTR Operator/ITR, the trainee must:

(a) Pass the required examinations in step 4.3.2[C].

(b) Complete the Qualification Card.

[B.6] Any previous training and experience gained in a position similar to the RTR Operator/ITR position may be considered in satisfying the qualification criteria of this procedure and shall be documented in the Training file (i.e., resume).

[C] Examinations

[C.1] Physical

(a) All trainees will pass an initial eye examination to ensure natural or corrected near-distance acuity in at least one eye. The trainee must be capable of reading Jaeger Number 2 at a distance of not less than twelve (12) inches on a standard Jaeger test chart.

(b) The eye examination will demonstrate the capability of distinguishing and differentiating contrast used in RTR.

(c) The eye examination will be administered on an annual basis and the results maintained in the Training files. The Vendor Project Managers (VPMs) at each site may administer the eye examination.

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[C.2] Comprehensive

(a) Pass a program-specific comprehensive exam with an 80 percent or better grade that addresses radiography operations, documentation, characterization, and procedural elements.

[C.3] Test Drum (Capability Demonstration)

NOTE

The requirement for completing the test drum defined in the Waste Characterization Program Implementation Plan (WCPIP) is met by successfully completing the Training Container.

Test Drums (Capability Demonstrations) are due by the end of the month in which the qualification period falls.

(a) At initial qualification and subsequent requalification, successfully examine a test drum that includes items common to the waste streams and is representative of the waste matrix codes and WAC required items.

(b) Use Attachment 2, Test Drum Instructions for Contact-Handled Waste Drums.

(c) Documentation required for test drums is as follows:

(c.1) Nondestructive Examination (NDE) Test Drum Inventory Sheet (from CCP-TP-028, *CCP Radiographic Test Drum and Training Container Construction*).

(c.2) Attachment 3, Test Drum Data Sheet for Contact-Handled Waste.

(c.3) Video and audio recorded media of the test drum.

[C.4] Training Container

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NOTE

A Training Container is required by CH and RH operators at initial qualification, requalification, and semi-annually. The nominal period for performance of the Training Container is every six months, due by the end of the month of the sixth month from the date the Training Container was successfully passed.

The Training Container will contain items which can be identified by RTR, are representative of the physical properties of the waste based on AK documentation reviewed, and prohibited items.

(a) At initial qualification, requalification, and semiannually, successfully examine a Training Container and identify 100 percent of the items required to meet the Data Quality Objectives (DQO's).

(b) Use Attachment 4, Training Container Instructions

(c) Documentation required for Training Containers is as follows:

(c.1) NDE Training Container Inventory Sheet (from CCP-TP-028).

(c.2) Attachment 5, Training Container Evaluation Data Sheet

(c.3) Video and audio recorded media of the Training Container

(d) The NDE CE will review the audio/video recording to ensure the operator's interpretations remain consistent and accurate.

(e) The NDE CE or the SPM may request an extension of the period between performances of the Training Container for up to one additional month (for a total of seven months between Training Containers, beginning with the date the examination was reviewed and approved by the CE).

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(e.1) Upon receipt of a written request from the SPM or NDE CE, Training will extend the Training Container due date for the operator on the LOQI.

(e.2) The request will be retained by Training.

(e.3) When Training receives evidence the operator has satisfactorily completed the Training Container, Training will enter a due date for the next Training Container that takes into account the earlier extension (e.g., 5 month due date, not 6 month).

(e.4) If the operator exceeds the one month extension due date on the LOQI, Training will remove the individual from the LOQI until the Training Container has been successfully completed.

(e.5) Extension is not permitted at the time of requalification.

NOTE
Certification of RTR operator/ITR personnel is documented on the completed qualification card.

[D] Qualification

[D.1] Successful qualification of the RTR Operator/ITR is documented by completing the Qualification Card.

[D.2] To maintain qualifications, the CH and RH RTR Operator/ITR must perform a Training Container semiannually, documented on Attachment 5.

[D.3] Complete an annual eye examination.

[E] Requalification

[E.1] Requalification is based on evidence of satisfactory performance of a test drum, a training container, and passing a comprehensive exam with a grade of 80 percent or better once every two years. If necessary, additional training may be required by a

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SME/OJT, a SPM, the CE, or the Manager Responsible for Training.

4.3.3 Transportation personnel who require qualification in HLD are trained in accordance with CCP-QP-030 and documented on Attachment 1, CCP HLD Qualification Card of CCP-QP-030.

4.3.4 Transportation personnel who require qualification in PCLT are trained in accordance with CCP-QP-032 and documented on Attachment 1, CCP PCLT Qualification Card.

4.3.5 NDA EA requires the completion of a EA Qualification Card.

4.3.6 Visual Examination (VE) Operator/ITR

[A] For the initial qualification and subsequent requalification, the Operator/ITR must:

[A.1] Pass comprehensive exam with an 80 percent or better grade that addresses VE operations, documentation, characterization, formal training elements, and procedural elements.

[A.2] VE Operators must demonstrate capability in the presence of the site VEE during OJT. However, the formal and OJT training is conducted by a qualified SME.

4.4 Appointments

4.4.1 For VEE candidate(s), a SPM performs the following:

[A] Review the training files for qualification/familiarity to waste stream, experience handling TRU waste, and VE Operator qualifications.

[B] Provide written notification to Training delineating the candidate's qualifications and experience.

[C] Ensures that the appointments are facility–specific.

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4.4.2 For NDA EA candidate(s), a SPM will perform the following:

[A] Review the training files for an undergraduate degree in physical science or engineering and five years NDA experience; or ten equivalent years of experience in the NDA field.

[B] Provide written notification to Training delineating the candidate's qualifications and experience.

4.4.3 For RH Technical Staff candidate(s), a SPM will perform the following:

[A] Review the training files for the minimum requirements identified in Attachment 1

[B] Provide written notification to Training delineating the candidate's qualifications and experience.

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5.0 RECORDS

5.1 Records generated during the performance of this plan are maintained as quality assurance (QA) records in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Nonpermanent Records

[A] Written Notification of Appointments/Designations

[B] Letters to Training

[C] Certificates of Completion

[D] Analysis documentation for positions requiring qualification

[E] Qualification and training records

[E.1] OJT records

[E.2] Completed exams

[E.3] Qualification Card

[F] Training materials (e.g., course presentation, exam)

[G] Completed attendance/briefing forms,

[H] Training evaluations (which may include a Table-Top Job Analysis)

[I] Attachment 3, Test Drum Data Sheet for Contact-Handled Waste

[I.1] Audio and Video Recording media (primary and backup)

[J] Attachment 5, Training Container Evaluation Data Sheet

[J.1] Audio and Video Recording media (primary and backup)

[K] Resumes as applicable

[L] Comprehensive Examinations

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[M] WAP Briefing

[N] Eye Examination (Medical)

- Attachment 6, Annual Record of RTR Eye Examination, when applicable
- Independent Eye Examination (from medical facility), when applicable

[O] Training Module (Electronic)

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Attachment 1 – Minimum Training, Education, and/or Experience

Personnel	Education/Experience/Requirements
1. Radiography	
Radiography Operators	Site specific training based on waste matrix codes and waste material parameters; requalification every two years.
2. Nondestructive Assay (NDA)	
NDA Personnel	In accordance with ASTM C1490, *Standard Guide for Selection, Training, and Qualification of Nondestructive Assay (NDA) Personnel;* ANSI N15.54, *Radiometric Calorimeters- Measurement Control Program.*
3. Technical Staff	
RH Technical Staff	B.S. Nuclear Engineering or the equivalent knowledge and experience to perform assigned tasks, including: • Calculation of reactor neutron spectra • Generate ORIGEN format cross sections • Perform ORIGEN isotope generation and depletion calculations • Ensure that appropriate samples are collected and analyzed from waste • Perform shielding calculation of waste containers **OR** B.S. degree in statistics or the equivalent knowledge and experiences to problem assigned tasks, including: • Develop Sampling plan to obtain representative samples of waste. Propagate uncertainties to determine Total Measurement Uncertainty.
RH Technical Reviewer	• Equivalent qualifications necessary to have originally performed the task under review. At least five years experience in the technical area applicable to the review task.

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Attachment 2 – Test Drum Instructions for Contact-Handled Waste Drums

OPERATOR

1.0 In the presence of a RTR SME/OJT Instructor, perform the following:

1.1 Pre-start operations and video and audio recording media system setup of the RTR equipment per site approved radiography operating procedure.

1.2 Load the test drum into the RTR unit.

1.3 Ensure the video/audio recording identifies the following information:

[A] The identifying test drum container (e.g., NDE-TEST-01)
[B] Exam date
[C] Operator's name

1.4 Complete Blocks 1 through 4 of Attachment 3.

1.5 Perform scan of the test drum, identifying test drum container, and complete Blocks 5 and 6 of Attachment 3. Provide a detailed description (including content) of all items found within the container.

1.6 Label the video/audio media with the following information:

[A] The identifying training container (e.g., NDE-TEST-01)
[B] Exam date
[C] Operator's name
[D] "A" for primary or "B" for backup

1.7 Complete Block 7.

1.8 Forward the video and audio recording media to a RTR SME/OJT Instructor.

SME/OJT INSTRUCTOR

2.0 Observe the test drum and complete Attachment 3 as follows:

2.1 **IF** the Operator has correctly identified the items within the test drum, **THEN** check PASS in Block 9, print name, sign, and date Block 10, **AND** forward the video and audio recording media and Attachment 3 to Training in accordance with CCP-QP-008.

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Attachment 2 – Test Drum Instructions for Contact-Handled Waste Drums (Continued)

2.2 **IF** the Operator DOES **NOT** identify all WAC required prohibited items in Block 8 on Attachment 3 correctly,
THEN perform the following:

2.2.1 Document unidentified WAC required prohibited items in Block 8 on Attachment 3.

2.2.2 Check FAIL in Block 9 of Attachment 3.

2.2.3 Print name, sign, and date in Block 10 of Attachment 3.

2.2.4 Notify an SPM and Training.

2.2.5 Forward Attachment 3 and the video and audio recording media to Training in accordance with CCP-QP-008.

NOTE

RTR Personnel who fail the test drum will be requalified after meeting initial qualification requirements.

2.3 **IF** any items (other than WAC-required items) were not identified,
THEN discuss and document the noted discrepancies with the Operator,
AND provide documentation along with the required test drum documentation.

2.3.1 Document unidentified items on Attachment 3, Block 8, **AND** discuss with the Operator.

2.3.2 Check PASS in Block 9 of Attachment 3.

2.3.3 Print name, sign, and date in Block 10 of Attachment 3.

2.3.4 Forward Attachment 3 with the video and audio recording media toTraining in accordance with CCP-QP-008.

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Attachment 2 – Test Drum Instructions for Contact-Handled Waste Drums (Continued)

TRAINING

3.0 Ensure receipt of all required test drum documentation stated in step 4.3.2[C.3](a) of CCP-QP-002.

4.0 **IF** notified by the RTR SME/OJT Instructor that a currently qualified Operator has failed the test drum,
THEN perform the following:

4.1 Remove the Operator from the LOQI.

4.2 Notify an SPM.

5.0 **IF** Attachment 3 indicates PASS,
THEN perform the following:

5.1 Update the LOQI and the Training files.

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Attachment 3 – Test Drum Data Sheet for Contact-Handled Waste

1. Name:	
2. Test Drum #:	**3. Date of Demonstration:**
4. Video and Audio Recording Media Label:	
5. Container Inventory (Provide detailed description)	
6. Operator Printed Name: _____	
Operator Signature: _____ **Date:** _____	

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Attachment 3 – Test Drum Data Sheet for Contact-Handled Waste (Continued)

7. Name:					
8. As SME/OJT Instructor, I observed the above demonstration and discussed the below missed items with the Operator.					
WAC Required items missed by Operator (check applicable items)		**Other items missed by Operator**			
	Aerosol can with puncture				
	Horsetail bag				
	Pair of coveralls				
	Empty bottle				
	Irregular shaped pieces of wood				
	Empty one gallon paint can				
	Full container				
	Aerosol can with fluid				
	One gallon bottle with three tablespoons of fluid				
	One gallon bottle with one cup of fluid (upside down)				
	Leaded glove or leaded apron				
	Wrench				
9. I have assigned a grade based on the review above.		**PASS**		**FAIL**	
10. SME/OJT Instructor printed name:					
SME/OJT Instructor signature:			**Date:**		

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Attachment 4 – Training Container Instructions

OPERATOR

1.0 Perform the following:

1.1 Verify the RTR unit and video/audio system is configured to run the training container.

1.2 Load the training container into the RTR unit.

1.3 Ensure the video/audio recording identifies the following information:

[A] The identifying training container (e.g., NDE-TRAINING-01)
[B] Exam date
[C] Operator's name

1.4 Perform scan of the training container, identifying training container, detailed description of contents including container sizes and volumes of liquid if prohibited.

1.5 Label the video/audio media with the following information:

[A] The identifying training container (e.g., NDE-TRAINING-01)
[B] Exam date
[C] Operator's name
[D] "A" for primary or "B" for backup

2.0 Forward the video and audio (primary and backup) recording media to Training, in accordance with CCP-QP-008.

TRAINING

3.0 Forward a copy of the video and audio record to the NDE CE.

NDE CE

4.0 Complete information required in Blocks 1-4 of Attachment 5.

5.0 Review the Training Container scan and document discrepancies (accuracy and consistency) in Block 5 on Attachment 5.

6.0 Record in Block 6 on Attachment 5 if the operator passed or failed based on identification of the DQOs.

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Attachment 4 – Training Container Instructions (Continued)

7.0 Print, Sign, and Date in Block 7, Attachment 5.

8.0 Forward Attachment 5 and the video and audio recording media to Training.

TRAINING

9.0 Ensure receipt of all required documentation.

9.1 Update Training files and the LOQI.

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Attachment 5 – Training Container Evaluation Data Sheet

1. Name:			
2. Training Container #:		□ Box	□ Drum
3. Date of Demonstration:			
4. Video and Audio Recording Media Label:			
5. I have counseled the operator on the following interpretation issues.			
6. PASS		**FAIL**	
7. NDE CE Printed Name:			
NDE CE Signature:		**Date:**	

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Attachment 6 – Annual Record of Eye Examination

Employee Name:		
Examination Date:		
Examined by:		
	Printed name	
	Signature	
Examination Type:	**Jaeger- near acuity**	
Jaeger Level Tested:	**J-2**	
Results: **(circle one)**	**Pass**	**Fail**
Contrast Proficient: **(circle one)**	**Yes**	**No**

Note:

A visual acuity examination shall be administered to the candidate prior to the initial qualification and annually thereafter.

A professional optometrist, medical doctor, nurse, or personnel designee by procedure shall administer this examination.

The candidates shall have natural or corrected near distance acuity in at least one eye, capable of reading J-2 letters on a standard Jaeger test chart at a distance of not less then 30.5 centimeters (12 inches).

The candidate shall receive a contrast vision examination to verify the capability of distinguishing and differentiating contrast normally used.

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CCP-QP-005

Revision 23

CCP
TRU Nonconforming Item Reporting and Control

EFFECTIVE DATE: 06/25/2013

Mike Ramirez

PRINTED NAME

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RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
17	08/27/2008	Revised to include language describing the process the Central Characterization Project (CCP) personnel use when performing open Nonconformance Report (NCR) checks and whether the NCR is "resolved" for a particular container in conjunction with software changes to the Progress Tracking System (PT-S) (NCR status) portion of the CCP Datacenter. Also included additional language with respect to reconciliation of HOLD Tags once the NCR's are cleared for containers and incorporated the directive in Standing Order CCP-SO-30, Clarification of Rework and Reject. This is in response to U.S. Department of Energy-Carlsbad Field Office (DOE/CBFO) Corrective Action Report (CAR) CAR-08-025.
18	08/13/2009	Revised to incorporate freeze file editorial changes, clarify the ability to delete/remove containers from the Batch Data Report (BDR)/Container ID list when revising a nonconformance report (NCR) per CAR-LANL-0001-09, and incorporate Central Rev. Characterization Project (CCP) Standing Order (SO) CCP-SO-024, 1.
19	10/14/2010	Revised to: clarify hold tag application; Carlsbad Field Office (CBFO) notification requirements including responsibility, incorporate CCP-SO-054, 1 and CCP-SO-065, 0; revisions to Attachment 1, CCP Nonconformance Report (NCR); and other minor editorial changes.
20	04/26/2011	Revised to incorporate relevant steps from CCP-QP-004, *CCP Corrective Action Management,* and other editorial changes.
21	03/05/2012	Revised to incorporate clarification of K-trend code designees signature authority and other editorial changes and freeze file items.
22	09/27/2012	Revised to add definitions; to move 2.5.1 to 4.2.1 [F]; to clarify 4.4.15 and Attachment 1, 4.2.10, and Carlsbad Field Office (CBFO) notification in 4.3.1; to add new 4.9.3 to address removal of Hold Tags when voiding a Nonconformance Report (NCR); to incorporate freeze file changes; to modify Attachment 1; to correct some typos and editorial mistakes.

RECORD OF REVISION (CONTINUED)

Revision Number	Date Approved	Description of Revision
23	06/25/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes; ensure chronological order; to change Notes that include action steps to action steps; to remove contradiction with CCP-PO-024, *CCP/INL Interface Document,* in 4.5.10 [A.2]; to add Attachment 2, Instructions for Completing Attachment 1, CCP Nonconformance Report, and Attachment 6, NCR Hold Tag Guidance, incorporating portions of Standing Order CCP-SO-036 and to implement the Permit Modification Request Class 2 approved by New Mexico Environment Department (NMED) dated March 13, 2013.

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1.0 PURPOSE

This procedure establishes the requirements and responsibilities for identifying, documenting, reporting, and dispositioning items and services that do not meet established requirements.

1.1 Scope

1.1.1 This procedure applies to Central Characterization Program (CCP) waste characterization, certification, packaging, and transportation. It establishes the process for identifying, documenting, controlling, evaluating, dispositioning, and verifying completion of dispositioning of nonconforming conditions associated with items, equipment, and Batch Data Reports (BDRs).

1.1.2 Nonconforming items will be controlled to prevent any adverse impact on test, installation, use, waste certification, or waste shipment. Organizations affected by the nonconformance will be notified.

1.1.3 Personnel evaluating and determining the disposition of nonconforming items will have demonstrated competence in the specific area they evaluate, adequate understanding of the requirements, and access to pertinent background information.

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2.0 REQUIREMENTS

2.1 References

Baseline Documents

- DOE/CBFO-94-1012, *U.S Department of Energy Carlsbad Field Office Quality Assurance Program Document* (QAPD)
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
- CCP-QP-010, *CCP Document Preparation, Approval, and Control*

Referenced Documents

- DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-QP-008, *CCP Records Management*
- CCP-QP-014, *CCP Quality Assurance Trend Analysis and Reporting*
- CCP-QP-029, *CCP Corrective Action Management*
- CCP-TP-001, *CCP Project Level Data Validation and Verification*
- CCP-TP-035, *CCP Container Management*
- CCP-TP-068, *CCP Standardized Container Management*
- CCP-TP-120, *CCP Container Management*
- 10 Code of Federal Regulations (CFR) Part 71, *Packaging and Transportation of Radioactive Material*

2.2 Definitions

As Low As Reasonably Achievable (ALARA)	A principle of all work at the site in the use or handling of radioactive materials in which personnel radiation exposure, including the work force and public, is kept at a level as low as possible by reasonable means.
CARM (Corrective Action Report Module)	Corrective Action Report Module, an electronic database that is part of the Integrated Data Center (IDC).
Condition Adverse to Quality (CAQ)	An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, nonconformances, and technical inadequacies.
Data Quality Objective (DQO) Process	A strategic planning approach based on the scientific method used to prepare for data collection. The DQO process provides a systematic procedure for defining the criteria that a data collection design should satisfy, including when and where to collect samples, the tolerable level of decision errors for the study, and how many samples to collect.
Item	An all-inclusive term used in place of any of the following: appurtenance, assembly, component, equipment, material, module, part, structure, subassembly, subsystem, system, unit, support system, or data.
NCRM (Nonconformance Report Module)	Nonconformance Report Module, an electronic database that is part of the IDC.
Nonconformance	A deficiency in a characteristic or record that renders the quality of an item or sample unacceptable or indeterminate.
Orphaned Hold Tag	A Hold Tag no longer attached to its associated nonconforming item.

Price-Anderson Amendments Act (PAAA)	Law passed by Congress intended to minimize the risk to workers and the public by ensuring that U.S. Department of Energy (DOE) nuclear work is conducted so that human health and safety and the environment are protected adequately.
Repair	The process of restoring an item to a condition such that the capability of the item to function reliably and safely is unimpaired even though that item still does not conform to the original requirement. In container management, “repair” refers to nonconforming data for which the container(s) must be rerun through characterization and the associated BDR that will be superseded by a new one.
Reject	A disposition for nonconforming items for which no resolution that meets the given requirements is possible, and the item cannot be accepted, requiring discarding, replacement, or recharacterization.
Rework	The process by which an item is restored to original specifications by completion or correction. In container management, “rework” refers to nonconforming data that may be corrected without rerunning the container(s) through characterization and the BDR will be completed or corrected.
Scrap	A disposition for nonconforming items which requires discarding or return to supplier.
Supplier	Any individual or organization who furnishes items or services in accordance with a contract. An all-inclusive term used in place of any of the following: vendor, seller, source, participant, contractor, or subcontractor.

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Technical Change	Changes to container or BDR identifications, Interim or Final Dispositions, Actual Conditions, or Requirements.
Traceability	The ability to trace the history, application, and location of an item, data, or sample using documentation. As related to metrology, traceability means the ability to relate individual measurement results through an unbroken chain of calibrations to one or more of the following: • U.S. national standards maintained by National Institute of Standards and Technology (NIST) or the U.S. Naval Observatory • Fundamental or natural physical constants with values assigned or accepted by NIST • National standards of other countries which are correlated with NIST
Use-As-Is	A disposition permitted for a nonconforming item when it can be established that the item is satisfactory for its intended use.
Work	The process of completing a defined task. Examples include research and development, operations, maintenance and repair, administration, software development and use, inspection, safeguards and security, and data collection and analysis.

2.3 Nonconformance Report Module (NCRM)

2.3.1 The NCRM provides the capability for an accurate and timely assessment of the status of all NCRs.

2.3.2 The NCRM provides the capability to trend NCRs for conditions adverse to quality.

2.3.3 The NCRM provides, as a minimum, the following:

- NCR Number and Revision
- Initiation Date
- NCR Originator

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- Responsible Manager
- BDR/Container (as applicable)
- Actual Condition
- Final Disposition
- Trend Code
- Closure Date
- NCR Log

2.3.4 The NCRM is maintained in the CCP Project Office. The NCRM may also be updated by authorized personnel at specified Host sites.

3.0 RESPONSIBILITIES

3.1 NCR Originator

3.1.1 CCP personnel who discover conditions adverse to quality are responsible for originating an NCR or ensuring an NCR is initiated.

3.1.2 Applies or ensures application of a CCP HOLD TAG or provides other segregation or control methods.

3.2 QA

3.2.1 Validates the NCR.

3.2.2 Evaluates NCRs in accordance with this procedure.

3.2.3 Approves interim and final dispositions.

3.2.4 Ensures that NCRs are entered into the NCRM.

3.2.5 Verifies interim and final disposition completion and closes NCRs.

3.2.6 Applies, removes, or ensures application or removal of CCP HOLD TAGS (as applicable).

3.2.7 Immediately notifies the SPM or Vendor Project Manager (VPM) when HOLD TAGS DO **NOT** reconcile or when orphaned HOLD TAGS are found in process areas.

3.2.8 Provides CCP Training with a notification of individuals who are designated to validate and approve dispositions for NCRs that are Trend Code K. These individuals will have been briefed and designated for this function by QA.

3.2.9 Assists the NCR Originator as needed to determine status of all affected containers associated with NCRs initiated at the Project level.

3.3 QA Designee

3.3.1 Validates Trend Code K NCRs.

3.3.2 Approves interim and final dispositions for Trend Code K NCRs.

3.3.3 Ensures that NCRs are forwarded to the Host site QA NCR Coordinator or the CCP Project Office NCR Coordinator for entry into the NCRM.

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3.3.4 Applies, removes, or ensures application or removal of CCP HOLD TAGS (if applicable) for Trend Code K NCRs and delivers removed HOLD TAGS to QA for confirmation of removal.

3.4 Responsible Manager

3.4.1 Provides interim and final dispositions to correct identified deficiencies.

3.4.2 Identifies resolutions to deficiencies and (when applicable) identifies actions to preclude recurrence.

3.4.3 Monitors progress of nonconformance resolution, including completion of dispositions in a timely manner.

3.4.4 Provides for the control of further processing, delivery, installation, or operation of nonconforming items or equipment.

3.5 CCP Site Project Manager (SPM) or Project Manager (PM)

3.5.1 Ensures NCR process is followed in accordance with this procedure and is accountable for the implementation of the nonconformance program.

3.5.2 Coordinates CBFO notification between the Certification Manager and the NCR Coordinator.

3.5.3 Prepares interim and final dispositions.

3.5.4 Verifies interim and final disposition completion.

3.5.5 Ensures forwarding of validated and in-process NCRs to the CCP Project Office for NCRM updates, as necessary.

3.5.6 Ensures distribution of completed NCRs as required by applicable interface documents.

3.5.7 Notifies Carlsbad Field Office (CBFO) of nonconformances as required by this procedure.

3.5.8 Monitors to ensure timely completion of NCRs in their area of responsibility, developing a plan to identify and track all nonconformances and reporting this information (approval of this procedure fulfills development of the plan).

3.5.9 Carries out responsibilities of the Responsible Manager, when an NCR so specifies.

3.6 Vendor Project Manager (VPM)

3.6.1 Ensures site personnel evaluating and dispositioning NCRs have demonstrated competence in the specific area they evaluate, have an adequate understanding of the requirements, and have access to pertinent background information.

3.6.2 Monitors to ensure timely completion of NCRs in their area of responsibility.

3.6.3 Carries out responsibilities of the Responsible Manager, when an NCR so specifies.

3.6.4 Concurs with interim and final dispositions (as requested).

3.6.5 Ensures the application of CCP HOLD TAGS and, in coordination with QA, ensures their removal, as required, and will assure removed CCP HOLD TAGS are delivered to Quality Assurance (QA) for verification of removal.

3.6.6 Notifies the Host site representative of drums that are inaccessible with a request to make them available as soon as possible so that the drums may be monitored and tagged as soon as they are available.

3.7 NCR Coordinator (Site QA serves as the NCR Coordinator for the assigned site)

3.7.1 Maintains the NCR Log.

3.7.2 Distributes NCRs in accordance with this procedure.

3.7.3 Submits closed NCRs to CCP Records.

3.7.4 Updates the NCRM.

3.8 CCP Training

3.8.1 Annotates each site-specific List of Qualified Individuals (LOQI) with a qualified statement for individuals who have been designated by QA.

3.8.2 Maintains designation notifications in each individual’s training file.

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3.9 Certification Manager

3.9.1 Ensures a consistent review for all NCRs that have the potential to require CBFO notification according to the seven (7) calendar days notification requirement.

3.10 Waste Certification Official (WCO)

3.10.1 Assists the NCR Originator as needed to determine status of all affected containers associated with NCRs initiated at the Project level.

3.11 Packaging Manager

3.11.1 Reviews NCRs whose description is Transportation for 10 CFR, Part 71, *Packaging and Transportation of Radioactive Material,* applicability.

NOTE
Action steps need not be completed in the order given, unless otherwise directed.

4.0 PROCEDURE

4.1 NCR Initiation

QA

4.1.1 Maintain an NCR log (either manual or electronic at the Host site or CCP Project Office), identifying the following as a minimum:

- NCR number
- Initiation date
- NCR Originator

[A] Account for all NCRs issued during a calendar year, including voided NCRs. Number and log NCRs uniquely.

[B] The NCR number is composed of:

NCR-xxxxxx-yyyy-zz, where:

- "NCR" represents "Nonconformance Report"
- "xxxxxx" represents Site Designator (when applicable to remote-handled (RH) waste, include "RH" as a prefix to the site designator [e.g., Savannah River Site remote-handled waste = "RHSRS"])
- "yyyy" represents numerical digits beginning at 0001
- and "zz" represents the final two digits of the calendar year in which the NCR is initiated

Revision control applies.

[C] Examples of NCR Numbers:

- NCR-INL-0001-12, Rev. 0
- NCR-SRS-0361-12, Rev. 1
- NCR-LANL-2841-12, Rev. 2
- NCR-CCP-0015-12, Rev. 0
- NCR-RHLANL-0001-12, Rev. 0

NCR Originator

4.1.2 CCP personnel who discover nonconforming items or processes are responsibile for initiating NCRs or to notify their managers for assistance in ensuring that an NCR is initiated. Personnel are encouraged to suggest improvements. Nonconformances are documented, evaluated, and dispositioned with a no-fault attitude fostered by management at all levels. On identifying a nonconforming item, obtain the current issued revision of Attachment 1, CCP Nonconformance Report (NCR), from the sftp site.

[A] Document nonconforming items by NCR, including those found by CCP personnel at a supplier's facility or during receipt inspection.

4.1.3 Obtain an NCR number from the NCR Coordinator or QA Designee, **AND** enter the number and revision on all pages of Attachment 1.

[A] Complete Blocks 1 through 7, as applicable, of the NCR (see Attachment 2, Instructions for Completing Attachment 1, Nonconformance Report [NCR]; see also 4.1.6 in regard to Block 7d).

[A.1] Enter "N/A" (Not Applicable) for those blocks **NOT** applicable to the NCR. Use Attachment 3, CCP Nonconformance Report [NCR] Continuation Sheet, whenever available space is inadequate.

[B] **IF** the NCR is documented against a container and a BDR, **THEN** ensure that Block 3 correctly identifies the container number and BDR number, matching exactly the identifications (IDs) identified in the BDR (see also 4.2.1[C.1]).

NCR Originator/Waste Certification Official (WCO)/QA

[C] Determine the status of all affected container(s) associated with NCRs initiated at the Project level as follows:

[C.1] **IF** the containers are not in a shipping lot, **THEN** go to 4.1.5.

[C.2] **IF** the containers are in a shipping lot,
THEN it must be determined whether the container is in Waste Data System (WDS).

(a) **IF** the containers are in WDS **AND** the NCR is not data-affecting,
THEN go to 4.1.5.

(b) **IF** the containers are in WDS **AND** the NCR is data-affecting,
THEN the container(s) must be moved into assigned pre-sub certification **OR** removed from WDS before the NCR can be validated by QA.

CCP Training

4.1.4 Maintain a list of personnel designated to validate NCRs and approve Interim and Final Dispositions for Trend Code K NCRs.

[A] Designated CCP personnel may validate and approve Interim and Final Dispositions for these NCRs. Those steps in Section 4.0 that designated CCP personnel may carry out as described above identify the responsible individual as "QA Designee."

[B] However, QA must validate and approve NCRs which are not Trend Code K.

[C] QA SHALL verify disposition completion and closing of **ALL NCRs**.

NCR Originator or QA Designee

4.1.5 Select method(s) to be used to control nonconforming items, but they SHALL **NOT** be solely reliant on a single administrative control to differentiate waste containers that are acceptable for shipment to the Waste Isolation Pilot Plant (WIPP).

[A] DO **NOT** use NCRs as administrative holds (e.g., to stop a shipment when there is **NO** nonconformance). Refer to the container management procedures at the specific sites for more details on the proper use of administrative holds.

4.1.6 Determine whether CCP HOLD TAGS will be applied **OR** whether other methods will be used to control the affected items that do not affect end use, **AND** document in Block 7d of the NCR as applicable. Verify CCP HOLD TAGS by physically placing or confirming tag placement on the container by VPM's or QA Designee's confirmation in writing. If NCRs are initiated at the Project Office, they may be issued with block 7d incomplete. Once notification is received by QA that NCR Hold Tags have been applied, update the NCR by completing block 7d. Completion of this block does not require NCR revision.

[A] Apply CCP HOLD TAGS (see Attachment 6, NCR Hold Tag Guidance) UNLESS one or more of the following conditions exist:

- **IF** containers are physically inaccessible,
  THEN inform the VPM to notify the Host site representative of drums that are inaccessible with a request to make them available as soon as possible so that the drums are monitored and tagged as soon as they are available
- Container is an RH container
- Other physical identification methods
  (i.e., Permanent Reject Labels Not Certifiable to WIPP)
- If Final Disposition is already specified, is "Use-As-Is" with no action pending, and is QA approved

[B] Enter the following minimum information on the CCP HOLD TAG:

- NCR number
- Container or Item number
- BDR number (if applicable)
- Brief description of nonconforming condition
- Name, date, and signature of individual who applies the CCP HOLD TAG
- Any limitations on further processing

[C] When they are applied, the CCP HOLD TAGS SHALL remain on the containers until the nonconforming condition has been resolved and the disposition has been implemented and verified under the QA Program.

[D] Verify the acceptable resolution of the disposition for individual containers and release them for shipment to WIPP by using the “Resolve” or “Return” disposition in the NCRM.

[E] Other methods used to control the affected items may include segregation or the use of dual, independent check systems (for noncompliant RH waste packages based on the ALARA principle), which use two separate and distinct processes and data sets for verifying waste packages are acceptable for shipment.

[F] **IF** marking or tagging of a nonconforming item is impractical, **OR** segregation is impractical or impossible because of physical conditions,
THEN employ other precautions to preclude inadvertent use or shipment.

[G] Control nonconforming items to prevent adverse impact on test, installation, use, waste certification, or waste shipment.

[H] Notify organizations affected by the nonconformance.

4.1.7 Complete Blocks 7a, 7b, and 7c of Attachment 1

[A] Check the Transportation box in block 7a only when issues with TRUPACT-II Authorized Methods for Payload Control, TRAMPAC limits, and packaging materials or conditions for shipped containers are identified.

[B] Ensure the 7b Requirement(s) correctly includes the procedure, revision, section, and quoted text, and the 7c Actual Condition is accurate.

[C] Print name, sign, and date Block 8.

4.1.8 Forward the NCR to the QA Engineer or QA Designee (Trend Code K NCRs only).

4.1.9 **IF** the NCR is initiated at the Host site, **AND** there is **NO** SPM, QA Engineer or QA Designee available,
THEN:

[A] Copy the NCR and forward it to the responsible individual at the Host site for NCR Log update, if needed.

[B] Forward the NCR to the NCR Coordinator in the CCP Project Office. The NCR Coordinator will initiate a review by a QA Engineer.

4.2 NCR Review

QA Engineer or QA Designee

4.2.1 Review the NCR for the following, at a minimum:

[A] Verify that the identified condition and requirement meet the criteria for an NCR (i.e., hardware items or BDRs, or both) and do **NOT** represent **a** programmatic or process failure, malfunction, or deficiency as specified in CCP-QP-029.

[B] **IF** the nonconformance is determined to meet the criteria for a CAR,
THEN void the NCR in accordance with Section 4.11, **AND** instruct the NCR Originator to initiate a CAR in accordance with CCP-QP-029.

[B.1] When control of nonconforming items **AND** programmatic issues related to the nonconformance both apply, initiate both an NCR **AND** a CAR.

[C] **IF** the NCR is documented against a container and a BDR,
THEN verify that Block 3 correctly identifies the container number and BDR number, matching exactly the IDs identified in the BDR.

[C.1] **IF** the IDs do not match,
THEN ensure there is a valid reason for the difference, such as WDS number prefixes, historical ID number differences, etc., OR ensure the numbers in question are captured on the AK Tracking spreadsheet and show a clear correlation between the two.

[D] Verify that the current revision of Attachment 1 has been used, the NCR number and revision are on all pages of the NCR, **AND** the form is filled out correctly.

[E] Verify that the identified requirement (procedure no., revision no., section, and quoted text) is correct and applies to the actual condition requiring disposition.

[F] Verify the disposition, if already documented in Block 19, was not completed prior to the date of NCR validation.

4.2.2 Resolve any inconsistencies, clarifications, or other concerns identified, with the NCR Originator, who returns to 4.1.2[A] **AND** repeat the process in accordance with Section 4.1.1.

4.2.3 **IF** the NCR is determined to be invalid,
THEN void the NCR in accordance with Section 4.11.

4.2.4 Determine whether the identified condition has the potential to impact AK (i.e., related to waste stream variance, waste matrix code, etc.), and, if so, enter Trend Code L in Block 10. Examples of possible changes to the AK of a waste stream include:

- Incorrect assignment of a waste container to a waste stream (e.g., sludge matrix in a debris container)
- Identification of unanticipated waste material parameters (WMPs) in a container (e.g., metal in a combustibles-only debris container)

4.2.5 Verify that the Hold Tags have been applied as needed, **AND** complete Block 7d, if not addressed by NCR Originator or QA Designee (see 4.1.6).

4.2.6 Determine whether a Significant Condition Adverse to Quality exists by comparing with the following criteria:

[A] Does the noncompliance adversely impact the capability to characterize, certify, or ship waste?

[B] Is the noncompliance a violation of the Hazardous Waste Facility Permit (HWFP)?

[C] Could the noncompliance have a serious effect on health and safety of employees, the public, or the environment?

4.2.7 **IF** the determination is YES to any criterion in 4.2.6 (see also 4.2.10),
THEN discuss with the Assurance Programs Manager, **AND** if directed, initiate a CAR in accordance with CCP-QP-029, control as a “Significant” Condition, cite the NCR number and revision in the

CAR, **AND** document the determination in an email to the NCR Coordinator, who will include it as part of the NCR QA record file.

4.2.8 Search the Corrective Action Report Module (CARM) and NCRM to determine whether there are previous violations of the same requirement and the Actual Condition is the same or similar (recurring conditions adverse to quality).

4.2.9 **IF** three (3) or more NCRs are identified within the last 12 months, or two (2) in the past six (6) months,
THEN discuss with the Assurance Programs Manager, who will determine whether the recurring nature of the conditions represents a Significant Condition Adverse to Quality.

[A] Email the determination to the NCR Coordinator who will include it as part of the QA record file.

[B] If the determination of a Significant Condition Adverse to Quality is affirmed, check “yes” in NCR Block 12, and GO TO 4.2.7.

4.2.10 Identify the Trend Code using NCR Trend Codes in Attachment 5, **AND** enter the Trend Code in Block 10, if not previously identified in 4.2.4.

[A] Most NCRs are initiated to document conditions that DO **NOT** reflect on the adequacy of the QA program (e.g., NCRs for containers that have a prohibited item, or those involving acceptable knowledge). Assign these NCRs Trend Code K or L in accordance with CCP-QP-014 (see also Attachment 5).

4.2.11 Forward NCRs that identify possible changes to the AK of a waste stream (Trend Code L) to the SPM as the Responsible Manager.

[A] **IF** re-evaluation is warranted as a result of:

- Inconsistencies noted during the process of comparing AK information to characterization results, **OR**
- The initiation of an NCR identifies potential changes to the AK of a waste stream,

THEN the SPM notifies the AK Expert.

NOTE

The Responsible Manager determination is based on agreements between the SPM and/or QA Engineer, or both, and applicable Responsible Managers.

4.2.12 Determine the manager responsible for resolution.

4.2.13 Enter the Responsible Manager's name in Block 11.

4.3 NCR Validation

4.3.1 Before validation (Block 14), line through incorrect technical information and enter correct information, initial, and date.

4.3.2 Correct editorial mistakes (grammar or spelling, renumbering sections, attachments or pagination; transcription errors and date) that DO **NOT** affect technical content by lining through, entering correct data, initialing, and dating at any time during the life cycle of the NCR.

4.4 NCR Process

NCR Coordinator

4.4.1 At receipt of the NCR:

[A] Verify the information in the NCR log matches that on the NCR.

[B] Enter the NCR information in the NCRM.

[C] **IF** the NCR Description in Block 7a is Transportation, **THEN** forward a copy of the NCR to the Packaging Manager or designee for consideration of 10 CFR, Part 71, applicability and request the results of the review.

Packaging Manager

[C.1] Review NCRs whose description is Transportation (in block 7a) for 10 CFR, Part 71, applicability and email the NCR Coordinator the results of the review.

NCR Coordinator

[D] File a copy of the email from the Packaging Manager with the NCR.

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[D.1] **IF** the NCR was generated at or after the SPM signature level,
THEN forward a copy of the project-level NCR to the Certification Manager for review.

Certification Manager

[D.2] Review the project-level NCR to determine whether any nonconformance first identified at or after the SPM signature release level (e.g., CCP-TP-001) does not meet applicable requirements of CCP-PO-001, or DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan* (i.e., a failure to meet a Data Quality Objective [DQO]), and if so,
THEN inform in writing or by email the NCR Coordinator and SPM, the latter of whom notifies the CBFO as required.

SPM

[D.3] Notify the CBFO in accordance with Attachment 4, Additional CBFO Notification Details, and as follows:

- **IF** the Certification Manager determined that the project-level NCR is reportable,
  THEN notify CBFO within seven (7) calendar days of identification of the deficiency.

- Copy the NCR Coordinator on the CBFO notification.

[D.4] **IF** the NCR was unready for submittal when the notification was made,
THEN submit the NCR to DOE CBFO within thirty (30) calendar days of identification of the deficiency.

Certification Manager

[D.5] **IF** the project-level NCR is determined not to be reportable,
THEN email the NCR Coordinator that the NCR is not reportable.

NCC Coordinator

[D.6] The NCRM is updated automatically. File a copy of the CBFO notification and related e-mails with the NCR.

[E] Forward the NCR to the Responsible Manager.

4.5 Disposition Determination

Responsible Manager

4.5.1 Determine the need for interim disposition, **AND**, if applicable, identify any additional approval requirements.

[A] Use Interim Dispositions only when necessary to determine the Final Disposition.

4.5.2 **IF** Interim Disposition is required,
THEN complete Block 15a and 15b of the NCR, **AND** print name, sign, and date Block 16a.

4.5.3 **IF** interim disposition is **NOT** required,
THEN check “N/A” in Block 15a.

4.5.4 Evaluate the nonconforming condition, **AND** provide a final disposition to correct the identified deficiency(ies).

4.5.5 For Final Dispositions, address all items and deficiencies identified in Block 7c of the NCR. Final Dispositions are limited to Use-As-Is, Reject, Repair, Rework, and Scrap. DO NOT close validated NCRs until completion and verification of the Final Disposition. Limit further processing, delivery, installation, or use of a nonconforming item, pending evaluation and approval of the disposition.

4.5.6 Check the Final Disposition Type in the appropriate box in Block 19. Limit Interim or Final Dispositions to only one type in each NCR.

4.5.7 For Use-as-is dispositions, provide Technical Justification in Block 19a.

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4.5.8 For Repair dispositions, provide Technical Justification in Block 19a and instructions for completion in Block 19b.

[A] Items that do not meet original design requirements that are dispositioned Use-As-Is or Repair are subject to design control measures commensurate with those applied to the original design.

4.5.9 For Reject or Scrap dispositions, provide instructions for completion in Block 19b.

[A] **IF** containers that have been characterized are identified on an NCR, and the disposition specifies that the containers are to be returned to the Host site for correction of the nonconforming condition,
THEN the Final Disposition SHALL BE Reject, and include Instructions for Completion "Return to Host site for remediation or repackaging, or both," or similar.

[A.1] DO NOT **CLOSE** the NCR in such a case. The container is returned to the Host site with the CCP HOLD TAG attached to the container (e.g., a container has a prohibited item and requires remediation to bring it into compliance with CCP-PO-001 acceptance criteria). For such containers, DO NOT **REMOVE** CCP HOLD TAGS until nonconforming conditions have been corrected **AND** verified by CCP under the QA Program.

[A.2] There may be circumstances when a nonconforming container is returned to the Host site for remediation or repackaging under the Host site's management system. When the container is removed from the AK tracking spreadsheet for return to the Host site, CCP will follow the Host site Interface Agreement in regard to application and removal of CCP Hold tags. Close the associated NCR(s) and update the NCRM according to this procedure.

4.5.10 Any orphaned tags found SHALL BE presented to QA for action to be taken in accordance with 4.8.5 [A].

4.5.11 **IF** the nonconforming condition is data which requires that the container be rerun through that characterization (e.g., NDA, Real-Time Radiography [RTR] or Visual Examination [VE], Flammable Gas Analysis [FGA], Gas Generation Testing [GGT]), **THEN** the NCR will disposition the container Reject.

4.5.12 **IF** the nonconforming condition is data for the container that will be corrected without rerunning the container through characterization, **THEN** the NCR will disposition the container Rework.

4.5.13 For Rework dispositions, provide instructions for completion in Block 19b.

[A] In the disposition of an item to be reworked or repaired, include requirements to reexamine, reinspect, retest, or conduct nondestructive examination (NDE) to verify acceptability. Reexamine repaired or reworked items using the original process and acceptance criteria, unless alternative acceptance criteria or methods have been established and approved as part of the nonconforming item disposition.

4.5.14 **IF** changes to the specifying document are required to agree with the as-built condition,
THEN ensure the disposition requires action to change the specifying document to agree with the as-built condition.

4.5.15 **IF** a document or QA record change is required by the disposition, **THEN** specify the change in the disposition **AND** ensure that the document or record cites the NCR number.

4.5.16 Evaluate the need for Actions to Prevent Recurrence (Repair or Rework), **AND** document corrective action(s) or “N/A” in Block 19c.

4.5.17 For Reject Dispositions, include instructions for the disposal of the item(s), such as “scrap,” or “return to vendor,” according to applicable procedures.

4.5.18 Identify any additional approval requirement, if applicable, **AND** document in appropriate block(s).

4.5.19 Print name, sign, and date Block 20, **AND** forward the NCR to the QA Engineer or QA Designee.

QA Engineer or QA Designee

4.5.20 Review the NCR and determine the following:

[A] The disposition (Interim or Final) adequately addresses measures to be taken to correct the identified deficiency.

[B] The disposition (Interim or Final) has been completed in accordance with this Section.

[C] Actions to prevent recurrence (as applicable) address adequate measures to control recurrence.

[D] Assure any attachments have been completed as required by Section 4.11.

4.5.21 **IF** disposition is deemed appropriate,
THEN approve by completing Block 16b (Interim) or Block 21 (Final), **AND** GO TO step 4.5.23.

4.5.22 **IF** disposition is deemed to be deficient,
THEN recommend changes, resolve with the Responsible Manager, **AND** reprocess according to Section 4.5.

4.5.23 **IF** the NCR is initiated by the Data Generation Level (DGL) against a container or BDR,
THEN copy the validated and dispositioned NCR, **AND** submit it to the appropriate DGL process to be included in the BDR, **OR,** if an NCR revision, to be submitted with the corrected data as an update to the BDR.

4.5.24 **IF** the NCR is initiated by the CCP Project Office against a container or BDR during CCP-TP-001 review,
THEN copy the validated and dispositioned NCR, **OR,** if an NCR revision, forward a copy to the SPM to be included in the BDR.

4.5.25 **IF** the NCR is initiated by the CCP Project Office against a container or BDR, **AND** the disposition is required to be completed at DGL that corrects data in an existing BDR,
THEN, at DGL, include a copy of the validated and dispositioned NCR, **OR,** if an NCR revision, with the corrected data as an update to the BDR.

4.5.26 Forward the NCR to the NCR Coordinator.

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4.6 NCRM Update

NCR Coordinator

4.6.1 At receipt of the NCR:

[A] Enter the NCR in NCRM.

[B] Retain the NCR and any attachments in a working file until NCR closure.

4.7 Disposition Completion

Responsible Manager/VPM/SPM

4.7.1 Monitor disposition completion to assure timely completion.

Responsible Manager

4.7.2 At completion of the required dispositions (Interim or Final), request the original (if necessary) from the NCR Coordinator.

4.7.3 Provide objective evidence of completion of disposition (Interim, Final, and Actions to Prevent Recurrence as applicable) by one or more of the following:

[A] Prepare attachments as required by Section 4.11.

[B] Cite traceable documentation that substantiates completion of dispositions and actions to prevent recurrence.

[C] Sign and date statement(s) of fact or include as attachment.

[D] If desired, discuss with SPM, reviewing the documentation that substantiates completion of dispositions prior to formal submittal to ensure adequacy.

4.7.4 Document in an attachment prepared as required by Section 4.10 that substantiates completion of dispositions (as applicable).

4.7.5 Print name, sign, and date Block 17 (Interim) or Block 22 (Final), or both, **AND** submit original NCR with attachments (as applicable) to the QA Engineer.

4.8 Completion Verification and Closeout

QA Engineer

4.8.1 If desired, allow nonconforming items to continue through the normal process under certain controlled circumstances while their NCR is open, but always implement and verify the approved disposition(s) prior to NCR's closing.

4.8.2 Review the NCR and verify the following:

- Attachments provide traceability to objective evidence substantiating completion of disposition.
- Documentation provides adequate objective evidence of completion of disposition.
- Attachments (if applicable) have been completed as required by Section 4.11.
- Review the NCR and all attachments (if applicable) to assure conformance to applicable requirements.

4.8.3 Document the Attachment number(s) in Block 23 as needed. If no attachments, enter "N/A."

4.8.4 **IF** Interim disposition **AND** other requirements in accordance with 4.8.2 are satisfactorily completed,
THEN print name, sign, and date in Block 18, **OR** continue to 4.8.5 for Final Disposition.

4.8.5 **IF** Final Disposition,
THEN ensure removal of all CCP HOLD TAGS as required, either by removing them personally or in coordination with the VPM or QA Designee. Verification will be so noted by checking the box in Block 24 of Attachment 1 prior to closing the NCR.

[A] **IF** verification identifies missing tags,
THEN immediately notify the SPM or VPM.

4.8.6 Print name, sign, and date Block 25.

4.8.7 **IF** disposition (Interim **OR** Final) **AND** other requirements in accordance with 4.8.2 are **NOT** satisfactorily completed,
THEN return to Responsible Manager (with detailed reasons for return) for correction and resubmittal.

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4.8.8 Determine any distribution requirements as identified in applicable interface documents.

4.8.9 Forward the closed NCR and applicable attachments to the NCR Coordinator.

4.9 Closeout

NCR Coordinator

4.9.1 At receipt of the closed NCR:

[A] Update the NCR in the NCRM.

[B] Distribute as required.

[C] Submit the completed NCR with attachments, if applicable, to CCP Records in accordance with CCP-QP-008, *CCP Records Management*.

4.10 Voiding the NCR

NCR Originator or QA Engineer

4.10.1 **IF** an NCR is determined to be invalid during the review in accordance with Section 4.2 (prior to NCR validation), **THEN**:

[A] On the open NCR, document the detailed justification for voiding. Write anywhere on the NCR as long as it does not obliterate existing information, OR use Attachment 3, or create an attachment according to CCP-QP-008.

Ensure that the NCR Originator and the QA Engineer print name, sign, and date.

[B] Forward the NCR to the NCR Coordinator.

[C] GO TO step 4.10.3.

Responsible Manager, SPM, QA Engineer, or NCR Originator

4.10.2 **IF**, after NCR validation when the NCR is still open, the NCR Originator, the SPM, the Responsible Manager, and the QA Engineer agree that it is appropriate to void a validated NCR, **THEN**:

[A] On the NCR, document the technical justification for voiding, **AND** ensure that the NCR Originator, the SPM, the Responsible Manager, and the QA Engineer print name, sign, and date.

[B] Stamp or write “void” on the first page of the NCR, initial, and date.

[C] Forward the NCR to the NCR Coordinator AND copy the SPM.

NCR Coordinator

4.10.3 Verify Section 24 of Attachment 1 (NCR) has been completed.

4.10.4 Update the NCR Log that the NCR is voided, if needed.

4.10.5 Input the NCR into NCRM.

4.10.6 Submit voided NCR to CCP Records in accordance with CCP-QP-008.

4.10.7 Ensure a copy of the NCR is submitted to the appropriate DGL personnel as required by CCP-TP-001.

4.11 Attachments

NCR Originator/SPM/QA Engineer/Responsible Manager

4.11.1 When using attachments to an NCR:

[A] Identify the NCR number and revision number on each page of the attachment.

[B] Identify the attachment number.

[C] Paginate each page of the attachment.

EXAMPLE:
NCR-LANL-0700-12, Rev 0, Attachment 1,
Page 1 of 1

NCR-SRS-0800-12, Rev 1, Attachment 3, Page 1 of 6,
2 of 6, etc.

4.12 Revisions

NCR Originator/SPM/Responsible Manager

4.12.1 After validation of the NCR, change technical content by revising the NCR as follows:

[A] Obtain a blank copy of the current revision of the NCR from the sftp site.

[B] Apply next sequential revision number to all pages of the NCR and all attachments.

[C] Document the reason for revision in Block 7c.

NCR Originator, SPM, Responsible Manager, or NCR Coordinator

[D] Supersede the previous revision by drawing a diagonal line across the first page of the NCR, **AND** adding a statement, "Superseded by Revision # (next sequential revision #)," **AND** initial and date.

[E] Attach the superseded revision to the new revision.

[F] Submit new revision for review and approval in accordance with Section 4.2.

4.13 NCR Log Reconciliation - CCP Project Office and Host Site

NCR Coordinators/QA Engineer

4.13.1 At the end of the calendar year, reconcile NCR numbers issued with NCR logs maintained at Host sites (where applicable), the NCR Log, and the NCRM, as follows:

QA Engineer:

[A] Verify that all NCR numbers issued and that appear in the Host Site Log, are accounted for in the NCRM.

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[B] Resolve all discrepancies identified with the NCR Coordinator.

[C] Prepare and submit a report to the CCP Project Office NCR Coordinator that documents the reconciliation effort.

CCP Project Office NCR Coordinator

4.13.2 Reconcile NCR numbers issued to the QA Engineer at Host sites with the NCR Log, based on the report submitted by the QA Engineer.

4.13.3 Note any NCR numbers **NOT** used during the year as "Number Not Used" in the Report.

4.13.4 Submit the NCR Reconciliation Report to CCP Records in accordance with CCP-QP-008.

4.14 Work Suspension and CBFO Stop Work Orders

Personnel Working

4.14.1 During Normal Work

[A] All CCP employees shall be responsible and authorized to suspend work if concerned with employee safety, the safety of the environment, or the quality of the work.

[B] **IF** work CAN **NOT** be carried out as specified in a procedure **OR** continuing work would result in an undesirable situation, a condition adverse to quality or the environment, or an unacceptable safety risk,
THEN suspend work in a safe configuration **AND**, inform the Lead Operator (LO) or VPM.

Lead Operator or Vendor Project Manager

[C] Resolve the concerns of the employee or inform the SPM of the work suspension and the reason it is suspended.

CCP Management

[D] Resolve the concerns prior to resuming operation **OR** initiate actions to correct the condition using existing procedures. In either event, keep the employee who raised the concern informed of actions taken in response.

[E] Initiate the appropriate documentation in accordance with CCP-QP-029, *CCP Corrective Action Management,* and CCP-QP-005, as applicable to the situation.

SPM

[F] **WHEN** all corrective actions have been completed and verified,
THEN direct restart of suspended work.

4.14.2 CBFO Stop Work Orders

CCP Personnel

[A] Immediately comply with the terms of any Stop Work Order issued by the CBFO, which is authorized to issue Stop Work Orders for the protection of the environment and health and safety of CCP employees and the public.

CCP Management

[B] Accept direction set forth in CBFO Stop Work Orders and carry out such directives in a safe and responsible manner in accordance with established procedures.

[C] Submit Stop Work Orders and related documentation to CCP Records according to CCP-QP-008.

5.0 RECORDS

5.1 Records generated during implementation of this procedure are maintained and controlled as QA records in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Nonpermanent Records

- Attachment 1, CCP Nonconformance Report (NCR) (including related emails and supporting documentation [if applicable])
  - Attachment 3, CCP Nonconformance Report (NCR) Continuation Sheet (if applicable)
  - CBFO Notifications (if applicable)
- NCR Reconciliation Report
- CCP NCRM Database
- Written Directive to suspend work (e.g., memo, email [if applicable])

Attachment 1 – CCP Nonconformance Report (NCR)

CCP NONCONFORMANCE REPORT (NCR)

(Use NCR Continuation, Attachment 3, if necessary)

NCR No. NCR-		Revision
1. Lot No., Heat No., or Serial No. (if applicable):	2. Process (e.g., NDA, NDE, VE, Other):	3. Batch Data Report #(s):
4. Order/Work Order/Job Control Number (if applicable):	5. PO # (if applicable):	Container #(s):
	6. Supplier (if applicable):	

DESCRIPTION OF NONCONFORMANCE

7a. NCR Description: ☐ < 100 nCi/g ☐ Prohibited Item ☐ E-Flag ☐ Receipt Inspection ☐ Transportation ☐ WWIS/WDS ☐ Other

7b. Requirement(s) (Enter Implementing Procedure No., Revision, Section No., & Quoted Text):

7c. Actual Condition:

7d. Have the CCP HOLD TAGS associated with this NCR been applied? ☐ YES ☐ NO If no is checked, explain:

8. NCR Originator:

printed name _____ signature _____ date _____

9. Does the identified condition have the potential to impact AK? If YES or INDETERMINATE, enter Trend Code L in Block 10. ☐ YES ☐ NO ☐ INDETERMINATE

10. Trend Code:	11. Responsible Manager:
12. Significant Condition? ☐ YES ☐ NO (If Yes, enter CAR No.):	13. Recurring Condition? ☐ YES ☐ NO (If YES, list NCRs and CARs):

14. QA Engineer or QA Designee validation:

printed name _____ signature _____ date _____

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR- Revision

INTERIM DISPOSITION

15a. Interim Disposition (Check Only One):

☐ N/A (See Final Disposition) ☐ Hold ☐ Conditionally Accept ☐ Conditionally Use

☐ Sort ☐ Reinspect or Retest ☐ Remediate

15b. Instructions for Completion of the Interim Disposition:

INTERIM DISPOSITION APPROVALS

16a. Responsible Manager or Individual:

printed name _____ signature _____ date _____

16b. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

COMPLETION OF INTERIM DISPOSITION

17. Interim Disposition Complete – Responsible Manager or Individual:

printed name _____ signature _____ date _____

18. Interim Disposition Verified – QA Engineer:

printed name _____ signature _____ date _____

Attachment 1 – CCP Nonconformance Report (NCR) (Continued)

NCR No. NCR- Revision

FINAL DISPOSITION

19. Final Disposition (Check Only One: Use-As-Is, Repair, Reject, Rework, or Scrap):
☐ Use-As-Is ☐ Repair

19a. Technical Justification – Required for Use-As-Is or Repair dispositions. [☐ N/A for Reject, Rework, or Scrap]

☐ Reject ☐ Rework ☐ Scrap

19b. Instructions for Completion – Required for Reject, Repair, Rework, or Scrap [☐ N/A for Use-As-Is]

19c. Corrective Actions (Actions to Prevent Recurrence – For Repair or Rework, if applicable.
[☐ N/A if not applicable, and for Use-As-Is, Reject, and Scrap]

FINAL DISPOSITION APPROVALS

20. Responsible Manager or Individual:

printed name _____ signature _____ date _____

21. QA Engineer or QA Designee:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

Additional Approval:

printed name _____ signature _____ date _____

CLOSURE

22. Final Disposition Complete - Responsible Manager or Individual:

printed name _____ signature _____ date _____

23. Attachments:

24a. HOLD TAG removal has been verified and reconciled for all nonconforming items on the NCR: ☐
24b. If HOLD TAG is not applicable, check: ☐ and explain:

25. Final Disposition Verified – NCR Closed QA Engineer:

printed name _____ signature _____ date _____

Attachment 2 – Instructions for Completing Attachment 1, Nonconformance Report (NCR)

Block	Responsible Individual(s)	Instructions
1	NCR Originator	Enter Heat no., Lot no., or Serial no. (as applicable) of material or item, measuring or test equipment, or item purchased from a supplier. If not applicable, enter "N/A."
2	NCR Originator	Enter kind of process. Choose one or a combination from the following: AK, CRMU Project, DA, Exterior Surface Radiological Survey, FGA, GGTP, HE-RTR, Lot Evaluation, MOVER, NDA, NDE, OSRP, Radiochemistry, Receipt Inspection, RH-DTC, RH-NDE, RH-RTR, RH-Sampling, RH-VE, Solids Analysis, Surface Finish, Testing, Transportation, VE, WCO, WWIS/WDS, Other. If not applicable, enter "N/A."
3	NCR Originator	Enter Batch Data Report number(s) if applicable. If not applicable, enter "N/A." Enter Container number(s) if applicable. If not applicable, enter "N/A."
4	NCR Originator	Enter Order, Work Order, or Job Control Number if applicable. If not applicable, enter "N/A."
5	NCR Originator	Enter Purchase Order number if applicable. If not applicable, enter "N/A."
6	NCR Originator	Enter Supplier if applicable. A Host site is not a supplier. If not applicable, enter "N/A."
7a	NCR Originator	Check applicable box to match NCR Description.
7b	NCR Originator	Enter the requirement that applies to the nonconforming condition. Include implementing procedure number, its revision, the applicable section or paragraph number, and quote the text.
7c	NCR Originator	Enter the actual, nonconforming condition. Provide enough detail so that a disposition can be developed to correct it.
7d	NCR Originator or QA or QA Designee	Check "Yes" if Hold Tags have been applied or "No" if another method has been selected to control the item(s). If Hold Tags were not applied because of the Remote-Handled ALARA principle, enter the following: "Hold Tags will not be applied to items identified on this NCR because of ALARA consideration. Container management will apply through administrative control. In addition, these containers have been identified on the CCP sftp site. Container information from this NCR has been included in the list, which is to alert Mobile Loading Unit personnel as a second method of control of non-tagged containers." If NCR was originated at the Project Office, the site will be advised to apply Hold Tags and confirm when done. At that time, QA or QA Designee may check Block 7d "Yes." The NCR does not require revision as a result.

Attachment 2 – Instructions for Completing Attachment 1, Nonconformance Report (NCR) (Continued)

Block	Responsible Individual(s)	Instructions
8	NCR Originator	Print name, sign, and date.
9	QA or QA Designee	Determine whether the Block 7c Actual Condition impacts or may impact AK. If so, check Block 9 "Yes." If it cannot be determined whether AK is impacted, check "Indeterminate." If not, check "No." If "Yes" or "Indeterminate" was checked, enter Trend Code 'L' in Block 10.
10	QA or QA Designee	If no Trend Code is entered in Block 10, determine the applicable code and enter it.
11	QA or QA Designee	Determine the Responsible Manager and enter (see Note before 4.2.12).
12	QA or QA Designee	After discussion with Assurance Manager, determine whether a Significant Condition Adverse to Quality exists (see 4.2.6) and check box accordingly. If "Yes" is checked, enter applicable CAR number.
13	QA or QA Designee	Determine whether a recurring condition exists (see 4.2.9) and check box accordingly. If "Yes" is checked, enter applicable NCR or CAR numbers.
14	QA or QA Designee	If NCR is determined valid, print name, sign, and date.
15a	Responsible Manager	If Interim Disposition is needed, check one box: "Hold," "Conditionally Accept," "Conditionally Use," "Sort," "Reinspect or Retest," or "Remediate." Proceed to Block 15b. If Interim Disposition is not needed, check "N/A" and proceed to Block 19.
15b	Responsible Manager	Enter instructions for completion of the Interim Disposition.
16a	Responsible Manager or Individual	Print name, sign, and date.
16b	QA Engineer or QA Designee	Print name, sign, and date.
17	Responsible Manager or Individual	When Interim Disposition is to be closed, print name, sign, and date.
18	QA Engineer or QA Designee	If verified adequate, print name, sign, and date.
19 or 19b	Responsible Manager or Individual	Check only one box: "Use-as-is," "Repair," "Reject," "Rework," or "Scrap."
19a	Responsible Manager or Individual	Enter Technical Justification if Disposition is "Use-as-is" or "Repair." If not, enter "N/A," and proceed to 19b.

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Attachment 2 – Instructions for Completing Attachment 1, Nonconformance Report (NCR) (Continued)

Block	Responsible Individual(s)	Instructions
19b	Responsible Manager or Individual	Enter Instructions for Completion if Disposition is “Reject,” “Repair,” “Rework,” or “Scrap.”
19c	Responsible Manager or Individual	Enter Action(s) to prevent recurrence, if applicable. Enter “N/A” if not applicable, or for “Use-as-is,” “Reject,” and “Scrap” dispositions.
20	Responsible Manager or Individual	Print name, sign, and date.
21	QA or QA Designee	If Final Disposition is acceptable, print name, sign, and date.
22	Responsible Manager or Individual	When Final Disposition is completed, print name, sign, and date.
23	QA or QA Designee	If there are any Attachments, enter number and title or description of each.
24a	QA or QA Designee	If Hold Tag removal was verified for all nonconforming items on the NCR, check box.
24b	QA or QA Designee	If Hold Tags are not applicable, check box and enter explanation.
25	QA Engineer	When Final Disposition is verified, print name, sign, and date for closure of NCR.

Attachment 3 – CCP Nonconformance Report (NCR) Continuation Sheet

NCR No. NCR-	Revision	Attachment #	Page	of
Continuation from Section Number:				

Attachment 4 – Additional CBFO Notification Details

This attachment details reporting notification requirements for CCP-generated Nonconformance Reports (NCRs) which meet the condition identified in CCP-PO-001, Section C3-13, and 4.4.1[D.5] of this procedure.

WIPP e-mail Address: wipp.notify@wipp.ws

Electronic notification is strongly encouraged. If electronic notification is used, the following criteria are required:

On the subject line, preceding the subject, [ncr]. The term “ncr” in brackets [ ] allows the automatic transfer into the proper folder of the receiving system.

Include the NCR number, description of the deficiency, and the date identified.

CCP must email an NCR containing CCP’s procedurally required information thirty (30) days after the nonconformance was identified.

CCP may choose to transmit the NCR within the required seven (7) days, and satisfy both notification requirements, provided the following information is submitted:

- Site NCR #
- Responsible Organization
- Date initiated
- Individual who identified the NCR
- Deficiency
- Requirement violated
- Actions
- Date closed, if applicable

General Notification

If CCP does not have the capability of transmitting documents by e-mail, or elects not to, hard-copy transmittal may be used instead. Correspondence must be sent to the following address:

[Assigned CBFO Contact]
Carlsbad Field Office
U.S. Department of Energy
P.O. Box 3090
Carlsbad, NM 88221-3090

Attachment 5 – Trend Codes

Trend Codes	Descriptions	Definitions and Examples
A*	Personnel Error and Failure to Follow Procedure	Personnel wrongly entered data or transposed figures or letters; inattention to detail; lack of understanding; use of superseded or incorrect version of specifying document; used procedure, but before required approval(s); required review missed problem(s); failed to follow procedure(s); deliberate violation.
C	Engineering Deficiency	Inadequate or erroneous engineering design, design input, or design output.
D	Procedure Less Than Adequate	Procedure erred or was vague in specifying requirements; failure to revise procedure when work processes change; no procedure to control QA work.
E	Software Deficiency	Software error resulted in deficient data; unqualified software used to obtain QA data; failure to initiate software qualification process; failure to verify software following software or operating system upgrade.
F	Vendor Deficiency	Deficiencies related to a vendor (i.e., procured item including hardware does not meet a requirement prescribed in the purchase order); wrong or less than adequate vendor documentation.
H	Material or Equipment Control Deficiency	Failure of material, equipment, or items because of damage, failure of a component, inadequate maintenance, etc.

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Attachment 5 – Trend Codes (Continued)

Trend Codes	Descriptions	Definitions and Examples
I	Calibration Deficiency	Calibration was inadequate, resulting in nonconforming or indeterminate data; use of out-of-calibration M&TE.
J	Inadequate Documentation	Record is nonconforming: does not include required data; required data are incorrect; record(s) improperly stored.
K	WAP/WAC Deficiency	Noncompliance with a WAP or WAC requirement **(Exempt from trending)**.
L	Acceptable Knowledge Deficiency	Possible changes to the AK of a waste stream (e.g., assignment of waste container to wrong waste stream; identification (ID) of unanticipated waste material parameters in a waste container) **(Exempt from trending)**.
M	Inadequate Communication	Personnel were given ambiguous or incorrect information or instructions to do their work; inadequate or lack of planning.
O	Ineffective Control of Corrective Action	Actions intended to correct deficiencies or preclude recurrence proved ineffective; identification of nonconforming item(s) less than adequate.
P	Inadequate Training	Condition Adverse to Quality resulted from lack of or inadequate indoctrination, training, or qualification; work done before indoctrination, training, or qualification or after qualification expired.
Q	Deficiency Caused by Others	The deficiency was caused by non-WTS personnel working to non-WTS QA program or none at all.
R	Control of Electronic Data Less Than Adequate	Inadequate security access control; inadequate protection of data; failure to backup data; inadequate traceability of data; failure to verify transferred data.

* Former Trend Code B was combined with A.

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Attachment 6 – NCR Hold Tags Guidance

Applicability
This Attachment applies to all CCP personnel applying or removing CCP Nonconformance Report (NCR) Hold Tags.

Vendor Project Manager (VPM) Administrative Hold Tags are addressed in Container Management procedures CCP-TP-035, CCP-TP-068, and CCP-TP-120.

When PLACING an NCR Hold Tag on waste container:

- Use only CCP-provided NCR Hold Tag
- When applying the NCR Hold Tag, enter the information using a Sharpie permanent marker or equivalent
- The NCR Hold Tag when possible should be applied so that the drum number, BDR number, etc. face out
- Place the NCR Hold Tag on the waste container locking ring bolt or lifting handle, using the cable tie in accordance with the following:
    - Use a separate cable tie for each Hold Tag placed on a waste container
    - Ensure the the cable tie locks and does not protrude past the bottom of the device
    - If the wire protrudes past the bottom of the device, wrap the exposed wire with tape

When REMOVING an NCR Hold Tag from a waste container:

- Wrap the area where the cable is to be cut with tape prior to cutting to prevent the cable wires from splaying. Cut the cable tie holding the NCR Hold Tag to the container using CCP-approved cable cutters.
- DO NOT cut or pull the tag off the cable tie
- Return the NCR Hold Tag to the VPM or SPM directing removal of the tag. The VPM or SPM will then turn the tags over to the QA Engineer for tracking with the corresponding NCR.
- DO NOT remove Host site tags or tamper-indicating devices (TID). Immediately report accidental removal of these to the VPM.

Attachment 6 – NCR Hold Tags Guidance (Continued)

When a cable or wire is found on a waste container without an NCR Hold Tag attached, or when an NCR Hold Tag is damaged or faded:

- Treat the container as though it has an NCR Hold Tag applied.
- If the NCR Hold Tag is found damaged or faded, document the container number and any information from the remaining Tag and notify the VPM or SPM.
- If a loose tag is found on a waste container or on the ground, turn the tag over to the VPM or SPM.
- Replace loose, damaged, faded, or missing NCR Hold Tags as directed by the VPM or SPM.

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CCP-QP-008

Revision 21

CCP
Records Management

EFFECTIVE DATE: 02/28/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

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RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
6	03/11/2002	Additions for use of e-QA system
7	06/07/2002	Incorporation of instructions for pagination and removal of text in Attachments.
8	09/04/2002	Added the definition of magnetic tape and incorporated text to clarify the requirements of computer generated electronic records (clarified steps 2.3.7 and 4.8.3). Updated Attachment 2 to reflect new fax machine number. Added new steps regarding duties for the CCP Site Project Manager and the release of records (steps 3.1 and 4.7).
9	08/27/2003	Updated to reflect issuance of Revision 5 of the QAPD. Made other editorial changes. Separated electronically fillable forms and updated references in the procedure.
10	10/15/2004	Clarified CCP Personnel and Facility Records Custodian responsibilities. Editorial changes throughout.
11	08/22/2005	Reorganized sections for improved flow and added clarifications. Deleted Attachments 3 through 6.
12	11/16/2006	Revised to implement the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/Remote-Handled (RH) Permit Modification Request (PMR).
13	04/24/2007	Revised to change title in responsibilities and body of procedure and to add statement (Note) from QAPD and remove verbiage about in-process records.
14	09/19/2007	Revised to address finding from U.S. Department of Energy, Carlsbad Field Office, Corrective Action Report 07-016, Audit A-07-24. Also revised to provide some clarifications within the procedure, added a step to address superseding and voiding of documents (i.e., Batch Data Reports, Nonconformance Reports), and added a note at the beginning of section 4.9 to address computer modeling results methods.
15	10/28/2009	Revised to make personnel title changes and name changes to organizations. Added section 4.7.1[G] for lost records as well as a section for receipt and handling of Official Use Only (OUO) and Unclassified Controlled Nuclear (UCN) documents.
16	07/06/2010	Revised to clarify and address the submittal of historical source documents.

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RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
17	11/02/2010	Revised to change the submittal process for Acceptable Knowledge (AK) documentation and section on historical source documents.
18	03/30/2011	Revised to support corrective action report (CAR)-LANL-0004-10.
19	08/02/2011	Revised to change the number of the form in the definition of retention period. Change to Section 4.8 for clarification.
20	08/10/2012	Revised to clarify editorial changes, transmitting of records, and destruction of QA records.
21	02/28/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes.

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1.0 PURPOSE

This document outlines the Central Characterization Program (CCP) Records Management Program. The records program involves CCP Records and interaction with WIPP Records Management Services (WRMS) as outlined in this procedure.

1.1 Scope

This procedure applies to the creation, maintenance, use, and disposition of records generated by the CCP.

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2.0 REQUIREMENTS

2.1 References

Baseline Documents

- DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document* (QAPD)

Referenced Documents

- *National Archives Records Administration (NARA) Approved Record Schedules*
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-028, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning*

2.2 Training Requirements

2.2.1 Personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan,* prior to performing this procedure.

2.3 Definitions

2.3.1 **Authentication** - Synonymous with validation.

2.3.2 **Computer System** - A configuration, or working combination, of hardware, software, and data communication devices.

2.3.3 **Destruction** - The physical destruction of records by shredding, incinerating, or other permanent means.

2.3.4 **Disposition** - The action taken regarding records no longer needed for current government business. Actions may include transfer to the Carlsbad Field Office (CBFO) Records Holding Facility or Federal Records Center, transfer from one federal agency to another, transfer of permanent records to the National Archives and Records Administration (NARA), or destruction of nonpermanent records.

2.3.5 **Electronic Record** - A record in a form that is readable only by a computer. Electronic records are most frequently recorded on media such as disk, diskette, tape, and tape cartridges.

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2.3.6 **External Records** - Records generated by the waste generating sites (e.g., procurement records, procedures, radiological surveys, facility operating logs, container packaging records, historical source documents, etc.). These records are not subject to the requirements of this procedure concerning legibility, pagination, accuracy, completeness, or revision.

2.3.7 **Inactive Record** - A record no longer required to conduct government business and therefore dispositioned in accordance with approved records schedules and stored for authorized retention periods.

2.3.8 **Index** - A listing of records and cross-reference information. At a minimum, an index will indicate record location within the record filing and storage system.

2.3.9 **Internal Use Only (IUO)** - A document that has been identified as Internal Use Only (IUO) and is considered proprietary, which is not to be disseminated beyond the organization.

2.3.10 **Legible** - For the purpose of this document, legible means that the characters, letters, and numbers making up data or information contained in a record can be read without difficulty or magnification.

2.3.11 **Lifetime QA Records** - Records that are required to be retained and preserved in an acceptable condition for the operating life of the repository (i.e., until termination of the repository permit). Prior to destruction of any lifetime record, it shall be evaluated for upgrade to a post-closure record.

2.3.12 **Magnetic Tape** - A tape with a magnetizable surface on which data can be stored and retrieved. A tape or ribbon of any material impregnated or coated with magnetic or other material on which information may be placed in the form of magnetically polarized spots.

2.3.13 **Medium** - Refers to the physical form of recorded information such as paper, film, disk, magnetic tape, or other materials on which information can be recorded.

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2.3.14 **Microfilming** - A photographic process used to record images of records on a fine-grain, high-resolution film in sizes greatly reduced from the original. Formats in general use are rolls of 16 millimeter (mm) images, pages of 16 mm images called microfiche, and 35 mm images mounted in aperture cards. Microform is a generic term for all microfilm formats.

2.3.15 **Migrate** - In electronic records, the process of moving from one computer system to another.

2.3.16 **National Archives and Records Administration (NARA)** - An independent government agency responsible for establishing policies and procedures for managing the records of the federal government. NARA exercises final authority for approving the disposition of government records.

2.3.17 **Nonpermanent Records** - Records having value for a specific, limited time and authorized by NARA (via approved disposition schedules) to be destroyed after that time. Nonpermanent records are sometimes referred to as temporary records.

2.3.18 **No Foreign National (NOFORN)** -No Foreign National (NOFORN) is a marking that identifies a document is not to be given to a person who is a foreign national – not a United States citizen.

2.3.19 **Nonrecord Material** - Those classes of documentary or other material that fail to meet the general definition of a record or fall under one of the following categories: (a) library or museum material made or acquired for reference or exhibition purposes; (b) extra copies of documents preserved only for convenience of reference on which no action is recorded or taken; (c) stocks of publications or other processed documents that require no action and are not part of a case on which action is taken; (d) routing slips and transmittal sheets adding no information to that contained in the transmitted material (i.e., concurrences or direction on how to proceed or implement); and (e) papers of a private or nonofficial character that pertain to an individual's private affairs.

2.3.20 **Official Use Only (OUO) Information** - Certain unclassified information that may be exempt from public release under the Freedom of Information Act and has the potential to damage governmental, commercial, or private interests if disseminated to persons who do not need to know the information to perform their jobs or other U.S. Department of Energy (DOE) authorized activities.

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2.3.21 **Personal Papers** - Materials of a private nature maintained by personnel at their work place that DO **NOT** relate to, or have an effect on, the conduct of business or activities related to the CCP. Personal papers maintained in desks and file drawers in the work place must at all times be segregated and stored separately from records.

2.3.22 **Post-closure Records**

- Records that assist in preventing action that could impair the long-term isolation of the waste.
- Records preserving information that would prevent inadvertent human intrusion, such as the nature and hazard of the waste and locations of the geologic repository operation area, the underground facility, bore holes, shafts, and boundaries of the controlled area.
- Records providing information relevant to post-closure monitoring and assessment of performance of the repository system.
- Records preserving, for future generations, information regarding the geologic setting relevant to mitigation of releases of radioactive materials.
- Records which would be of significant value after decommissioning and closure of the repository.

2.3.23 **Privacy Record** - Any item, collection, or grouping of information about an individual that contains his or her name or other personal identifier.

2.3.24 **Project Participant** - Any DOE site, generator site, or contractor organization that participates in a CBFO program. Subcontractor's records are the responsibility of the participant.

2.3.25 **Project Records** - Records created or received in support of the CCP.

2.3.26 **Quality Assurance (QA) Record** - An authenticated record that provides objective evidence of the quality of items or activities.

2.3.27 **Record Medium** - Refers to the physical form of recorded information such as paper, film, disk, magnetic tape, or other materials on which information can be recorded.

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2.3.28 **Records** - Those classes of documentary materials which may be disposed of only after the archival authority is obtained. The statutory definition of records (44 United States Code §3301, Definition of Records), "...includes all books, papers, maps, photographs, machine-readable materials or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United States government under federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations or other activities of the government or because of the informational value of the data in them." This definition applies to all departmental records including those created, received, and maintained by contractors pursuant to their contracts. Virtually all recorded information in the custody of the government (including information held by contractors which is considered by contract to be government information) regardless of its' media (hard copy, machine-readable, microform), is considered "government records." For the CCP, information meeting the above criteria is considered to be a record, unless it can be clearly identified as a nonrecord.

2.3.29 **Records Custodian** - An individual identified within an organization who is assigned the responsibility of, and trained for, assisting record originators regarding records management issues.

2.3.30 **WIPP Records Archive (WRA)** - A facility that meets the regulatory requirements for the storage of noncurrent records pending their destruction or transfer to a Federal Records Center or the NARA. The WIPP Records Archive (WRA) is located in Carlsbad, New Mexico.

2.3.31 **Records Inventory and Disposition Schedule (RIDS)** - The DOE form used to indicate the appropriate disposition of records. The purpose and content of the form may be placed in electronic media as long as all the requirements of the form are met.

2.3.32 **Record Series** - File units or documents arranged according to a filing system or kept together because they relate to a particular subject or function; result from the same activity; document a specific kind of transaction; take a particular physical form; or have some other relationship arising out of their creation, receipt, or use, such as restrictions on access and use. A record series may also include related elements physically separated from it such as finding indexes or large documents (also sometimes called a file series). These records are generally handled as a unit for disposition purposes.

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2.3.33 **Software Generated** - A form that is generated by controlled software that performs approved calculations.

2.3.34 **Unclassified Controlled Nuclear Information (UCNI)** - Certain unclassified but sensitive Government information concerning nuclear material, weapons, and components whose dissemination is controlled under section 148 of the Atomic Energy Act.

2.3.35 **Record Systems** - A common, integrated set of manual and/or automated activities for creating and identifying; collecting and controlling; processing and organizing; distributing; microfilming; storing and preserving; retrieving; and disposing of records applicable to preparation for storage, as well as the storage of machine readable records such as magnetic tapes, floppy disks, etc.

2.3.36 **Retention Period** - The period of time approved by NARA for records to be retained, whether in the originating office, Records Storage Facility or a Federal Records Center. The retention period is indicated on EA15RM300Z-2-0, *Records Inventory and Disposition Schedules (RIDS)*.

2.3.37 **Uniform File Code (UFC)** - A standard filing system for correspondence records required by the DOE.

2.3.38 **Unscheduled Records** - Records for which no disposition authority has been identified on an approved disposition schedule.

2.3.39 **Validation/Authentication** - An activity that certifies the content of a document as being authentic and complete. This certification is documented by signing (or initialing) and dating the document unless otherwise authenticated. Validation/authentication may be made by the author, assigned reviewers, or individual(s) specifically assigned to review and validate documents.

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3.0 RESPONSIBILITIES

3.1 CCP Manager or Designee

3.1.1 CCP Manager has the overall responsibility and authority for the content of records generated.

3.1.2 Verifies that the organization has a current approved Records Inventory and Disposition Schedule (RIDS).

3.1.3 Verifies that records are retained in accordance with retention requirements and not inadvertently or prematurely destroyed.

3.1.4 Verifies the timely disposition of records through in-house destruction.

3.1.5 Verifies that personnel are aware of the requirements to retain records according to approved retention requirements.

3.1.6 Provides adequate records management resources in the form of staff, equipment, and dedicated time to verify good record keeping practices.

3.1.7 Obtains written concurrence to destroy records exceeding their retention periods.

3.2 Cognizant Manager

3.2.1 Identifies those documents that become records.

3.2.2 Determines if the work activities are quality-affecting.

3.2.3 Identifies records in the implementing procedures.

3.3 Lead Records Custodian

3.3.1 Acts as the liaison between the CCP and WRMS for records management.

3.3.2 Carries out the records management duties in accordance with approved implementing procedures.

3.3.3 Determines which nonpermanent records series are eligible for destruction.

3.3.4 Informs the CCP Manager or designee of the records that have expired retention periods.

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3.3.5 After receiving approved written concurrence, dispositions the Quality Assurance (QA) and/or non-QA records.

3.3.6 Prepares and revises the RIDS in accordance with CCP-QP-028, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning,* and verifies the RIDS remain current.

3.3.7 Identifies records that are eligible for in-house destruction.

3.3.8 Assists personnel with record retrieval from CCP Records as required.

3.3.9 Assists in obtaining approved disposition authorities for unscheduled records from NARA.

3.4 Records Custodian

3.4.1 Carries out the records management duties in accordance with approved implementing procedures.

3.4.2 Transmits completed QA records to the Host (generator/storage) site records centers or Waste Isolation Pilot Plant (WIPP) Records Archives (if applicable).

3.4.3 Assists personnel with record retrieval from CCP Records, as required.

3.4.4 Verifies that Records are complete. This includes verifying that there are no missing signatures, the page count is correct, and that the Batch Data Reports (BDRs) contents match their Table of Contents.

3.4.5 Ensure that the Attachment 2, Records Transmittal/Receiving Form, is in agreement with the transmitted record and that it is legible.

3.5 Facility Records Custodian

3.5.1 Coordinates the compilation and the transfer of records generated at the Host (generator/storage) sites.

3.5.2 Verifies that records are complete. This includes verifying that there are no missing signatures, the page count is correct, and that the BDRs contents match their Table of Contents.

3.5.3 Ensure that the Attachment 2 is in agreement with the transmitted record and that it is legible.

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3.5.4 Manages the transfer of completed and in-process records to CCP Records.

3.5.5 Assists personnel with record retrieval from CCP Records where applicable.

3.5.6 Carries out the records management duties in accordance with approved implementing procedures.

3.6 WIPP Records Management Services (WRMS)

3.6.1 Assists in the development and management of the records management system.

3.6.2 Assists with the review and approval of the CCP RIDS.

3.6.3 Assists in obtaining approved disposition authorities for unscheduled records to NARA.

3.7 Personnel

3.7.1 Generates the necessary records that document the activities assigned to them. Each individual who creates records must verify the record(s) are legible, accurate, and complete, appropriate to the work accomplished.

3.7.2 Are aware of, and provide reasonable protection during the generation and processing of records intended to become QA Records.

3.7.3 Ensures that records are legible, accurate and complete, appropriate to the work accomplished, when generating, reviewing and validating records.

3.7.4 Ensures that records are not inadvertently or prematurely destroyed.

3.7.5 Coordinates records issues with the respective Records Custodian(s)/Facility Records Custodian(s).

3.8 WRMS Manager

3.8.1 Provides concurrence for in-house destruction of records.

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4.0 PROCEDURE

4.1 Generation of Records

Cognizant Managers

4.1.1 Prior to conducting a work activity:

[A] Identify those documents that become records.
[B] Determine if the work activities are quality-affecting.
[C] Identify records in the implementing procedures.

NOTE
Records may be originals **OR** reproducible copies; however, original documents are preferred.

4.2 Legibility

Personnel

NOTE
Reproducible ink should be used whenever possible to verify maximum contrast on printed records. Records created in black ink typically produce better quality copies than do records printed in other color inks.

NOTE
Highlighter marking pens SHALL **NOT** be used on records. Bolding or underlining text are preferred alternatives to highlighting.

4.2.1 Verify that the records generated are legible and reproducible. If there is doubt, copy the record and then recopy the copied record (copy-a-copy test) to check the copied copy for legibility.

4.3 Accuracy

4.3.1 Verify that records are accurate to the work accomplished.

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4.4 Completeness

4.4.1 Verify that records are complete per the following:

[A] Blank spaces are filled in where information is required to be entered making the document complete.

[B] Not Applicable (N/A) is entered in spaces where information is not applicable or as otherwise indicated.

[C] Blank spaces are acceptable when a record is a software generated page/form which performs calculations.

[D] The document's intent is clear, even with some blanks not filled in. If so, the record is acceptable as is. A blank space in a record does not, in itself, make the record incomplete. For example:

Is the indicator light illuminated?
___✓___ YES _____ NO

This is an acceptable method of recording information, even when the NO space is blank.

NOTE

Individuals handling documents intended to become QA Records shall provide reasonable protection for the records from damage or loss until the records are submitted to the records system (this includes documents generated during field operations).

4.5 Storage, Maintenance, Control, and Protection of QA Records

4.5.1 Store, maintain, and protect completed QA records as follows:

[A] In an Underwriter Laboratories-listed one-hour fire rated (or equivalent) container, or a container certified by a person competent in the technical field of fire protection,

OR

[B] Retain a copy in a location sufficiently remote from the original to preclude destruction as a result of a single event such as fire or natural disaster,

ALSO

[C] Provide adequate protection of the QA records within the storage location to minimize the risk of damage or loss from

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humidity, natural disasters, adverse weather conditions, mold or infestations of insects or rodents.

[D] DO **NOT** store QA records where they may be exposed to water or heat sources, **OR** where food is kept (to reduce the potential for rodent or insect infestation).

4.5.2 Access

[A] Prevent access to QA records by unauthorized personnel as follows:

NOTE

Authorization must be documented either by signature and date on posted list, **OR** by letter on file. Authorization will be done by the CCP Manager or designee. The authorization list must be kept current.

[A.1] Generate, post, and maintain a list designating the personnel who are authorized and permitted access to the QA records.

NOTE

Provisions for installation of locking mechanisms will be made for storage areas requiring controlled access. Authorized personnel allowed access to the storage areas will be given the lock code **OR** controlled location of the keys.

[A.2] Protect locking mechanisms for storage cabinets/areas that require controlled access.

[A.3] Store all records not currently being used in appropriate storage equipment (e.g., file cabinets, shelving, desks).

[A.4] Lock file cabinets and offices as appropriate when leaving controlled access areas.

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4.6 Records Separation and Availability

NOTE
Records will be separated from non-records and personal papers.

4.6.1 Provide a means to retrieve records by indexing with one of the following methods:

[A] Numerically (such as audit case files):

OR

[B] By subject, with guides dividing different subjects.

4.7 Corrections, Additions, Revisions, Supplements, and Lost Records

NOTE
When in-process record/records intended to become QA Records are being generated they shall be maintained (do not remove or destroy) and if corrections are required, then perform this by proper correction, superceding, or voiding as directed in the following sections of this procedure.

4.7.1 Make necessary changes, additions, revisions and supplements in accordance with the following guidelines:

[A] Corrections

[A.1] Correct errors by drawing a single line through the incorrect information (leaving the original text readable), entering the correct information, **AND** initialing and dating each correction made.

[A.2] DO **NOT** use correction fluid (white-out) or correction tape on records.

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NOTE

Editorial changes may be made to records without the same level of review and approval as the original record. Editorial changes include ONLY the following:

- Clarification statements that do not affect the purpose of the record;
- Correcting grammar or spelling (the meaning has not changed);
- Renumbering sections, attachments or pagination;
- Date(s) that do **NOT** impact final disposition;
- Transcription errors
- Sections that require Not Applicable (N/A), but were left blank.

[A.3] Provide corrected or changed records (except for editorial changes) that have been validated back to the originating organization for review and revalidation.

NOTE

Original records may not be available for remote personnel to make necessary changes; therefore a printed copy of the scanned image from CCP Records may be used to make the changes. Changes will be transmitted in accordance with step 4.10.1.

[A.4] **IF** the original document is unavailable to the individual making a change to a record,
THEN use a printed copy of the scanned image from CCP Records and make the change. This will then become the original.

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[B] Additional Notations

[B.1] **IF** any additional information needs to be added to a record after validation,
THEN enter the notation, **AND** initial and date each notation(s) made.

[C] Revisions, Regeneration, and Supplements

[C.1] **IF** a record needs to be revised due to illegibility or damage,
THEN transcribe **OR** enhance the illegible, or damaged, portion of the record **AND** initial and date each part enhanced or transcribed.

[C.2] **IF** a record must be regenerated due to damage,
THEN regenerate the record and place a notation at the bottom of the regenerated page, "This record has been regenerated because of damage," sign, and date. Place the regenerated record in front or on top of the original damaged record.

[C.3] **IF** a record has already been sent to CCP Records,
AND needs a supplement or revision,
THEN contact CCP Records.

NOTE

The following is a standard way to add new pages to a document, to supersede a page, and to add a corrected page.

[D] Adding Pages to Documents

[D.1] When adding pages to a document, place new pages behind the page within the document that they will follow.

Example: The new pages are to be added right after page 35 within the document. Place the new pages behind page 35, **AND** number the new pages 35A, 35B, 35C.

[D.2] **IF** the pages are added to the end of the document,
THEN number them in sequential order.

Example: The last page of the document is page 40. Place the new pages after page 40, **AND** number the new pages as 41, 42, 43.

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[E] Superceding Pages

[E.1] When superceding a page with a new, corrected page, draw a single, diagonal line through the entire page to be superceded, **AND** initial and date.

[E.2] Place the new, corrected page to the front of the superceded page. Using the page number on the now superceded page, number the new, corrected page with the same number, then renumber the superceded page with the same number and an additional character (i.e., A, B, C).

Example: Superceded page was numbered 35. The new, corrected page will now be numbered 35, **AND** the superceded page will change to 35A.

[F] Superceding or Voiding of Whole Documents

[F.1] When superceding or voiding a whole document (not just pages within a document [i.e., BDRs, Nonconformance Reports]) stamp or write “superceded” or “void” on the first page of the document **AND** initial and date.

[G] Lost Records

[G.1] **IF** replacement or restoration of the record is **NOT** practical,
THEN action should be taken to ensure the quality of the items or activities affecting quality, by using re-examination, investigation, or by other means.

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4.8 Quality Assurance (QA) Record Authentication/Validation

NOTE

Records become QA records when they are completed and authenticated/validated. Authentication/validation may be by the author, assigned reviewer, individual specifically assigned to review and validate documents, or otherwise authenticated/validated.

NOTE

Individuals who review and authenticate/validate records are responsible for the completeness and accuracy of those records.

[A] Authenticate/validate QA records through one of the following methods:

[A.1] Initial **OR** sign and date hard copy records, unless otherwise authenticated/validated.

[A.2] **IF** the nature of the record precludes signing, **THEN** validate the QA record using any reasonable form which clearly indicates that an authorized individual believes the record to be complete and accurate.

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4.9 Generation, Protection, and Preservation of Computer Generated Electronic Records

NOTE

There are two types of electronic records:

- Electronic records that can be printed in a hard copy format.
- Electronic records that cannot be printed in a hard copy format.

Regardless of type, all electronic records must be managed in accordance with the guidelines contained in this section. Properly performing these steps will ensure that electronic records are in compliance with the applicable requirements.

NOTE

Computer modeling results (e.g., Monte Carlo N Particle [MCNP], Origen2.2) that perform statistical and random computer runs of radionuclide distributions will not be maintained but summarized in the hardcopy calculation packages. The calculation packages document these computer runs and shall define the range of possible values, the methodology for randomly selecting from this range, and a representative example of the input values and output result.

NOTE

Electronic media for historical source documents transmitting Adobe portable document format (PDF) files or electronic databases may be compact discs (CDs) or digital video discs (DVDs).

4.9.1 Protection

[A] To minimize the risk of unauthorized additions, deletions, or alterations to electronic files, use power-on, file passwords, or control lists to control any unauthorized access.

[A.1] Place electronic records, when complete to read/write protection.

[B] Provide access of electronic records to authorized staff.

[C] Provide access in the work area of electronic file index printouts, logs, disk labeling, **OR** other means to facilitate retrieval of active records by authorized users. Indicate the method used (including the directory path, if applicable) to transfer the information, the date compressed (if applicable), and file encryption information.

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4.9.2 Preservation

[A] Preserve records for the duration of their authorized retention period to verify their availability and provide verification of work performed by the facility and its supporting agencies.

4.9.3 Storage

[A] Label all electronic media (computer generated) used to store records properly with the following: originating organization, filename, retention period (obtain from Lead Records Custodian), original software used, and the version of the software.

4.9.4 Media Backup

[A] Back up electronic records on a regular basis to safeguard against the loss of information due to equipment malfunctions or human error.

4.9.5 Hardware/Software Changes

[A] Protect records media **AND** migrate information before the media is no longer useful.

[A.1] As software programs change, transfer existing records to the newer software program.

[A.2] As hardware is phased out or upgraded, verify that all existing records can be read utilizing the new hardware.

(a) **IF** new software and hardware will **NOT** read the current electronic record(s),
THEN migrate the records to a more accessible media.

(b) **IF** migration is **NOT** possible,
THEN retain either the old software and hardware **OR** make a printout of the data **AND** file the hard copy.

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4.10 Transmitting Records

NOTE
Transmitting completed QA records is for records going from one location or site to another.

NOTE
Records being forwarded within a Host site location or between Project-Office personnel DOES NOT need an Attachment 2. Completed QA Records being sent from one location or site to another will be sent using Attachment 2.

4.10.1 Transmitting Complete QA Records

[A] Send completed QA records (e.g., BDRs) via Attachment 2 to the Records Custodians/Facility Records Custodians.

[B] Before the completed QA record is transmitted, make a copy of Attachment 2 and the record, **AND** retain until receipt acknowledgement is received from the recipient.

NOTE
Transmittal of completed characterization records to the Host (generator/storage) site (when available) is performed according to the site-specific procedure regarding the submittal of characterization records to their records center. These characterization records will be maintained in accordance with their site-specific records procedures.

NOTE
Records that are designated as lifetime records shall be maintained for the life of the waste characterization program at a participating generator/storage site plus six years, or transferred to the WIPP Records Archive facility. Records designated as non-permanent records shall be maintained for 10 years from the date of record/generation at the participating generator/storage site, or at the WIPP Records Archive facility.

Records Custodian

4.10.2 Transmitting of Completed Characterization Records to the Host (generator/storage) Site or WIPP Records Archive (as applicable)

[A] Return characterization records to the Host (generator/storage) site location or WIPP Records Archive (as applicable) either at pre-determined intervals **OR** at that end of the waste characterization process in accordance with approved RIDS.

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[B] **IF** the Host (generator/storage) site is closed and will no longer be in operation,
THEN submit the documentation pertaining to that site to CBFO for permanent archiving, **OR** the WIPP Records Archive at the end of the waste characterization process in accordance with approved RIDS.

NOTE

The Waste Confirmation Organization represents the permittees and is required to confirm that waste shipments comply with permit requirements prior to shipment.

4.10.3 Transmitting of Waste Confirmation Video and Audio Media Recording

[A] Transmit one copy of the video and audio recording media to the Waste Confirmation Organization.

4.11 Unclassified Controlled Nuclear Information (UCNI) and Official Use Only (OUO) Documentation

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NOTE

Transmission of Unclassified Controlled Nuclear Information (UCNI) or Official Use Only (OUO) documents must be by means that preclude unauthorized disclosure or dissemination.

NOTE

UCNI documentation must include the required release and markings identified in DOE M 471.1-1, *Identification and Protection of Unclassified Controlled Nuclear Information Manual*. OUO documentation must include the required release and markings identified in DOE M 471.3-1, *Manual for Identifying and Protecting Official Use Only Information*.

4.11.1 Transmitting of UCNI and OUO Documents

[A] Documents identified as UCNI must be transmitted to CCP Records with an Attachment 2 and the transmittal must have the following statement placed in the comment section:

Matter transmitted contains Unclassified Controlled Nuclear Information. When separated from enclosures, this transmittal document does not contain UCNI.

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[B] Documents identified as OUO must be transmitted to CCP Records with an Attachment 2 and the transmittal must have the following statement placed in the comment section: Document transmitted contains OUO information.

[C] When transmitting externally:

[C.1] The UCNI or OUO matter must be contained in a single opaque envelope or wrapping with the recipient's address, a return address, and the words "To Be Opened by Addressee Only".

[C.2] Must be sent by the following U.S. mail methods: First Class, Express, Certified, or Registered Mail,

OR

[C.3] Any commercial carrier, FedEx is preferred.

[D] When transmitting internally the documents may be hand carried as long as the transmitter can maintain control over access to the document being transmitted.

4.11.2 Access and Protection of UCNI and OUO Documents

NOTE

When giving an authorized individual a copy of an UCNI or OUO document, the requirements they will be expected to perform while the document is in their possession must be made clear to the individual, see requirements below.

NOTE

Only authorized individuals may have access to UCNI or OUO documents (e.g., an individual with an official need to know in connection with the performance of official DOE-authorized activities).

[A] Disseminate UCNI or OUO documentation to only authorized individuals.

[B] Must maintain physical control of UCNI or OUO documentation to preclude unauthorized disclosure; store in locked receptacles, such as file cabinets, desks, or bookcases.

[C] Reproduce only to the minimum extent necessary.

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[D] When a copy machine malfunctions during the copying of an UCNI or OUO document the copier must be cleared and all paper paths checked to verify that no UCNI or OUO material remains in the machine.

[E] After its necessary use by an authorized individual, all copies of UCNI or OUO documentation must be destroyed by using strip cut shredders that result in particles of no more than 1/4 inch wide strips or if on a CD the shredding of the disc.

[F] Electronic UCNI or OUO documentation (e.g., PDF) maintained by CCP Records will be stored on a protected server and the files will be properly marked as UCNI or OUO.

4.12 Internal Use Only (IUO) and No Foreign National (NOFORN)

4.12.1 Transmitting of IUO and NOFORN Documents

[A] Documents identified as IUO or NOFORN must be transmitted to CCP with an Attachment 2 and the transmittal must have it clearly identified in the Comments section that the document being transmitted is IUO or NOFORN.

4.12.2 Access and Protection of IUO and NOFORN

NOTE

Only individuals within the project may have access to IUO documents. Dissemination outside of the project will not be permitted.

[A] Disseminate IUO to internal project participants only. NOFORN is not to be disseminated to any Foreign National.

[B] Must maintain physical control of IUO or NOFORN to preclude unauthorized disclosure; store in locked receptacles, such as file cabinets, desks, or bookcases.

[C] Reproduce only to the minimum extent necessary.

[D] After its necessary use by an authorized individual, all copies of IUO and NOFORN must be destroyed by a paper shredder or if on a CD the shredding of the disc.

[E] Electronic IUO or NOFORN documentation (e.g., PDF) maintained by the CCP Records will be stored on a protected server and the files will be properly marked as IUO or NOFORN.

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4.13 Receiving Quality Assurance (QA) Records

4.13.1 Each Host (generator/storage) site or organization responsible for receipt of QA records, designate the person or organization responsible for receiving records.

4.13.2 Ensure that the Attachment 2 is in agreement with the transmitted record and that it is legible and complete.

[A] **IF NOT**,
THEN notify the sender and perform the following:

[A.1] Work to resolve the issues with the sender.

[A.2] **IF** unable to resolve the issues,
THEN identify the record was rejected on Attachment 2 and return Attachment 2 and record to the sender.

4.13.3 Receipt process provides the following:

[A] Provisions to permit a current and accurate assessment of the status of QA records.

[B] A method for identifying the records required to be included in the records system.

[C] A method for identifying the records that have been received.

[D] Procedures for receipt and inspection of incoming records, including verification that the QA records are received in agreement with the transmittal document and that the records are legible.

[E] Provisions to control and protect the records from damage or loss during the receiving processes.

[F] A method for submittal of completed records to the storage facility without unnecessary delay.

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NOTE

Once QA records have been received in CCP Records, original records will **NOT** be removed without a specific need for the original record to be released. If an original record is removed from CCP Records, it is to be returned within fourteen (14) calendar days.

4.14 Retrieval of Original Records from CCP Records at the Project Office

4.14.1 Requests for retrieval of **ORIGINAL** records are handled as follows:

[A] Requestor, provide a written request to CCP Records providing the reason for the request and when the record will be returned.

Records Custodian/Facility Records Custodian

4.14.2 Process requests for retrieval of records already placed into CCP Records as follows:

[A] Pull the requested record.

[B] Make a copy of the record or assure that there is a PDF copy of the record.

[C] **IF** there is not a PDF scanned copy of the record, **THEN** place a copy of record into the records file.

[D] Place a completed Check Out Card in the record file.

[E] Notify requestor of availability of the requested record for pick-up **OR** deliver the **ORIGINAL** requested record to the person who made the request.

4.15 Destruction of QA and Non-QA Records

4.15.1 Destruction of QA Records

[A] DO **NOT** destroy QA records until each of the following conditions are met:

[A.1] Expiration of the NARA approved retention, as noted in the CCP RIDS, has occurred.

[A.2] Evaluation of lifetime records for the potential need to upgrade them to post-closure records has been performed by the CCP Manager or designee.

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[A.3] CCP Manager or designee determines if regulatory requirements are satisfied, operational status permits the disposal of such records, and the related contractual requirements have been satisfied.

[A.4] In cases of conflicting requirements concerning records retention requirements, the most stringent requirements shall be used in determining the final disposition.

AND

[A.5] CCP Manager or designee determines that there are no enforcement actions against the CCP.

NOTE

QA records that may be relevant to an enforcement action, regardless of disposition, will be maintained until the New Mexico Environment Department (NMED) determines they are no longer needed for enforcement action, and then the records may be dispositioned as directed in step 4.15.2.

[B] **IF** all of the listed conditions are **NOT** met,
THEN DO **NOT** destroy the affected records series, **AND** CCP Manager or designee, follow step 4.15.3.

[C] **IF** all of the listed conditions are met,
THEN CCP Manager or designee complete the Written Request for Records Destruction, (See Attachment 1, Written Request for Records Destruction), for an example **AND** submit to the WRMS Manager before destroying QA records.

[D] Upon receipt of the approved written concurrence, CCP Manager or designee forward the approval to the Lead Records Custodian.

Lead Records Custodian

[E] Receive the approved written concurrence and disposition the QA records.

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4.15.2 Destruction of Nonpermanent, Non-QA Records

Lead Records Custodian

[A] Determine which nonpermanent records series are eligible for destruction by reviewing the RIDS to determine the length of time the records series is to be retained.

[B] Inform the CCP Manager or designee of the records which have expired retention periods.

CCP Manager or Designee

[C] **IF** in agreement,
THEN the CCP Manager or designee, completes and forwards Written Request for Records Destruction, including a reference to the current RIDS, to the WRMS Manager before destroying the nonpermanent, non-QA records.

Lead Records Custodian

[D] After receiving the approved written concurrence, disposition identified non-permanent or non-QA records.

4.15.3 Requesting an Extension of the Record Retention Period

[A] **IF** the CCP Manager or designee determines that the approved record retention period needs to be extended,
THEN CCP Manager or designee, perform the following:

[A.1] Send a memorandum to the WRMS Manager with a request and justification of an extension.

[A.2] Maintain the memorandum with the respective RIDS.

[A.3] Take the appropriate action, depending on the response to the memorandum.

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5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as QA records in accordance with the requirements of this procedure. The records are the following:

5.1.1 Non-QA

[A] Written Request for Records Destruction

[B] Written Request for Retrieval of Original Record

[C] Request for Extension Memorandum

5.1.2 QA/Nonpermanent

[A] Attachment 2 – CCP Records Transmittal/Receiving Form

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Attachment 1 – Written Request for Records Destruction (Example)

TRU SOLUTIONS

John Smith
S.M. Stoller Corporation
2101A South Canal
Carlsbad, NM 88220

SUBJECT: REQUEST FOR CONCURRENCE TO DISPOSE OF RECORDS

Dear Mr. Smith:

This is a request for concurrence to dispose of the following record series according to our current Records Inventory and Disposition Schedule dated April 10, 2004.

RECORD SERIES	RETENTION PERIOD	INCLUSIVE DATES
Landlord Housekeeping Pre-checklists - Item #24	1 year	January, 2003 through July, 2003
Key Inventory Logs - Item #17	2 years	January, 2002 through June, 2002

If you have any questions, please contact Ms. Jane Smith, of my staff, at (575)628- 5810.

Sincerely,

David Doe
Characterization Project Manager

CONCURRENCE:

John Smith, Manager
WIPP Records Management Services (WRMS)

SP: ab

cc: J. Smith, S.M. Stoller Corporation

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Attachment 2 – CCP Records Transmittal/Receiving Form

CCP Records / Records Custodian, 4021 National Parks Highway - MS: GSA 212, Carlsbad, New Mexico 88220

Telephone Number: 575-234-7523, 575-234-7431, or 575-234-7095

Fax Number: 575-234-7033

☐ Original Record ☐ Copy
☐ Fax Record
☐ Electronic Record

Attn: _____ From: _____

Ship to: _____ Site: _____

_____ Company: _____

_____ Telephone Number: _____

_____ Date Sent: _____

Telephone Number: _____

Document Number	Title / Description	Record Date	Total Pages

Comments

(When the Record accepted line has been completed, the rest of the page below may be left blank.)
Acceptance/Rejection Signature and Date

Records Accepted ☐ _____ _____ _____
Signature Printed Name Date

Records Rejected ☐ _____ _____ _____
Signature Printed Name Date

Reason for Rejection:

Re-submittal: _____ _____ _____
Signature Printed Name Date

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CCP-QP-021

Revision 9

CCP
Surveillance Program

EFFECTIVE DATE: 10/23/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
3	06/03/2002	Section 2.0, Requirements (page 2): Change the first paragraph after the bullets to read as follows: "Planned and periodic surveillance will be conducted to measure item and service quality, process effectiveness, and promote improvement. The organization performing the assessments will have sufficient authority and freedom from the activities being assessed to carry out its responsibilities. Persons conducting surveillances will be qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan*, and knowledgeable of the items and activities being assessed."
4	05/24/2004	Revised Sections 1.1, 2.0, 2.3, 2.4, 4.0, 5.0 and Figure 2.
5	11/16/2006	Reengineered Surveillance Program to make it more comprehensive, to ensure findings are identified and tracked, and to ensure consistency amongst CCP Quality Assurance (QA) personnel, and to implement the Waste Isolation Pilot Plant Hazardous Waste Facility Permit-requirements resulting from the Section 311/Remote-Handled (RH) Permit Modification Request (PMR). Addressed Carlsbad Field Office (CBFO) Document Review Record (DRR) comment.
6	12/10/2008	Revised to delete reference to “assessments” incorporate conditions Corrected During Surveillance (CDS) and clarify training and qualification of surveillance personnel.
7	05/07/2010	General revision to clarify follow-up to observations and provide clarity of text.
8	01/16/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
9	10/23/2013	General revision: changed notes to action steps, rearranged action steps in chronological order, added definitions, deleted Surveillance Log Attachment Example, added action step for Surveillance Log detail, added Surveillance Checklist Example Attachment, updated titles, improved Surveillance Report format, improved Surveillance Plan format, deleted CCP-QP- 029, *CCP Corrective Action Management,* and CARs, replaced CARs with WIPP Forms, renumbered sections and paragraphs more logically, replaced CCP-QP-002, *CCP Training and Qualification Plan,* with CCP-QP-040, *Support Training,* clarified when notification is required, deleted Surveillance Checklist from Records, made editorial corrections.

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1.0 PURPOSE

This procedure specifies the steps for independent quality assurance (QA) surveillances, and establishes the process and responsibilities for planning, conducting, documenting, reporting, and following up surveillances of the Central Characterization Program (CCP).

1.1 Scope

This procedure applies to CCP organizations, facilities, and personnel conducting surveillances of TRU waste characterization. Planned and periodic surveillances will be conducted to measure item and service quality, process effectiveness, and to promote improvement. The organization conducting the surveillance will have sufficient authority and freedom to carry out its responsibilities. Persons conducting surveillances will complete a Quality Assurance Surveillance Personnel Qualification Card prepared and approved in accordance with CCP-QP-040, *Support Training,* and be knowledgeable of the items and work assessed.

1.2 Definitions

Corrected During the Surveillance	An isolated condition adverse to quality which can be corrected and verified by review of objective evidence before the surveillance concludes.
Finding	A violation of a quality assurance requirement requiring documentation by Nonconformance Report or Waste Isolation Pilot Plan (WIPP) Form.
Objective Evidence	Any documented statement of fact, other information, or record, either quantitative or qualitative, pertaining to the quality of an item or process, based on observation, measurement, or test which can be verified.
Observation	A condition that, if not addressed, may deteriorate into a finding.
Other Condition Requiring Resolution (OCRR)	A violation of a non-quality assurance requirement that requires documentation and followup by entry in the Commitment Tracking system (CTS).
Recommendation	A suggestion that, if implemented, might improve compliance with the quality assurance program.
Surveillance	Monitoring or observing to verify whether an item or process conforms to specified requirements.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- WP 13-1, *Nuclear Waste Partnership LLC Quality Assurance Program Description*

Referenced Documents

- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*
- CCP-QP-040, *Support Training*
- WP 15-GM1002, *Issues Management Processing of WIPP Forms*

3.0 RESPONSIBILITIES

3.1 Assurance Programs Manager

3.1.1 Ensures implementation of the surveillance program as specified in this procedure.

3.1.2 Approves the surveillance schedule.

3.1.3 Ensures that surveillance personnel have successfully completed a Quality Assurance Surveillance Personnel Qualification Card.

3.1.4 Ensures surveillance personnel have sufficient authority and organizational freedom to carry out their assigned responsibilities.

3.1.5 Assigns Surveillance Lead.

3.1.6 Informs the Nonconformance Report (NCR) Coordinator, Commitment Tracking System (CTS) Coordinator, and Nuclear and Worker Safety Compliance Coordinator about findings.

3.2 Surveillance Lead

3.2.1 Selects the Surveillance Team Members and ensures they meet qualification requirements.

3.2.2 Informs the surveillance team regarding the Plan, assignments, etc.

3.2.3 Notifies affected organizations of surveillances, when applicable.

3.2.4 Develops the surveillance plan.

3.2.5 Approves surveillance checklists, when used.

3.2.6 Organizes and directs the surveillance.

3.2.7 Reports the surveillance results.

3.2.8 Follows up on observations and findings identified in previous surveillances or other assessments, or NCR or WIPP Form dispositions.

3.3 Surveillance Team Members

3.3.1 Identifies the criteria to be used during the surveillance.

3.3.2 Develops the surveillance checklist(s), when applicable, under the direction of the Surveillance Lead.

3.3.3 Periodically informs the Surveillance Lead of progress and problems with assigned tasks during the surveillance.

3.3.4 Notifies the Responsible Manager and Surveillance Lead when potentially unsafe conditions are identified.

3.4 Surveillance Coordinator

3.4.1 Develops and maintains a surveillance schedule.

3.4.2 Develops and maintains a Surveillance Log.

3.4.3 Develops at least annually and maintains surveillance schedules that document planned surveillances.

3.5 Responsible Manager of Area Assessed

3.5.1 Corrects conditions adverse to quality and tracks and follows up on Observations, and OCRRs identified during the surveillance.

3.6 CTS Coordinator

3.6.1 Enters CTS data into the WIPP CTS for tracking and follow-up when applicable.

4.0 PROCEDURE

4.1 Schedule the Surveillance

Assurance Programs Manager

4.1.1 In coordination with Management, identify work to be assessed by surveillance.

Surveillance Coordinator

4.1.2 Prepare and maintain the surveillance schedule based on QA and Management input.

4.1.3 Assign a unique Surveillance number to each surveillance and document the following in a Surveillance Log:

- Surveillance number
- Item, process, organization, or procedure to be assessed.
- Date the surveillance is planned to begin.

[A] The Surveillance number is represented by:

- SUR-xxxxxx-yy-zz, where:
- "SUR" represents the designator for surveillance
- "xxxxxx" represents the facility (CCP, INL, LANL, ORNL, RL, SRS, RHANL, etc.) (when applicable to remote-handled waste, include "RH" as a prefix to the site designator [e.g., Los Alamos National Laboratory remote-handled waste = "RHLANL"])
- "yy" represents a sequential number, beginning "-01-" each calendar year.
- and "zz" represents the final two digits of the calendar year in which the surveillance is initiated.

[B] Examples of surveillance numbers:

- SUR-RHINL-01-13
- SUR-SRS-94-13
- SUR-CCP-15-13

4.1.4 Obtain Assurance Programs Manager approval of the schedule.

Assurance Programs Manager

4.1.5 Assign a Surveillance Lead for each scheduled surveillance.

[A] Select personnel who have no direct responsibility for the work to be assessed.

4.1.6 Approve the surveillance schedule.

4.2 Plan and Conduct the Surveillance

Surveillance Lead

4.2.1 Obtain a Surveillance Number from the Surveillance Coordinator.

4.2.2 Select Surveillance Team Members as needed, based on expertise, availability, experience, objectivity, and the scope, complexity, or special nature of the work to be assessed, with the following in mind:

- Surveillance Team Members shall be qualified to conduct surveillances in accordance with CCP-QP-040.
- Personnel having direct responsibility for work to be assessed shall NOT be involved in the selection of the team.
- Surveillance Team Members shall have the authority to conduct surveillances, and shall be independent from the organization to be assessed.
- During surveillance, technical specialists may be used to assist with assessment of the adequacy of technical attributes.
- The Surveillance Lead will ensure technical specialists are knowledgeable of the technical attributes to be assessed, and that they receive the same instructions as other team members.

4.2.3 Prepare the Surveillance Plan (See Attachment 1, Surveillance Plan Example) to address the following priorities:

- Monitor work in progress

- Document compliance or noncompliance with established requirements and procedures
- Identify actual and potential conditions adverse to quality
- Obtain timely corrective action commitment from responsible managers for identified conditions adverse to quality
- Notify responsible managers of the quality status of work
- Verify effective implementation of corrective action

4.2.4 Review the Plan with Surveillance Team members, including pertinent background information, previous surveillance or oversight results, applicable procedures, and applicable technical documents to familiarize Surveillance Team members with the work under assessment.

4.2.5 When the organization to be assessed is outside the area of responsibility of the organization conducting the surveillance, notify the organization(s) to be assessed of the surveillance date(s) and its purpose by memorandum, letter, or email.

Surveillance Team Members

4.2.6 When electing to use surveillance checklists, prepare them including the criteria to be assessed. See Attachment 3, Surveillance Checklist Example, for guidance.

4.2.7 Examine objective evidence, work in progress, items (including components, specimens, or equipment, etc.), and interviewing responsible personnel as applicable. Include technical evaluations of the applicable procedures, instructions, work, and items, as applicable.

4.2.8 Review previous corrective actions, when applicable, to assess implementation and effectiveness.

4.2.9 Review applicable documents, standards, and criteria pertaining to the process to be assessed.

4.2.10 Document the results of the surveillance as input to the surveillance report in sufficient detail, including but not limited to objective evidence examined and personnel interviewed to ensure retrieval of records examined is possible.

4.2.11 Inform the Surveillance Lead of progress andproblems with assigned tasks during the surveillance.

4.2.12 Notify the Responsible Manager and Surveillance Lead of potentially unsafe conditions.

Surveillance Lead

4.2.13 Notify the Assurance Programs Manager and the management of the assessed organization as soon as practicable if conditions are discovered that could impact prior work, affect work in progress significantly, or if conditions require prompt attention.

4.2.14 If applicable, prepare NCRs in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control* and WIPP Forms in accordance with WP 15-GM1002, *Issues Management Processing of WIPP Forms*.

4.2.15 Brief management of the assessed organization.

4.3 Report the Surveillance

4.3.1 Prepare the surveillance report using Surveillance Report (Example provided as Attachment 2, Surveillance Report) and include the following elements, as applicable:

- Identify conditions adverse to quality in sufficient detail to enable corrective actions to be taken by the assessed organization. Document nonconforming item(s) (i.e., hardware or data) using an NCR and programmatic conditions using a WIPP Form. Cite the requirement(s) applicable to these deficiencies.
- If Observations were identified, state that conditions observed, if not addressed, could deteriorate into a finding.
- If Other Conditions Requiring Resolution were identified, describe them and what requirements were violated
- When applicable, provide recommendations that could strengthen the existing program or process
- Include in the report descriptions of all actions taken to resolve conditions adverse to quality, and identify those conditions adverse to quality as corrected during the surveillance (CDS).

4.3.2 Sign and date and submit the report to the Assurance Programs Manager for review and approval.

Assurance Programs Manager

4.3.3 Review the surveillance report, resolve any issues with the Surveillance Lead, and approve the report.

4.3.4 Issue the surveillance reports to management, Nuclear and Worker Safety Compliance Coordinator, NCR Coordinator, Surveillance Coordinator, National TRU Program Certification (NTPC) Records, the applicable Host Site Subcontract Technical Representative , and the applicable Site Project Manager.

4.3.5 Consider the surveillance closed when issued. The conditions adverse to quality are documented by NCR, WIPP Form, or CTS item, all of which are self-contained systems in which the deficiency documents or items are closed independently.

4.4 Follow Up the Surveillance

CTS Coordinator

4.4.1 Make a separate entry for each finding (NCR or WIPP Form) identified in the report into the Integrated Data Center or the WIPP CTS.

Responsible Manager of Assessed Organization

4.4.2 Ensure timely and effective corrective actions in response to NCRs, WIPP Forms, or Other Conditions Requiring Resolution resulting from the surveillance.

4.4.3 Work with the Surveillance Lead and the Assurance Programs Manager to resolve issues regarding necessary corrective actions.

4.4.4 After completion of corrective actions associated with surveillance, inform the CTS Coordinator.

5.0 RECORDS

5.1 Records generated as a result of implementing this procedure are controlled, maintained, and submitted as QA records in accordance with CCP-QP-008, *CCP Records Management*. The records are the following:

5.1.1 QA/Nonpermanent

[A] Surveillance File, including:

- Surveillance Notification, when applicable
- Surveillance Plan
- Surveillance Report

[B] Surveillance Schedule

Attachment 1 – Surveillance Plan Example

SURVEILLANCE PLAN

[SUBJECT or Organization to be assessed]

Surveillance Number:	[SUR-SRS-01-13]
Organization to be Evaluated:	[CCP Nondestructive Examination]
Location:	[Savannah River Site]
Surveillance Initiation Date:	[1 October 2013]
Surveillance Team Lead:	
Surveillance Team Member(s):	
Scope:	[What will the surveillance team look at?]
Planned Contact(s):	
Objective(s):	[How the surveillance will be done: examine documents, interview personnel, or observe work in progress, etc.]
Applicable Requirements and Documents:	[Procedures, DOE documents, corrective action commitments, recurrence of previous findings, etc.]

Attachment 2 – Surveillance Report Example

SURVEILLANCE REPORT

SUR-xxxxxx-yy-zz

Central Characterization Program

[Nondestructive Assay at (Host site)]

Surveillance Team Lead:	_____	_____	_____
	print name	**signature**	**date**
Assurance Programs Manager:	_____	_____	_____
	print name	**signature**	**date**

Attachment 2 – Surveillance Report Example (continued)

SUMMARY
[a brief sentence or two on surveillance results: when and where the surveillance was conducted, how many WIPP Forms, Observations, OCRRs, Recommendations, etc., and a summary statement on whether the implementation of the QA Program for what was examined was satisfactory]

SCOPE
[e.g., what the surveillance personnel examined]

CRITERIA
[e.g., what requirements the surveillance was based on: such as CCP-QP-002, *CCP Training and Qualification Plan,* revision 35]

PERSONNEL
[surveillance team lead and members; personnel whom the surveillance team contacted or interviewed]

DETAILS
[how the surveillance was conducted: e.g., what objective evidence was reviewed; what work was observed; and the results]

FINDINGS (NCRs and WIPP Forms)

OTHER CONDITIONS REQUIRING RESOLUTION (include CTS nos.)

CORRECTED DURING THE SURVEILLANCE

STATUS OF CONCERNS PREVIOUSLY IDENTIFIED

OBSERVATIONS

RECOMMENDATIONS

NOTEWORTHY PRACTICE

ATTACHMENTS [if applicable]

Attachment 3 – Surveillance Checklist Example

SURVEILLANCE CHECKLIST

Surveillance number: SUR- **Checklist approved by:** **Date:** **Page 1 of 1**

No.	Reference	Criterion	Notes (NCR = Nonconformance Report; WF = WIPP Form; CDS = Corrected During the Surveillance; OBS = Observation; OCRR = Other Condition Requiring Resolution))	SATIS-FACTORY (S); UNSATIS-FACTORY (U); or N/A
1.				
2.				
3.				
4.				
5.				
[etc.]				

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CCP-QP-028

Revision 15

CCP
Records Filing, Inventorying, Scheduling, and Dispositioning

EFFECTIVE DATE: 01/22/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
3	08/20/2002	Added steps 4.3.3 through 4.3.6. Added a Table of Contents. Added a Record of Revision. Other editorial changes.
4	10/24/2002	Added new Step 3.1.2 and revised Step 4.2.4.[B] making the Project Manager responsible for signing RIDS; added as result of a comment during the SRS Recertification Audit.
5	09/25/2003	Separated electronically fillable forms and updated references in procedure. Added responsibilities for CCP personnel. Other editorial changes.
6	07/25/2006	Revised to change the CCP Project Manager's responsibility to the CCP Project Support Manager.
7	04/18/2007	Revised to change CCP Project Support Manager responsibilities to the CCP Program Development Manager.
8	09/11/2007	Revised to make minor editorial changes and to replace Attachment 1, Records Inventory and Disposition Schedule with new DOE form, DOE F 1324.10 (06-96).
9	02/24/2009	Revised to incorporate changes to titles of personnel and names for organizations. Also, a step was added to Section 4.2 (step 4.2.5) to complete the process performed. Section 4.4 was deleted since the requirements are not applicable to the CCP scope of work (they are implemented at the RCT level).
10	04/08/2010	Revised to incorporate changes to Attachment 2, Instructions for Filling Out the Records Inventory and Disposition Schedule.
11	05/19/2010	Revised to bring instructions regarding location in Attachment 4, Instructions for Filling Out the Records Inventory and Disposition Schedule, in line with current practice.
12	11/09/2010	Revised to remove examples form and re-number remaining attachments and update Attachment 2.
13	09/09/2011	Revised to correct reference section of the procedure and remove a reference that is no longer active.

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
14	01/16/2012	Revised to bring into line with the Waste Isolation Pilot Plant (WIPP) Inventory Worksheets and general editing of the procedure.
15	01/22/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes.

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1.0 PURPOSE

This procedure provides direction and instruction for generating, issuing, and using a Records Inventory and Disposition Schedule (RIDS).

1.1 Scope

The procedure applies to Central Characterization Program (CCP), CCP Manager, and Records Custodians responsible for inventory, scheduling, and disposing of CCP records under their cognizance, regardless of media, in order to document the activities related to the CCP.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- 44 USC 3301, *Definition of Records*
- DOE/CBFO-94-1012, *U.S. Department of Energy Carlsbad Field Office* (CBFO) *Quality Assurance Program Document* (QAPD)

Referenced Documents

- EA15RM3002-1, *WIPP Records Inventory Work Sheet*
- EA15RM3002-2, *Records Inventory and Disposition Schedule (RIDS)*
- WP 15-RM3002, *Records Filing, Inventorying, Scheduling, and Dispositioning*
- CCP-QP-008, *CCP Records Management*

3.0 RESPONSIBILITIES

3.1 CCP Manager or Designee

3.1.1 Approves the Records Inventory and Disposition Schedule (RIDS).

3.2 Lead Records Custodian

3.2.1 Develops new RIDS.

3.2.2 Performs annual review and revision of RIDS.

3.3 WIPP Records Management Services (WRMS)

3.3.1 Reviews the RIDS and associated WIPP Records Inventory Worksheets.

3.3.2 Provides final approval signature for the RIDS.

4.0 PROCEDURE

4.1 Developing a New Inventory and RIDS

Lead Records Custodian

NOTE
The Lead Records Custodian may request assistance from WIPP Records Management Services (WRMS) for performance of steps 4.1.1 and 4.1.2.

4.1.1 Complete EA15RM3002-1, *WIPP Records Inventory Work Sheet* for each record and non-record series, using the instructions contained in WP 15-RM3002, *Records Filing, Inventorying, Scheduling, and Dispositioning*.

4.1.2 Complete the RIDS on form EA15RM3002-2, *Records Inventory and Disposition Schedule (RIDS),* using the instructions contained in WP 15-RM3002.

4.2 RIDS Review and Approval

Lead Records Custodian

4.2.1 Forward the draft RIDS and all EA15RM3002-1 to WRMS for review and comments.

4.2.2 **IF** WRMS returns the RIDS with comments,
THEN resolve the comments.

4.2.3 **IF** notified by WRMS that the RIDS is acceptable,
THEN print out a final copy of the RIDS for signatures.

4.2.4 Obtain the required signatures in Block 5, RIDS, as follows:

[A] Prepared by - Signature of the designated trained Lead Records Custodian who prepared the RIDS

[B] Approved by - Signature of the CCP Manager or Designee

[C] Record Liaison Officer - Enter “N/A”

4.2.5 Submit signed RIDS to WRMS for final approval by obtaining WRMS signature.

4.3 Revising and Reviewing the RIDS

Lead Records Custodian

4.3.1 Review files annually, at a minimum.

NOTE
Take into consideration organization changes that may affect record series custodianship, location, or when new record series are created.

4.3.2 Check all record and non-record material on the current RIDS.

4.3.3 **IF** a new series is added,
THEN complete an EA15RM3002-1, with the instructions in WP 15-RM3002, **AND** add the new record series to a draft CCP RIDS.

4.3.4 **IF** a record series is no longer generated and maintained,
THEN complete an EA15RM3002-1, with the instructions in WP 15-RM3002, **AND** delete the item on a draft RIDS.

4.3.5 Forward the draft RIDS, **AND** any new EA15RM3002-1 to the WRMS annually at a minimum.

4.3.6 Follow steps 4.2.2 through 4.2.5.

4.3.7 **IF** an interim RIDS change is needed to make an immediate change of information on the RIDS,
THEN complete an EA15RM3002-1, with the instructions in WP 15-RM3002.

4.3.8 Send copy to WRMS and add changes to a draft RIDS to be submitted in the next RIDS review.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained in accordance with CCP-QP-008, *CCP Records Management.* The records are the following:

Non-Quality Assurance

5.1.1 Records Inventory and Disposition Schedule

5.1.2 WIPP Records Inventory Worksheet

Controlled
Copy

CCP-TP-001

Revision 21

CCP
Project Level
Data Validation and Verification

EFFECTIVE DATE: 06/06/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
4	12/14/2001	Revised to reflect the use of an electronic data management system at some sites. A new Section 4.4 was created; minor changes to Section 4.7; references and records updated, and Attachments 1 through 4 revised.
5	03/08/2002	Minor editorial changes; added a new Section 4.8, and a new Attachments 7 through 11.
6	05/15/2002	Description of Revision: Changes made due to the Revision of DOE/WIPP-02-3122, *Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (CH-WAC) and changes to the Permit Modification to be implemented June 1, 2002. Plus planned changes due to process improvement. Multiple section changes as well as Attachment changes.
7	01/13/2003	Updated title of CCP-PO-005. Updated attachments 1 through 12.
8	02/03/2003	Additions to Attachment 4 and Attachment 5, DAC requirements. Resolved CBFO comments.
9	07/10/2003	Text and attachments to include Homogeneous Solid/Soil Waste Sampling and Checklists. Added steps to validate BDRs through P-TS. Separated electronically fillable forms and updated references in procedure.
10	08/28/2003	Revised sections 2.1, 2.6, 3.2, 4.3, and 5.1.
11	03/23/2005	Revised to incorporate LANL Off-Site Source Recovery Project (OSRP) requirements. Deleted Section 4.5, e-QA forms, Attachments 1 through 4 due to closure of Argonne National Laboratory (ANL)-East. Revised CCP Records Custodian and Facility Records Custodian responsibilities and actions.
12	05/25/2006	Revised to address Carlsbad Field Office (CBFO) Document Review Record (DRR) comments.
13	07/21/2006	Revised Attachments 10, 11, 13, 14, and 15 in response to Corrective Action Report (CAR) Number CAR-LANL-0006-06.
14	11/16/2006	Revised to implement the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/Remote-Handled (RH) Permit Modification Request (PMR). Addressed Carlsbad Field Office (CBFO) Document Review Record (DRR) comments.
15	11/22/2006	Minor revision to correct header in Attachment 12.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
16	04/26/2007	Clarification of note in Section 4.3 for quarterly reports.
17	09/24/2007	Revised to clarify the references in the attachments and to remove the 25%RPD limit for solids/soils co-located cores/samples from Attachments 6, 7, 8 and 9. Revised to remove Visual Examination (VE) Expert decisions and signature and date. Modifications were made to Sections 4.4, 4.5, and Attachments 6 through 9 to discuss the F-test and control charts.
18	08/09/2010	Revised to address Hazardous Waste Facility Permit modification, and other editorial and freeze file changes.
19	12/29/2010	Revised to clarify independent technical reviewer (ITR) Independence and to update references to the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit.*
20	09/27/2012	Revised to remove references to P-TS. Also revised due to CAR-LANL-0005-12 and CBFO CAR 12-033.
21	06/06/2013	Revised to address Class 2 Hazardous Waste Facility Permit Modification, which was approved by New Mexico Environmental Department (NMED) on March 13, 2013.

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1.0 PURPOSE

Waste characterization data generated by characterization activities are validated and verified in compliance with CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (QAPjP) and CCP-PO-002, *CCP Transuranic Waste Certification Plan*. The format of CCP-PO-001 parallels that of the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit,* NM 4890139088 TSDF, Attachment C, *Waste Analysis Plan* (WAP). Characterization data requiring review, validation and verification includes Nondestructive Examination (NDE), Nondestructive Assay (NDA), Sealed Sources Radiological Characterization Data, and Visual Examination (VE).

1.1 Scope

NOTE

Remote-handled data review and validation is addressed in the appropriate TP-500 series procedure.

Gas Generation Testing (GGT) data review and validation are not addressed in this procedure. Refer to CCP-PO-016, *CCP Gas Generation Testing Program Quality Assurance Project Plan* for guidance.

This procedure defines the activities required to perform data validation and verification at the Central Characterization Program (CCP) Project Office. This procedure is applicable to all personnel performing data validation and verification. The Site Project Manager (SPM) is responsible for conducting the data validation and verification activities described in this procedure. Compliance with this procedure ensures that each batch data report (BDR) complies with the requirements of the CCP-PO-001 and CCP-PO-002.

2.0 REQUIREMENTS

2.1 References

Referenced Documents

- *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*, NM 4890139088-TSDF, Attachment C, *Waste Analysis Plan*
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
- CCP-PO-016, *CCP Gas Generation Testing Program Quality Assurance Project Plan*
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*
- CCP-QP-029, *CCP Corrective Action Management*

2.2 Training Requirements

Personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan* prior to performing this procedure.

2.3 Equipment List

2.3.1 None.

2.4 Precautions and Limitations

2.4.1 None.

2.5 Prerequisite Actions

2.5.1 None.

2.6 Definitions

2.6.1 None.

2.7 Project Office Integrated Data Center (IDC) (where available)

2.7.1 The IDC provides the capability of tracking BDRs for review.

2.7.2 The IDC provides, as a minimum, the following:

[A] Link to a scanned copy of the BDR.

[B] Status of the BDR.

[C] HOLD status of the BDR.

[D] Status of Nonconformance Reports (NCRs).

3.0 RESPONSIBILITIES

NOTE

Implementation of this procedure requires the following positions: Data Generation Level (DGL) Personnel, SPM, CCP Records Custodian, and Facility Records Custodian.

3.1 SPM

3.1.1 Reviews 100 percent of the BDRs generated as a result of waste characterization activities prior to any of the waste associated with the data reviewed being shipped to the Waste Isolation Pilot Plant (WIPP).

3.1.2 Ensures the DGL Independent Technical Reviewer (ITR) reviews, validations, and verifications have been performed by verifying completed review checklists and appropriate signatures.

3.1.3 Ensures BDR review checklists are complete.

3.1.4 Ensures data are within established data assessment criteria and meet all applicable Quality Assurance Objectives (QAOs) as defined by CCP-PO-001.

3.1.5 Ensures BDRs are complete and data are properly reported (e.g., data are reported in the correct units, and correct significant figures).

3.1.6 Prepares the applicable CCP SPM Project Level Data Validation Summary.

3.1.7 Releases, by signature and date, the BDR upon completion of the SPM review.

3.1.8 Generates NCRs in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control* and Corrective Action Reports (CARs) in accordance with CCP-QP-029, *CCP Corrective Action Management* as required.

3.1.9 Reviews NCRs and verifies corrective actions, as needed.

3.1.10 Determines if U.S. Department of Energy (DOE)/Carlsbad Field Office (CBFO) reporting is required for NCRs/CARs generated at the SPM level.

[A] Makes notifications to DOE/CBFO, and ensures actions are completed as required.

3.2 CCP Records Custodian

3.2.1 Receives corrected BDR or BDR pages from the Facility Records Custodian, as necessary, in accordance with CCP-QP-008, *CCP Records Management*.

3.3 Facility Records Custodian

3.3.1 Enters BDR into the IDC.

3.3.2 Receives, processes, and transmits corrected BDR or BDR pages to CCP Records Custodian, when applicable, in accordance with CCP-QP-008.

4.0 PROCEDURE

4.1 BDR Receipt

Facility Records Custodian

4.1.1 Enter BDR into the IDC.

NOTE
Steps in Section 4.2 may be performed in any order.

4.2 SPM BDR Review

NOTE
Section 4.2 must be completed for 100 percent of the BDRs transmitted to the SPM.

The SPM must perform a comprehensive review of the data (e.g., correct units, significant figures, as well as ensuring that data assessment criteria are met).

SPM

4.2.1 Initiate BDR review in the IDC as follows:

[A] Log into the IDC.

[B] Select BDR to review (e.g., the IDC Daily Hot Lists).

[C] Click on START SPM REVIEW.

[D] Compare Container Identifications (IDs) in the BDR to the Container IDs included in the IDC.

[E] **IF** any Container IDs from the BDR are missing from the IDC **OR** DO **NOT** match those entered into the IDC, **THEN** contact the CCP Records Custodian/Facility Records Custodian, **AND** resolve the problem.

[E.1] Place BDR on HOLD by selecting, PLACE BDR ON HOLD, if necessary, **AND** enter reason for HOLD in the Comments/Qualifiers Section by selecting ADD/EDIT COMMENTS.

[E.2] **WHEN** the problem is resolved,
THEN select REMOVE HOLD FROM BDR in the IDC.

[E.3] Compare NCRs included in the BDR to the NCRs in the IDC, if applicable.

[E.4] **IF** any NCRs are missing from the IDC **OR** DO **NOT** match those entered into the IDC for the BDR,
THEN contact the NCR Coordinator, **AND** resolve the problem.

[E.5] Place BDR on HOLD by selecting, PLACE BDR ON HOLD, if necessary, **AND** enter reason for HOLD in the Comments/Qualifiers Section by selecting ADD/EDIT COMMENTS.

[E.6] **WHEN** the problem is resolved,
THEN select REMOVE HOLD FROM BDR in the IDC.

NOTE

Containers for Newly Generated Waste will **NOT** appear in the Acceptable Knowledge (AK) Tracking Spreadsheet on the CCP secure file transfer protocol (sftp) site for VE Technique BDRs. All Newly Generated Waste containers should be listed in the AK Tracking Spreadsheet at the time of validation for all other BDR types.

NOTE

Reports derived from the IDC Search function use the AK Tracking Spreadsheets and can be used to verify Container IDs.

[F] Compare Container IDs in the BDR to the approved AK Tracking Spreadsheet on the CCP sftp site.

[G] **IF** any Container IDs are included in the BDR that are **NOT** on the approved and posted AK Tracking Spreadsheet,
THEN contact the AK Expert.

[G.1] Place BDR on HOLD by selecting, PLACE BDR ON HOLD, if necessary, **AND** enter reason for HOLD in the Comments/Qualifiers Section by selecting ADD/EDIT COMMENTS.

[G.2] **WHEN** the problem is resolved,
THEN select REMOVE HOLD FROM BDR in the IDC.

4.2.2 Select the appropriate SPM checklist for the BDR being reviewed.

4.2.3 Record the BDR Number at the top of the appropriate SPM checklist.

4.2.4 Record the Examination Date(s) at the top of the appropriate SPM checklist.

4.2.5 Verify that the DGL ITR reviews, validations, and verifications have been performed as evidenced by the completed review checklist and appropriate signature release.

4.2.6 Verify the BDR is complete.

4.2.7 Verify that data are within established data assessment criteria and meet all applicable QAOs: Precision, Accuracy, Completeness, Comparability, and Representativeness.

NOTE

To answer questions regarding specific criteria being met, (i.e., QAOs, QCs), the SPM must ensure that the information presented in the BDR meets the requirements identified in CCP-PO-001, CCP-PO-002, and CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*.

4.2.8 Answer each question on the appropriate SPM checklist after verifying that the specific criteria have been met.

NOTE

All containers listed in the BDR will be listed on the SPM checklist.

4.2.9 **IF** any question is answered NO,
THEN evaluate the impact, **AND** perform steps 4.2.11 and 4.2.14, as appropriate.

4.2.10 **IF** any question is answered NA or NO,
THEN provide justification in the Comments/Qualifiers Section of the appropriate SPM checklist, as applicable. If a question includes criteria for “NA,” a comment is not required.

NOTE

Editorial corrections may be made to the BDR by the Operator, ITR, SPM or a Designee as directed by these personnel. The extent of editorial corrections permitted by a Designee is identified in CCP-QP-008. Data affecting changes are ONLY made by DGL personnel. Any data affecting changes made by DGL personnel will require a re-review by the Operator, ITR, and SPM.

4.2.11 **IF** editorial inconsistencies, mistakes, omissions, etc., are noted during the SPM review, that DO **NOT** change the characterization data,
THEN notify DGL personnel of required corrections, **AND** edit the BDR in accordance with CCP-QP-008.

[A] Place BDR on HOLD by selecting, PLACE BDR ON HOLD, if necessary, **AND** enter reason for HOLD in the Comments/Qualifiers Section by selecting ADD/EDIT COMMENTS.

DGL Personnel

[B] Perform editorial corrections, as needed.

[C] Resubmit corrected BDR or BDR pages to the Facility Records Custodian in accordance with CCP-QP-008.

Facility Records Custodian

[D] Receive, process, and transmit or maintain corrected BDR or BDR pages in accordance with CCP-QP-008.

[E] Notify SPM to continue review.

4.2.12 **IF** required changes CAN **NOT** be adequately documented on the SPM checklist,
THEN include additional information on an additional sheet of paper as needed.

4.2.13 **IF** additional information is placed after an SPM checklist,
THEN indicate, on the appropriate SPM checklist, that additional information is being provided, **AND** paginate the inserted documentation to show which checklist it is associated with (e.g., SPM-1).

NOTE

Corrections to BDRs mandated by Project Office NCRs will not proceed until DGL has been provided a copy of the validated and dispositioned Project Office NCR.

4.2.14 **IF** data affecting inconsistencies, mistakes, omissions, etc., are noted during the SPM review, that impact or change the characterization data,
THEN Initiate an NCR in accordance with CCP-QP-005:

[A] Ensure copy of approved Project Office NCR is provided to DGL documenting required changes in the NCR disposition.

DGL Personnel

[B] Correct the deficiency.

[C] ITR Re-review in accordance with the applicable procedure, **AND** resubmit corrected BDR or BDR pages, and copy of the NCR, to CCP Records for processing in accordance with CCP-QP-008.

4.2.15 Record comments in the box at the end of the appropriate SPM checklist or record NA.

4.2.16 Print name, sign, and date the appropriate SPM checklist.

4.2.17 End SPM review in IDC.

4.2.18 Submit completed SPM checklist to CCP Records for processing in accordance with CCP-QP-008.

4.2.19 If SPM re-review is required,

[A] Insert corrections.

[A.1] **IF** revised page contains correction or additional information,
THEN replace the BDR record page with the corrected page.

OR

[A.2] **IF** additional corrected pages are inserted in the numbered section of the BDR,
THEN supercede pages, **AND** properly paginate the inserted documentation in accordance with CCP-QP-008.

[B] Select RE-REVIEW button in the IDC, if necessary.

[C] Perform a re-review of the corrected BDR.

[D] Verify that all criteria have been met and the review is complete.

[E] Select REMOVE HOLD ON BDR in the IDC, if necessary, **AND** complete review in the IDC.

4.2.20 Print name, sign name, enter reason for re-review, and enter date completed on the appropriate SPM checklist in the re-review signature area.

4.2.21 **WHEN** all criteria have been verified, **AND** the review is complete, **THEN** select END SPM BDR REVIEW in the IDC.

NOTE

Additional information is information that is added to the back of the SPM checklist after receipt at the Project Level. Additional information can be in the form of e-mail authorizations for administrative changes, letters or e-mails of clarification to posed questions (This list is not all inclusive).

4.2.22 **IF** additional information is placed after an SPM checklist, **THEN** indicate, on the appropriate SPM checklist, that additional information is being provided, **AND** paginate the inserted documentation to show which checklist it is associated with (e.g., SPM-1).

4.2.23 Forward the completed SPM checklist, and any additional information, to the CCP Records Custodian/Facility Records Custodian.

CCP Records Custodian/Facility Records Custodian

4.2.24 Receive, process, and transmit or maintain in accordance with CCP-QP-008.

4.3 Quarterly Repeat of DGL Data Review, Validation, and Verification

NOTE

The SPM shall ensure that a repeat of the DGL data review, validation, and verification of data generated to meet the requirements of CCP-PO-001 is performed quarterly for a minimum of one randomly chosen waste container. The SPM uses this exercise to document that the DGL data review, validation, and verification is being performed in accordance with applicable procedures.

SPM

4.3.1 Randomly select one waste container for a repeat of the DGL data review, validation, and verification for one RTR and VE BDR generated in the last quarter.

NOTE

The following documents will be included in the quarterly DGL data review, validation, and verification: the original data reported, any nonconformances generated prior to ITR, reviews, and QC Data Sheets. The BDR Batch Narrative will **NOT** be included.

4.3.2 Retrieve a copy of the BDR from CCP Records.

NOTE

When possible, a different ITR will be used for the quarterly DGL data review, validation, and verification of the selected waste container.

4.3.3 Assemble the mini-container package.

4.3.4 Document the container selection and the assignment of the DGL ITR by interoffice memorandum.

4.3.5 Submit a copy of the mini-container package to the Host site for re-review.

NOTE

DGL Personnel will review submitted data and generate new Tables of Contents, BDR Batch Narratives and DGL Checklists. Any discrepancies will be noted in the BDR Batch Narrative.

SPM

4.3.6 Perform a review of the re-submitted data in accordance with Section 4.2.

4.3.7 Compare the original BDR submitted for the selected container with the re-submitted data.

4.3.8 Document the comparison, by interoffice memorandum, to CCP Records.

4.3.9 **IF** discrepancies or problems that affect data quality are noted during the review,
THEN perform the following:

[A] Initiate an NCR in accordance with CCP-QP-005.

[B] Notify the appropriate facility personnel.

4.3.10 Submit the re-reviewed package, associated information, and copy of interoffice memorandum to CCP Records.

Facility Records Custodian/CCP Records Custodian

4.3.11 Receive, process, and transmit the reviewed package, associated information, and copy of interoffice memoradum in accordance with CCP-QP-008.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as Quality Assurance (QA) records in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Lifetime

[A] Attachment 1, CCP SPM Visual Examination Project Level Validation Checklist and Summary

[B] Attachment 2, CCP SPM Radiography Project Level Validation Checklist and Summary

[C] Attachment 3, CCP SPM Nondestructive Assay Project Level Validation Checklist and Summary

[D] Attachment 4, CCP SPM Off-Site Source Recovery Sealed Source Radiological Characterization Project Level Validation Checklist and Summary

[E] Interoffice memorandum for the Quarterly Repeat of DGL Data Review BDR

[F] Container selection and the assignment of the DGL ITR interoffice memoramdum

5.1.2 QA/Nonpermanent

[A] Project Office Integrated Data Center (IDC)

Attachment 1 – CCP SPM Visual Examination Project Level Validation Checklist and Summary

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met?			Comments/Qualifiers
	YES	NO	NA	
1. Is the completed, signed and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**				
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**				
3. Does the BDR include a listing of all container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**				
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers:
5. Is the current implementing procedure and revision number included in the BDR? **Reference Source: CCP-PO-001, Table C3-3**				
6. Is the BDR date included? **Reference Source: CCP-PO-001, Table C3-3**				
7. Is there a reference to or copy of any associated NCRs (if any) in the BDR? **Reference Source: CCP-PO-001, Table C3-3**				
8. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001 C3-4**				
9. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures). **Reference Source: CCP-PO-001 C3-4**				
10. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**				
11. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**				
12. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**				

Attachment 1 – CCP SPM Visual Examination Project Level Validation Checklist and Summary (Continued)

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met?			Comments/Qualifiers
	YES	NO	NA	
13. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**				
14. Were discrepancies between the Visual Examination operator and the ITR with regards to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**				
15. Are the training requirements met for the VE Expert and VE Operators who have signed the data forms? **Reference Source: CCP-PO-001, C3-8**				
16. Is evidence of a satisfactory audio/video test included in the BDR? NA [not applicable] for VE Method for Newly Generated Waste. **Reference Source: CCP-PO-001, C1-2**				
17. If the VE was not recorded using audio/video media, does the data sheet contain the signature of two qualified operators who observed for themselves the waste being placed into the container? NA if audio/video used. **Reference Source: CCP-PO-001, C1-2**				
18. Are the weights/estimated weights for the 12 waste material parameters reported in kilograms (kg)? **Reference Source: CCP Technical Procedures**				
19. Are the descriptions for each waste material parameter included in the BDR? **Reference Source: CCP-PO-001, C1-2**				
20. Is the gross weight reported (in kg) for each container included in the BDR? **Reference Source: CCP Technical Procedures**				
21. Is the number of layers of confinement recorded? **Reference Source: CCP-PO-001, C1-2**				
22. Is sufficient information included in the BDR to determine the packaging configuration? **Reference Source: CCP-PO-001, C1-2**				

Attachment 1 – CCP SPM Visual Examination Project Level Validation Checklist and Summary (Continued)

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met?			Comments/Qualifiers
	YES	NO	NA	
23. Is the type and number of filters recorded? **Reference Source: CCP-PO-001, CCP Technical Procedures**				
24. Is the size of the rigid liner vent hole recorded? NA if no liner lid. **Reference Source: CCP-PO-001, CCP Technical Procedures**				
25. For Los Alamos National Laboratory (LANL) Sealed Sources, does the characterized waste container meet the definition of sealed sources per Title 10 Code of Federal Regulations (CFR) 30.4 and Title 10 CFR 835.2 (effective January 1, 2004) evidence of which is assembled as part of AK documentation? **Reference Source: CCP Technical Procedures**				
26. For LANL Sealed Sources, are sealed sources the only non-packaging items in the waste container? **Reference Source: CCP-TP-069, 4.1.4**				
27. For LANL Sealed Sources, are the sealed sources a U.S. Department of Transportation (DOT) Special Form Class 7 (Radioactive Material) per Title 49 CFR 34.27 (effective January 1, 2004) and the certification of which is assembled as part of the AK documentation? **Reference Source: CCP Technical Procedures**				
28. For LANL Sealed Sources, is the integrity of each sealed source validated by documented contamination survey results to meet the requirements of Title 10 CFR 34.27 (effective January 1, 2004), and assembled as part of AK documentation? **Reference Source: CCP Technical Procedures**				

Attachment 1 – CCP SPM Visual Examination Project Level Validation Checklist and Summary (Continued)

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
29. For LANL Sealed Sources, is each sealed source a rigid sealed container less than or equal to 4 L in size or in a rigid sealed container less than or equal to 4 L? **Reference Source: CCP Technical Procedures**				
30. For LANL Sealed Sources, AK documentation does not indicate the use of volatile organic compounds (VOCs) or VOC-bearing materials as constituents of sealed sources? **Reference Source: CCP Technical Procedures**				
31. For LANL Sealed Sources, the outer casing of each sealed source is of a non VOC-bearing material which is verified using the VE technique at the time of packaging? **Reference Source: CCP Technical Procedures**				

Comments:

The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.

SPM Printed Name Signature Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met?			Comments/Qualifiers
	YES	NO	NA	
1. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-001, C3-4**				
2. Does the BDR contain all items addressed in the BDR Table of Contents? **Reference Source: CCP-PO-001, C3-4**				
3. Does the BDR include a listing of all the container numbers in the batch? **Reference Source: CCP-PO-001, C3-4**				
4. List all containers that have met QAOs. **Reference Source: CCP-PO-001, C3-4**				Container Numbers:
5. Does the BDR identify the current implementing procedure and revision number? **Reference Source: CCP-PO-001, Table C3-3**				
6. Is there a reference to or copy of any associated NCRs (if any) in the BDR? NA if no NCRs. **Reference Source: CCP-PO-001, Table C3-3**				
7. Are there 20 or fewer containers in the batch? **Reference Source: CCP-PO-001, C3-4**				
8. Are the data properly reported (i.e., data are reported in correct units and with correct significant figures)? **Reference Source: CCP-PO-001, C3-4**				
9. Is there evidence of verification that the physical form matches the Waste Matrix Code? **Reference Source: CCP-PO-001, Table C3-3**				

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met?			Comments/Qualifiers
	YES	NO	NA	
10. Is there evidence of verification that the physical form matches the waste stream description? **Reference Source: CCP-PO-001, Table C3-3**				
11. Are prohibited items absent? **Reference Source: CCP-PO-001, Table C3-3**				
12. Does observable liquid, if present, meet the criteria of the TSDF-WAC? **Reference Source: CCP-PO-001, C-1**				
13. Were discrepancies between two operators with regard to identification of waste matrix code, liquids in excess of the TSDF-WAC, or compressed gases through replicate scans and independent observations reconciled? NA if no discrepancies. **Reference Source: CCP-PO-001, C3-2**				
14. Are the training qualifications for all radiography personnel acceptable? **Reference Source: CCP-PO-001, C3-8**				
15. Was evidence of the video/audio check included in the BDR? **Reference Source: CCP-PO-001, C1-1**				
16. Was the Lines-Pair Resolution Test or Sieve Test Check included in the BDR? **Reference Source: CCP Technical Procedures**				
17. Was a replicate scan performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**				
18. Was an independent observation performed once per day, or once per batch, whichever is LESS frequent? **Reference Source: CCP-PO-001, C1-1**				

Attachment 2 – CCP SPM Radiography Project Level Validation Checklist and Summary (Continued)

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
19. Were the replicate scan and independent observation performed on different waste containers? **Reference Source: CCP-PO-001, C1-1**				
20. Were the personnel performing the replicate scan and independent observation different from the individual who performed the original? **Reference Source: CCP-PO-001, C1-1**				
21. Does the BDR include an estimate of each material parameter weight in kg for each container? **Reference Source: CCP Technical Procedures**				
22. Does the BDR include a description of each material parameter for each container? **Reference Source: CCP Technical Procedures**				
23. Is the container gross weight recorded in kilograms (kg) for each container in the BDR? **Reference Source: CCP Technical Procedures**				
24. Was the Scale Weight Calibration Check included in the BDR? **Reference Source: CCP Technical Procedures**				
25. Was the Scale Weight Check included in the BDR? **Reference Source: CCP Technical Procedures**				

Comments:

The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by the QAPjP.

SPM Printed Name Signature Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 3 – CCP SPM Nondestructive Assay Project Level Validation Checklist and Summary

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
1. Are the background measurements performed and recorded daily and included in the BDR? **Reference Source: CCP-PO-002, Attachment 1, A.4.2**				
2. Is the efficiency/energy calibration and resolution check performed and recorded daily and included in the BDR? **Reference Source: CCP-PO-002, Attachment 1, A.4.2**				
3. Were the performance checks and backgrounds done prior to the analysis of the samples? **Reference Source: CCP-PO-002, Attachment 1, A.4.2**				
4. Are the required QC checks specified on the ITR checklist within acceptable limits? **Reference Source: CCP-PO-002, Attachment 1, A.4.2**				
5. Is the matrix drum performed at least once per operational week? **Reference Source: CCP-PO-002, Attachment 1, A.4.2**				
6. List all containers that have met all QC criteria thresholds. **Reference Source: CCP-PO-002, Attachment 1, A.5.2**				Container Numbers:
7. Is there evidence of participation in the PDP program or any relevant approved comparison program? **Reference Source: CCP-PO-002, Attachment 1, A.4.1**				
8. Are the personnel training records acceptable? **Reference Source: CCP-PO-002, Attachment 1, A.4.1**				
9. Is a standard cover sheet included in the BDR? **Reference Source: CCP Technical Procedures**				
10. Is there reference to or copy of associated NCRs included in the BDR? NA if no NCRs associated with BDR. **Reference Source: CCP-QP-005**				

Attachment 3 – CCP SPM Nondestructive Assay Project Level Validation Checklist and Summary (Continued)

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met?			Comments/Qualifiers
	YES	NO	NA	
11. Is the method used for radioassay identified by the implementing procedure(s) and revision number(s) referenced for each container in the BDR? **Reference Source: CCP Technical Procedures**				
12. Is the current software revision number correct for each container in the BDR? **Reference Source: CCP-QP-022**				
13. Is the completed, signed, and dated Independent Technical Reviewer Checklist included in the BDR, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-002, Attachment 1, A.5.1**				
14. Is the correct Waste Matrix Code referenced in the BDR? **Reference Source: CCP Technical Procedures**				
15. Is the method of expressing TMU specified in the BDR? **Reference Source: CCP-PO-002, 3.3.1**				
16. Does the instrument performing TRU/low-level waste measurement have an LLD of 100 nCi/g or less? **Reference Source: CCP-PO-002, Attachment 1, A.3**				
17. Are the ten WIPP tracked radionuclides of 241Am, 238Pu, 239Pu, 240Pu, 242Pu, 233U, 234U, 238U, 90Sr, 137Cs estimated activities and masses, including their associated TMU reported on each radioassay data sheet? **Reference Source: CCP-PO-002, 3.3.1**				
18. Is 235U (in order to calculate FGE) reported as present or absent on each radioassay data sheet? **Reference Source: CCP-PO-002, Attachment 1, A.3**				
19. If 235U is reported as present, is 234U reported as present? NA, if 235U is not present. **Reference Source: CCP Technical Procedures**				
20. Is the TRU alpha activity concentration and associated TMU reported for each container in the BDR? **Reference Source: CCP-PO-002, 3.3.1**				

Attachment 3 – CCP SPM Nondestructive Assay Project Level Validation Checklist and Summary (Continued)

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met?			Comments/Qualifiers
	YES	NO	NA	
21. Is the TRU alpha activity concentration limit of >100 nCi/g met for containers in the BDR? **Reference Source: CCP-PO-002, 3.3.3**				
22. Is the Total Pu239 FGE (g) and associated TMU reported for each container in the BDR? **Reference Source: CCP-PO-002, 3.3.1**				
23. Is the FGE plus two times the TMU less than or equal to the limits for containers in this BDR? 200 FGE for 55-gal drums/325 FGE for SWBs. Note: TMU equals one standard deviation. **Reference Source: CCP-PO-002, Table A-3**				
24. Is the decay heat reported for each container in the BDR? **Reference Source: CCP-PO-002, 3.3.1**				
25. Are all the appropriate QC forms (background, efficiency checks, control charts, and matrix drum) included in the BDR? **Reference Source: CCP-PO-002, Attachment 1, A.5.2**				
26. Is the name of the testing facility included in the BDR? **Reference Source: CCP-PO-002, Attachment 1, A.5.2**				
27. Is the batch number included in the BDR? **Reference Source: CCP-PO-002, Attachment 1, A.5.2**				
28. Is a listing of all container numbers in the BDR? **Reference Source: CCP-PO-002, Attachment 1, A.5.2**				
29. Does the BDR contain a BDR Table of Contents? **Reference Source: CCP-PO-002, Attachment 1, A.5.2**				
30. Are the testing report data sheets including the waste container number for each container included in the BDR? **Reference Source: CCP-PO-002, Attachment 1, A.5.2**				
31. Is the title “Radioassay Data Sheet” included for each container in the BDR? **Reference Source: CCP-PO-002, Attachment 1, A.5.2**				

Attachment 3 – CCP SPM Nondestructive Assay Project Level Validation Checklist and Summary (Continued)

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
32. Is the date of radioassay included for each container in the BDR? **Reference Source: CCP-PO-002, Attachment 1, A.5.2**				
33. Is the operator and reviewer signature release and date included for each container in the BDR? **Reference Source: CCP-PO-002, Attachment 1, A.5.2**				
34. Is the total Pu239 equivalent activity (Ci) reported for each container in the BDR? **Reference Source: CCP-PO-002, Attachment 1, A.5.2**				
35. Are the NDA net weights within 5% of the NDE net weight or the VE net weight, whichever is applicable, for each container in the BDR? **Reference Source: CCP Technical Procedures**				

Comments:

The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by CCP-PO-002.

SPM Printed Name Signature Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Attachment 4 – CCP SPM Off-Site Source Recovery Sealed Source Radiological Characterization Project Level Validation Checklist and Summary

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
1. Are the personnel training records acceptable? **Reference Source: Site applicable LOQI**				
2. Does the Batch Data Report (BDR) include the name of the facility? **Reference Source: CCP-PO-002**				
3. Does the BDR include a standard cover sheet? **Reference Source: CCP-PO-002**				
4. Does the BDR include a Table of Contents? **Reference Source: CCP-PO-002**				
5. Does the BDR include a batch number? **Reference Source: CCP-PO-002**				
6. Does the BDR include a listing of all waste container numbers in the batch? **Reference Source: CCP-PO-002**				
7. List all containers. **Reference Source: CCP-PO-002**				Container Numbers:
8. Does the BDR include a Container Characterization Report sheet(s) for each container in the batch? **Reference Source: CCP-PO-002**				
9. Is there a reference to or copy of associated NCRs (if any) in the BDR? NA if no NCRs associated with the BDR. **Reference Source: CCP-PO-002**				
10. Does the BDR include the implementing procedure and revision numbers? **Reference Source: CCP-PO-002**				
11. Does the BDR include a completed, signed, and dated Independent Technical Review Checklist, and the independent technical reviewer was not involved in the generation or recording of the data under review? **Reference Source: CCP-PO-002**				
12. Does the waste meet the definition of sealed sources per 10 CFR 30.4 and 10 CFR 835.2 (effective January 1, 2004) and documentation included with the AK information? **Reference Source: CCP-PO-001, C4-2**				

Attachment 4 – CCP SPM Off-Site Source Recovery Sealed Source Radiological Characterization Project Level Validation Checklist and Summary (Continued)

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met?			Comments/Qualifiers
	YES	NO	NA	
13. Is the sealed source a US DOT Special Form Class 7 (Radioactive Material) per 49 CFR 34.27 (effective January 1, 2004) and is this documented in the AK information? **Reference Source: CCP-PO-001, C4-2**				
14. Is the integrity of each sealed source validated by documented contamination survey results to meet the requirements of 10 CFR 34.27 (effective January 1, 2004), and is assembled as part of AK documentation? **Reference Source: CCP-PO-001, C4-2**				
15. Does the AK information document that no VOC or VOC-bearing material are constituents of the waste? **Reference Source: CCP-PO-001, C4-2**				
16. Does the AK information document that the outer casing of the sealed source is a non-VOC bearing material and is this verified during VE? **Reference Source: CCP-PO-001, C4-2**				
17. Is the Title "Characterization Data Sheet" included on each data sheet? **Reference Source: CCP-PO-002**				
18. Is the waste container number included on each data sheet? **Reference Source: CCP-PO-002**				
19. Is the run date included on each data sheet? **Reference Source: CCP-PO-002**				
20. Is the TRU alpha activity concentration (Ci/g) included on each data sheet? **Reference Source: CCP-PO-002**				
21. Is the Total Pu-239 equivalent activity (PE-Ci) included on each data sheet? **Reference Source: CCP-PO-002**				
22. Is the Total FGE (g) and associated TMU included on each data sheet? **Reference Source: CCP-PO-002**				
23. Is the Decay Heat (W) and associated TMU included on each data sheet? **Reference Source: CCP-PO-002**				
24. Are the activities and/or masses of individual radioisotopes and associated TMUs (curies and/or grams) included on each data sheet? **Reference Source: CCP-PO-002**				

Attachment 4 – CCP SPM Off-Site Source Recovery Sealed Source Radiological Characterization Project Level Validation Checklist and Summary (Continued)

BDR Number: _____ **Examination Date(s):** _____

Description of Criteria Reviewed	Criteria Met? YES	NO	NA	Comments/Qualifiers
25. Is the method of expressing TMU specified? **Reference Source: CCP-PO-002**				
26. Are the ten WIPP tracked radionuclides of 241Am, 238Pu, 239Pu, 240Pu, 242Pu, 233U, 234U, 238U, 90Sr, 137Cs identified and reported as present or absent? **Reference Source: CCP-PO-002**				
27. Is 235U (in order to calculate FGE) reported as present or absent? **Reference Source: CCP-PO-002**				
28. Is the TRU Alpha activity concentration >100 nCi/g? **Reference Source: CCP-PO-002**				
29. Is the Fissile Mass $\leq$ FGE limit? **Reference Source: CCP-PO-002**				
30. If 235U is reported as present, is 234U reported as present? NA if 235U is not present. **Reference Source: CCP-PO-002**				

Comments:

The container QC checks were properly performed and meet the Quality Assurance Objectives (QAOs). Proper procedures were followed during data reduction and analysis. The batch is complete, acceptable, and includes all supporting data and documentation required by CCP-PO-002.

SPM Printed Name Signature Date

Checklist is to be re-signed only when a re-review is performed.

SPM Printed Name	Signature	Reason	Date
SPM Printed Name	Signature	Reason	Date

Controlled
Copy

CCP-TP-002

Revision 26

CCP
Reconciliation of DQOs and Reporting Characterization Data

EFFECTIVE DATE: 06/19/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
18	11/16/2006	Revised to implement the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/Remote-Handled (RH) Permit Modification Request (PMR). Addressed Carlsbad Field Office (CBFO) Document Review Record (DRR) comments.
19	12/22/2006	Revised to clarify Waste Stream Profile Form contents.
20	08/18/2008	Revised Section 4.2.1 to incorporate Central Characterization Project (CCP) Standing Order CCP-SO-32. Updated several document/procedure titles. Minor changes to Section 5.0.
21	08/04/2009	Revised to answer Waste Isolation Pilot Plant (WIPP) Form 09-050, and add changes to Sections 3 and 4 and make any other editorial changes needed.
22	06/30/2010	Revised for Class 2 Modification Request WIPP Hazardous Waste Facility Permit EPA I.D. Number NM4890139088.
23	12/29/2010	Revised to implement the revision of the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*.
24	12/28/2011	Revised to make editorial changes. Replacing Waste Stream Profile Form (WSPF) change notice with revision to WSPF. Revising instructions for completing WSPF package.
25	02/11/2013	Revised to include timeframe for transmitting the waste stream profile form package to records. Also revised to make editorial changes needed.
26	06/19/2013	Revised to implement the Permit Modification Request Class 2 approved by New Mexico Environment Department (NMED) dated March 13, 2013.

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1.0 PURPOSE

Upon completion of waste characterization activities, and prior to shipment of waste, the Central Characterization Program (CCP) is required to reconcile the data in accordance with the requirements of CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (QAPjP). Data reconciliation is required in order for the CCP Site Project Manager (SPM) to complete and submit a Waste Stream Profile Form (WSPF) (see Attachment 2, CCP Waste Stream Profile Form, for an example).

1.1 Scope

This procedure provides data reconciliation with the data quality objectives (DQOs) following data validation and verification at the CCP Project Office. This reconciliation is performed at the waste stream or waste stream lot level. This procedure provides the instructions for the completion of the WSPF Package for submittal to the U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) for permittee review and CBFO approval prior to shipment.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- DOE/WIPP 01-3194, *CH-TRU Waste Content Codes* (*CH-TRUCON*)
- DOE/WIPP 90-045, *RH-TRU Waste Content Codes* (*RH-TRUCON*)
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-003, *CCP Transuranic Authorized Methods For Payload Control* (*CCP CH-TRAMPAC*)
- CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control* (*CCP RH-TRAMPAC*)

Referenced Documents

- *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan*
- DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria For The Waste Isolation Pilot Plan*
- 40 CFR 261, *Identification and Listing of Hazardous Waste,* Subpart C, *Characteristics of Hazardous Waste.*
- 40 CFR 261, *Identification and Listing of Hazardous Waste,* Subpart D, *Lists of Hazardous Wastes*
- DOE/TRU-11-3425, *Annual Transuranic Waste Inventory Report – 2011*
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*
- CCP-TP-005, *CCP Acceptable Knowledge Documentation*

2.2 Training Requirements

2.2.1 Personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan*, prior to performing this procedure.

3.0 RESPONSIBILITIES

3.1 Site Project Manager (SPM)

3.1.1 Ensures that all data generated and used in decision making meet the DQOs

[A] Assesses whether data of sufficient type, quality, and quantity have been collected.

NOTE

The WSPF Package consists of the WSPF, the Characterization Information Summary (CIS) and the Summation of Aspects of the Acceptable Knowledge (AK) Summary.

3.1.2 Completes and submits the WSPF package and required revisions.

3.1.3 Prepares the Waste Stream Characterization Package per CCP-PO-001, Section C3-6b(3) upon request from the DOE CBFO.

3.2 Acceptable Knowledge Expert (AKE)

NOTE

As the waste stream is characterized, the Acceptable Knowledge Expert (AKE) is responsible for corroborating the AK information with the characterization data collected. For the final data reconciliation (conducted in accordance with this procedure), the AKE provides assistance to the SPM.

3.2.1 Compiles the AK information for the waste stream being characterized.

3.2.2 Creates the AK summary which is used to create the Summation of Aspects of the AK summary.

3.2.3 Assigns a unique waste stream number for each waste stream based on information in the DOE/TRU-11-3425, *Annual Transuranic Waste Inventory Report* (ATWIR) and/or information from the Host site.

3.2.4 Reviews and concurs with the WSPF Package and subsequent revisions.

3.3 Host Site Subcontract Technical Representative (STR)

3.3.1 If required by the site-specific interface document, reviews, and concurs with the WSPF Package.

4.0 PROCEDURE

NOTE
The attachments in this document are examples of the requirements. The examples identify the minimum information required in the final approved report.

NOTE
Steps DO **NOT** need to be followed in sequence.

SPM

4.1 Assigning the WSPF Number

NOTE
The unique number will be limited to a maximum of 20 alpha-numeric characters. The first two characters will be the two letter site designator, and the remaining characters should coincide, to the maximum extent possible, with the title page of the AK Summary Report.

4.1.1 Assign the Waste Stream Number to the WSPF per the AK Summary Report.

NOTE
The Waste Stream Number is recorded on all applicable attachments.

4.2 Compilation and Evaluation of DQO Parameters

4.2.1 For the lot to be processed, select an appropriate number of containers that have completed CCP Project Office verification and validation from the waste stream population.

[A] Ensure that all of the containers selected are from the same waste stream by comparing the container numbers/waste stream identification numbers with the AK Tracking Spreadsheet for the subject site.

[B] Ensure all containers from any waste stream that requires Gas Generation Testing (GGT) meet one of the following requirements:

[B.1] The container is on an approved GGT Batch Data Report (BDR) and that the BDR is the most recent.

[B.2] The container is included in an approved Long Term Objective population.

[C] Ensure all containers from any waste stream that require Flammable Gas Analysis (FGA) for Transportation Sampling are on an approved FGA for transportation BDR and that the BDR is the most recent:

[D] Ensure all data to be used for certification was generated using certified equipment.

[E] Ensure that each of the BDRs chosen to certify the containers is the most recent BDR available for that characterization process (i.e., real-time radiography [RTR] or visual examination [VE], nondestructive assay [NDA], FGA, Dose-to-Curie [DTC]), Radiological Characterization.

4.2.2 Obtain copies of the following documents from CCP Records, as applicable:

- Documentation of Radiological Properties (e.g., NDA BDR), VE, RTR, FGA **AND/OR** an AK Sufficiency Determination
- Previous records of data completion and reconciliation with DQOs (see Attachment 1, CCP Reconciliation with Data Quality Objectives for an example)
- Previously completed CIS submitted to records on interoffice memo

4.2.3 Determine if sufficient data have been collected to determine if program-required waste parameters have been met, by completing the CCP Reconciliation with Data Quality Objective Attachment 1, using the attached instructions.

4.2.4 **IF** sufficient data has been collected,
THEN enter the Waste Stream Number and Lot Number on the CCP Reconciliation with Data Quality Objective.

4.2.5 **IF** data DOES **NOT** meet the criteria on the CCP Reconciliation with Data Quality Objective,
THEN sufficient data has **NOT** been collected to fully characterize the waste stream, therefore, determine the additional waste characterization that needs to be performed **AND** direct the appropriate site facility to collect the additional data.

NOTE

The CCP Reconciliation with Data Quality Objective contains multiple questions for each entry. If there are discrepancies between questions or if entries are Not Applicable (N/A), comments will be added to the form explaining how criteria are met.

4.2.6 Complete the CCP Reconciliation with Data Quality Objective, using the attached questions.

4.2.7 Print name, sign, and date the CCP Reconciliation with Data Quality Objective.

4.2.8 Place the CCP Reconciliation with Data Quality Objective in the holding file.

4.3 Preparing Waste Stream Profile Form (WSPF)

NOTE

The current approved revision of the waste stream AK Summary should be used in preparing or revising the WSPF.

4.3.1 **IF** a WSPF exists for the waste characterization data being reconciled,
THEN GO TO Section 4.7.

4.3.2 Ensure all characterization data obtained from CCP Records for the waste stream in question have gone through project level validation (i.e., signed SPM checklists).

4.3.3 Prepare a CCP WSPF (see CCP Waste Stream Profile Form, for an example) using the instructions included in Attachment 2.

4.3.4 Review, print name, sign, and date the WSPF.

4.4 Completing the Characterization Information Summary (CIS)

4.4.1 Record the Waste Stream Number and Lot Number, including the list of site specific/CCP procedures, revisions, and dates used in characterizing the containers in the lot, on the CCP Characterization Information Summary Cover Page (see Attachment 3, CCP Characterization Information Summary Cover Page for an example).

4.4.2 Complete the cross-reference listing the container numbers to each BDR (see Attachment 4, CCP Correlation of Container Identification Numbers to Batch Data Report Numbers for an example).

[A] For items **NOT** analyzed enter N/A.

[B] Print name, sign, and date the CCP Correlation of Container Identification Numbers to Batch Data Report Numbers.

4.4.3 **IF** the AK Summary for the waste stream identified the U.S. Environmental Protection Agency (EPA) Hazardous Waste Number (HWN) U134 (hydrofluoric acid),
THEN address in CCP RTR/VE Summary of Prohibited Items (see Attachment 5, CCP RTR/VE Summary of Prohibited Items for an example) that any liquid identified is a prohibited item per the applicable operating procedure and is **NOT** acceptable by the Treatment, Storage, and Disposal Facility (TSDF).

4.4.4 Complete the CCP RTR/VE Summary of Prohibited Items to document that prohibited items are **NOT** present in the waste stream or waste stream lot and to verify the physical form of the waste matches the waste stream description as determined by AK.

NOTE
If CBFO approves, VE may be performed on S3000 and S4000 when the material is not removed from the characterized container.

4.4.5 Complete the justification for the selection of radiography and/or VE as the appropriate method for characterizing the waste.

4.4.6 Print name, sign, and date CCP RTR/VE Summary of Prohibited Items.

4.5 Summation of Aspects of the AK Summary

4.5.1 Obtain an approved copy of the AK Summary for the subject waste stream in order to create a summary level version of the AK Summary, entitled the Summation of Aspects of the AK Summary (Summation).

4.5.2 Create the Summation and include the following information: waste stream name and number, point of generation, waste stream volume (current and projected), generation dates, TRUCON codes, Summary Category Group, Waste Matrix Code(s) (WMC) and Waste Matrix Code Group, other ATWIR information, waste stream description, areas of operation, generating processes, Resource Conservation and Recovery Act (RCRA) determinations, radionuclide information, method for determining Waste Material Parameter (WMP) weights per unit of waste contact-handled ([CH] only), all references used to generate the Summation, and any other information required by CCP-PO-001.

4.5.3 Include a list of any approved AK Sufficiency Determinations for the waste stream.

4.6 Submitting the WSPF Package to DOE CBFO

4.6.1 Compile the WSPF Package consisting of the following:

- WSPF
- CIS
- Summation

4.6.2 Forward a copy to the AKE for review and concurrence.

4.6.3 **IF** required by the appropriate site-specific Interface Document, **THEN** forward a copy to the STR for review and concurrence.

4.6.4 **IF** comments are received from the AKE **AND/OR** STR, **THEN** resolve the comments, **AND** forward a copy of the resolution to the reviewer(s) for concurrence.

4.6.5 **AFTER** concurrence(s) is/are received, **THEN** continue with this section.

4.6.6 Transmit the WSPF Package via e-mail to the DOE CBFO electronic mail (email) site at site.documents@wipp.ws for permittee review and CBFO approval.

4.6.7 **IF** comments are received from the permittees, **THEN** repeat steps 4.6.2 through 4.6.6 until comments have been resolved.

4.6.8 Submit approved WSPF Package to CCP Records in accordance with CCP-QP-008, *CCP Records Management,* with an interoffice memo within 30 calendar days of WSPF approval.

4.7 Subsequent Data Reconciliation

4.7.1 Obtain a copy of the WSPF Package from CCP Records.

4.7.2 Perform applicable steps of Sections 4.2 and 4.4.

NOTE
A revision required to the WSPF package that results in the addition of EPA HWNs will require the waste stream to be suspended until DOE approves the revised WSPF.

4.7.3 **IF** the waste DOES **NOT** meet the WSPF Package description, **THEN** revise the WSPF Package, **OR** assign the waste to a new waste stream.

[A] **IF** subsequent data collection reveals discrepancies that identify different EPA HWNs,
THEN the Waste Stream Profile will be revised.

[B] **IF** subsequent data collection reveals discrepancies that indicate the waste belongs to a different waste stream,
THEN initiate a nonconformance report (NCR) in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

NOTE
A revision required to the WSPF Package that DOES **NOT** result in addition of EPA HWNs (application of additional TRUCON Content codes, or addition of material parameter weight estimates per unit of waste) will not require the waste stream to be suspended.

[C] **IF** the WSPF Package requires a revision,
THEN make the appropriate changes in accordance with guidance provided in the CCPWSPF, **AND** submit the WSPF revision to CCP Records and DOE CBFO in accordance with the applicable steps in Section 4.6.

[D] **IF** the waste DOES **NOT** match the subject WSPF Package (i.e., have common physical form, contain similar hazardous constituents, and were generated from a single process or activity discrepancies are noted that identify different EPA HWNs or indicate that the waste belongs to a different waste stream),
THEN perform the following:

[D.1] Notify the AKE that the subject waste must be redefined to a separate waste stream in accordance with the applicable steps of CCP-TP-005, *CCP Acceptable Knowledge Documentation*, Section 4.8.

[D.2] Generate a new WSPF Package in accordance with Sections 4.2 through 4.6.

4.7.4 Provide documentation of the waste stream lot data reconciliation to CCP Records that includes the CCP CIS and CCP Reconciliation with Data Quality Objective.

4.8 Completing the Waste Stream Characterization Package

4.8.1 When requested by DOE CBFO, prepare the Waste Stream Characterization Package for the requested waste stream.

4.8.2 Obtain a copy of the subject WSPF Package from CCP Records.

4.8.3 Obtain copies of the subject CISs for each of the waste stream lots associated with the subject waste stream from CCP Records.

4.8.4 Obtain a complete copy of the AK Summary for the subject waste stream from CCP Records.

4.8.5 Obtain copies of the BDRs as requested by DOE CBFO from CCP Records.

4.8.6 Obtain copies of other data requested by DOE CBFO from CCP Records.

4.8.7 Assemble the information, **AND** transmit to DOE CBFO.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as quality assurance (QA) Records in accordance with CCP-QP-008. The records are the following:

QA/Lifetime

[A] Characterization Information Summary with attached interoffice memorandum

[A.1] Attachment 1 – CCP Reconciliation with Data Quality Objective

[A.2] Attachment 3 – CCP Characterization Information Summary Cover Page

[A.3] Attachment 4 – CCP Correlation of Container Identification Number to Batch Data Report Numbers

[A.4] Attachment 5 – CCP RTR/VE Summary of Prohibited Items

[B] Waste Stream Profile Form Package

[B.1] Attachment 2 – CCP Waste Stream Profile Form – includes Interoffice Memorandum of Submittal from the SPM

[B.2] CIS for the lot addressing the applicable analysis data

[B.3] Summation of Aspects of the AK Summary, if applicable

Attachment 1 – CCP Reconciliation with Data Quality Objective (Example)

Sampling Completeness

RTR:
Number of valid samples: _____ Number of total samples analyzed: _____
Percent Complete: _____ (QAO is 100%)

NDA:
Number of valid samples: _____ Number of total samples analyzed: _____
Percent Complete: _____ (QAO is 100%)

Attachment 1 – CCP Reconciliation with Data Quality Objective (Example) (Continued)

Waste Stream#: _____ Lot #: _____

	Y/N/NA	Reconciliation Parameter			
1.		Waste Matrix Code.			
2.		Waste Material Parameter Weights.			
3.		The transuranic (TRU) activity reported in the BDRs for each container demonstrates with a 95 percent probability that the container of waste contains TRU radioactive waste.			
4.		AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?			
5.		The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 *Code of Federal Regulations* (CFR), Part 261, *Identification and Listing of Hazardous Waste,* Subpart C, *Characteristics of Hazardous Waste*.			
6.		Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, *Lists of Hazardous Wastes*?			
7.		Waste stream can be classified as hazardous or nonhazardous.			
8.		The overall completeness, comparability, and representativeness quality assurance objectives (QAOs) were met for each of the testing procedures as specified in CCP-PO-001Sections C3-1 through C3-2 prior to submittal of a WSPF for a waste steam or waste stream lot.			
			Completeness	**Comparability**	**Representativeness**
		Radiography			
		VE			
Comments					

SPM Printed Name _____ Signature _____ Date _____

Attachment 1 – CCP Reconciliation with Data Quality Objective (Example) (Continued)

Instructions for completing form:

Prior to completing Blocks 1 through 13, the SPM or Designee shall complete the Sampling Completeness portion of Attachment 1.

For each waste container and process, verify that:

- The waste container, by serial number, is included in the BDR shown for each characterization methodology listed in Attachment 4, CCP Correlation of Container Identification Numbers to Batch Data Report Number.
- The BDR has gone through project level validation and verification and has received SPM approval.
- The waste container was not removed from the BDR via NCR.

This information is recorded on Attachment 1 under the Sampling Completeness.

This process confirms that the samples are valid and that there is analysis data in the BDRs to support the determination, by the SPM, of program-required waste parameters for the total number of samples collected.

1. Waste Matrix Code. Is the waste matrix code assigned to the waste stream in the AK Summary Report supported by the radiography and/or VE testing BDRs?
2. Waste Material Parameter Weights. Are the waste material parameters listed in the AK Summary reported in kilograms for each of the waste material parameters identified in the waste stream?
3. TRU Radioactive Waste. Does the TRU activity reported in the BDR for each container demonstrate compliance with CCP-PO-002, *CCP Transuranic Waste Certification Plan*?
4. AK Sufficiency Determinations requested for the waste stream? If the answer is Yes, record request in comments field and document the use of the AK Sufficiency Determination as objective evidence for answering Yes to other DQOs.
5. Toxicity Characteristic. Does the waste exhibit a toxicity characteristic under 40 CFR Part 261, Subpart C?
6. Listed Waste. Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D?
7. Hazardous Waste Determination. Can the waste stream be classified as hazardous or nonhazardous?

Attachment 1 – CCP Reconciliation with Data Quality Objective (Example) (Continued)

8. Completeness, Comparability, and Representativeness. Have the overall completeness, comparability, and representativeness quality assurance objective (QAOs) for each of the testing, processes been met for the waste stream or waste stream lot by answering each of the following questions:

   - Completeness:

     o RTR: Is there an audio/videotape (or equivalent media) of the radiography examination and a validated radiography data form for 100 percent of the containers subject to radiography?

     o VE: A validated VE data form will be obtained for 100 percent of the waste containers subject to VE.

   - Comparability: RTR and VE:

     o Was the correct approved version of the procedure used by qualified operators to acquire, verify, and validate the data?

   - Representativeness: Was the correct approved version of the procedure used to control:

     o RTR: Viewing test image, resolving discrepancies between two operators

     o VE: Reconciling any discrepancies between the operator and the Independent Technical Reviewer

Attachment 2 – CCP Waste Stream Profile Form (Example)

(1) Waste Stream Profile Number:								
(2) Generator site name:							(3) Generator site EPA ID:	
(4) Technical contact:							(5) Technical contact phone number:	
(6) Date of audit report approval by New Mexico Environment Department (NMED):								
(7) Title, version number, and date of documents used for WIPP-WAP Certification:								
(8) Did your facility generate this waste?	YES		NO					
(9) If no, provide the name and EPA ID of the original generator:								
Waste Stream Information								
(10) WIPP ID:							(11) Summary Category Group:	
(12) Waste Matrix Code Group:							(13) Waste Stream Name:	
(14) Description from the ATWIR:								
(15) Defense TRU Waste:	YES		NO					
(16) Check One:	CH		RH					
(17) Number of SWBs (17a) Number of SLB2		(18) Number of Drums					(19) Number of Canisters	
(20) Batch Data Report numbers supporting this waste stream characterization:								
(21) List applicable EPA Hazardous Waste Numbers:								
(22) Applicable TRUCON Content Numbers:								
(23)**Acceptable Knowledge Information**								
(For the following, enter the supporting documentation used [i.e., references and dates])								
Required Program Information								
(23A) Map of site:								
(23B) Facility mission description:								
(23C) Description of operations that generate waste:								
(23D) Waste identification/categorization schemes:								
(23E) Types and quantities of waste generated:								
(23F) Correlation of waste streams generated from the same building and process, as applicable:								
(24) Waste certification procedures:								
(25) Required Waste Stream Information								
(25A) Area(s) and building(s) from which the waste stream was generated:								
(25B) Waste stream volume and time period of generation:								
(25C) Waste generating process description for each building:								
(25D) Waste Process flow diagrams:								
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form:								
(25F) Waste Material Parameter Weight Estimates per unit of waste								
(26) Which Defense Activity generated the waste:								
	Weapons activities including defense inertial confinement fusion							Naval Reactors development
	Verification and control technology							Defense research and development
	Defense nuclear waste and material by products management							Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations							

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

(27) Supplemental Documentation:	
(27A) Process design documents:	
(27B) Standard operating procedures:	
(27C) Safety Analysis Reports:	
(27D) Waste packaging logs:	
(27E) Test plans/research project reports:	
(27F) Site databases:	
(27G) Information from site personnel:	
(27H) Standard industry documents:	
(27I) Previous analytical data:	
(27J) Material safety data sheets:	
(27K) Sampling and analysis data from comparable/surrogate Waste:	
(27L) Laboratory notebooks:	
Confirmation Information	
For the following, when applicable, enter procedure title(s), number(s) and date(s)	
(28)	Radiography:
	Visual Examination:

(29) Comments: For a list of the waste characterization procedures used and date of respective procedures see the list of procedures on the attached CIS.

Reviewed by AK Expert: **YES** ☐ **Date:** _____

Reviewed by STR (if necessary): **YES** ☐ **N/A** ☐ **Date:** _____

Waste Stream Profile Form Certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Signature of Site Project Manager	Printed Name	Date

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

CCP WASTE STREAM PROFILE PACKAGE

A WSPF Package should be completed as early as possible (once sufficient data has been obtained [e.g., at least one lot]) and submitted to DOE CBFO for approval.

The SPM, in completing the WSPF, should seek the assistance and participation of the AKE in the preparation of the form and attachments.

The WSPF package submitted to DOE CBFO for approval contains three parts. The first part is the WSPF itself. The second part is the CIS Report for the waste stream or waste stream lot used to support the WSPF. The last part is the *Summation of Aspects of the AK Summary Report*, to support the WSPF. The completion of the first and third parts of the package is addressed in these instructions. Completion of the CIS is addressed in CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*, and associated forms.

Instructions for completing the Waste Steam Profile Form:

Obtain an approved copy of the current WSPF Package from CCP Records; for new WSPFs, it will be blank.

Line numbers indicated below refer to the number in the parenthesis on the CCP WSPF.

The brackets [ ] indicate the primary source of the information requested if not otherwise referred to within the instruction.

Line 1:

Assign a site-specific waste stream profile number to each form generated. The number should normally coincide, to the extent possible, as it appears on the title page of the AK Summary Report. The SPM is responsible for selecting the number after referring to the AK Summary Report. The number should start with the applicable two-digit site designator. The number should be limited to 20 alpha-numeric characters maximum. Indicate waste stream lots with a period and sequentially numbered digits added to the waste stream profile number.

Line 2:

Enter the name of the site where the waste is currently stored. [AK Summary Report]

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

Line 3:

Enter the EPA Identification (ID) Number of the site listed in Line 2. The ID number, if not included in the AK Summary Report, can be obtained from the EPA Regional office in which the site is located. The AKE should assist in the acquisition of this information.

Line 4:

Enter the name of the technical contact for this site. This is the individual to be contacted if there are questions concerning the data reported on the form, usually the SPM.

Line 5:

Provide the telephone number of the person identified in Line 4.

Line 6:

Enter the date of the most recently approved audit report approval by NMED. If the site has been audited but an audit report has not yet been approved by DOE CBFO, contact the CCP Project Manager. If DOE CBFO has approved the audit report and is awaiting approval by New Mexico Environmental Department (NMED), submit the WSPF package to DOE CBFO for distribution to the Waste Isolation Pilot Plant (WIPP) Review Team.

Line 7:

List the site-specific waste program documents (such as CCP-PO-001, the CCP-PO-003, Interface, etc.) listing the current revision.

Line 8:

Check the appropriate box. [AK Summary Report]

Line 9:

If the site where the waste is currently stored is not the site where the waste was generated, then provide the name and EPA identification number of the site where the waste was generated. [The AK Summary Report should provide the information as to where the waste was generated. The ID number, if not included in the AK Summary Report, can be obtained from the EPA Regional Office in which the site is located. The AKE should assist in the acquisition of this information.]

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

If the waste was generated at the site where it is currently stored, place an N/A in this box.

Line 10:

Enter the WIPP identification number from the current revision of the Annual Transuranic Waste Inventory Report (ATWIR) that best describes the waste stream being certified. CCP may split or combine ATWIR waste streams for the purposes of defining waste sampling populations. If CCP has split or combined ATWIR waste streams, all contributing ATWIR waste streams listed on the WSPF should also be indicated on the Summation of Aspects of AK Summary Report.

If there is no corresponding WIPP ID number listed in the ATWIR or if the ATWIR information is in error or no longer applies, enter None Available. If there is no corresponding WIPP ID number listed in the ATWIR, contact the AKE for assistance. (A copy of the ATWIR may be found in the WIPP Technical Library in the Skeen Whitlock Building.)

Line 11:

Enter the Summary Category Group identified in the AK Summary Report as representing this waste stream.

Line 12:

Enter the Waste Matrix Code (WMC) Group identified in the AK Summary Report as representing this waste stream. Use only WMC Groups identified in the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan* (WIPP-WAP).

Line 13:

Enter the name of the waste stream from the AK Summary Report.

Line 14:

Enter the waste stream description from the ATWIR (preferred) or AK Summary Report.

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

Line 15:

Check the appropriate box. [AK Summary Report]

If the answer to this question is NO, stop work and notify the CCP Program Manager immediately. This waste can not be disposed of at the WIPP Site.

Line 16:

Check the appropriate box.

CH=contact-handled TRU waste
RH=remote-handled TRU waste

[AK Summary Report for the waste stream identified above.]

Line 17:

Enter the number of standard waste boxes in this waste stream (current and projected). [AK Summary Report] If there are no standard waste boxes in the waste stream, N/A should be entered.

Line 17a:

Enter the number of standard large box 2s (SLB2s) in this waste stream (current and projected). [AK Summary Report] If there are no SLB2s in the waste stream, N/A should be entered.

Line 18:

Enter the total number of drums in the waste stream (current and projected). Enter the number of Ten-Drum Overpacks (TDOPs), 85-gallon drums and 100-gallon drums if applicable (current and projected). [AK Summary Report]

If there are no drums (e.g., only SWBs, SLB2s, or Canisters) in the waste stream, N/A should be entered.

Line 19:

Enter the number of canisters in this waste stream (current and projected). [AK Summary Report]

If there are no canisters in the waste stream, N/A should be entered.

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

Line 20:

List the TRU Waste BDR numbers used to support the completion of this WSPF. This list shall include every container and the associated BDRs from each process in the waste stream OR every container in the waste stream lot and the associated BDRs from each process used in that characterization (for example NDA, RTR, HSG, VE, etc). Reference may be made to the CIS (Attachment 3 and contents) (The CIS for the waste stream, or waste stream lot associated with the WSPF, is submitted as part of the WSPF package to DOE CBFO for approval).

Line 21:

List each EPA HWN that is present in the waste stream. Each EPA HWN must be listed in the WIPP Hazardous Waste Facility Permit, Attachment C, Table C-9, Hazardous Waste Permit Application, Part A. Each EPA HWN must be justified in the Waste stream specific AK Summary Report. The AKE should assist in this determination.

Line 22:

Enter all of the TRUCON Content Numbers, from the current revision of the content codes document applicable to this waste stream. [AK Summary Report]

Line 23: A-F

Reference all of the appropriate sections, figures, or pages in the current revision of the AK Summary Document (including the document title, number, revision number, and effective date) for this waste stream where the listed information can be found in the AK document.

Line 24:

List all of the waste stream certification procedures applicable to this waste stream. Include procedure numbers, revision numbers, titles, and effective date. This list should contain all revisions of a document that were used during the characterization of the waste. References may be made to the CIS, Attachment 3.

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

Line 25 A-F:

Reference all of the appropriate sections, figures, or pages in the current revision of the AK Summary Document (including the document title, number, revision number, and effective date) for this waste stream where information listed can be found in the AK document.

Line 26:

Check all that apply that describes the defense activities that generated the waste.
[AK Summary Report]

Line 27 A-L:

Sites must provide the appropriate references to the site-specific documents that contain documentation that is used to support the use of AK for TRU waste characterization. Items in this section must be given the same level of consideration as the items in the Required Program Information and Required Waste Stream Information sections. This information may either be inserted into the block or referenced as listed on a continuation sheet. The AKE should provide appropriate lists of documents for use in completing Line 27. Only those documents referenced in the AK Source Documents List in the Summation of Aspects should be included in these lists.

Using information from the AK Record or from a document that is traceable to the AK record, provide a reference for the following parameters:

(A) Process design document (e.g., Title II Design).

(B) Standard operating procedures, including procedure date and reference number, that may include a list of raw materials or reagents, a description of the process or experiment generating the waste, and a description of the process or experiment generating the waste, and a description of waste generated and how the wastes are managed at the point of generation.

(C) Preliminary and final safety analysis reports and technical safety requirements.

(D) Waste packaging records.

(E) Test plans or research project reports that describe reagents and other raw materials used in experiments.

(F) Site databases (e.g., chemical inventory database for Superfund Amendments and Reauthorization Act Title III requirements).

(G) Information from site personnel (e.g., documented interviews).

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

(H) Standard industry documents (e.g., vendor information).

(I) Analytical data relevant to the waste stream, including results from fingerprint analyses, spot checks, routine verification sampling, or other processes that collect information pertinent to the waste stream. This may also include new information acquired apart from the confirmatory process, which supplements required information (e.g., visual examination not performed in compliance with the WIPP-WAP, radiography screening for prohibited items).

(J) MSDSs, product labels, or other product package information.

(K) Sampling and analysis data from comparable or surrogate waste streams (e.g., equivalent nonradioactive materials).

(L) Laboratory notebooks that detail the research processes and raw materials used in an experiment.

Line 28:

List the most current revisions of the approved applicable procedure(s) by the title, number, revision number, and effective date in the appropriate block.

Line 29:

For a list of the waste characterization procedures used and date of respective procedures, see the list of procedures on the attached CIS.

Instructions for completing the Summation of Aspects of the AK Summary Report:

This summation should be as succinct as possible and consistent with the AK Summary Report.

Example:

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: WASTE STREAM NTXXXXXXX

Overview

The overview is an executive summary of the summation. It should contain general information about where the waste was generated, where it is stored, reference to the WSPF number and the AK Summary Report from which the information is compiled, etc. In addition, the overview should contain summary level information that the waste stream is derived from defense related activities.

Waste Stream Identification Summary

This section should contain, as a table, the information identified below, if applicable.

Waste Stream Name
Waste Stream Number

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

Dates of Waste Generation
Waste Stream Volume (current and projected by container)
Summary Category Group
Waste Matrix Code Group
Waste Matrix Code
TRUPACT-II Content code (TRUCON)
TRUPACT-III Content Code
ATWIR ID Number

Waste Stream Description and Physical Form

This section should contain information regarding what the waste consists of generally. For instance: the source of the waste - nonline laboratory trash that is heterogeneous debris and includes plastics, rubber, paper, glass, etc.

Point of Generation

Location

Specifically where the waste was generated:
Facility, description of the site, state, area designation, building number, production line, etc.

Area and/or Buildings of Generation

Short summary regarding the buildings or areas or productions lines, etc. that generated the waste.

Generating Processes

Description of Waste Generating Processes

This section should be a more detailed description of where and how the waste is generated. It can be building by building, process line by process line, or any other grouping that makes sense. These descriptions should be complete enough for understanding yet still striving for brevity.

Waste Stream Material and Chemical Inputs

A Table of Chemicals, for which an EPA HWN has been assigned. Include at least one identified use for each chemical.

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

RCRA Determinations

Historical Waste Management

The Historical Waste Management section is used to explain site policies or previous RCRA designation of the waste and how CCP uses those determinations. Explanations of how the site physically managed the waste and discussion of waste tracking or other management programs are optional. Include a discussion of duplicated CBFO approved waste streams generated under other certified programs.

Hazardous Waste Determinations

The AKE should assist in the hazardous waste determination. Include discussions in appropriate section below for instances where EPA HWNs are added as a result of confirmation activities.

The following text should be used to begin the discussions of ignitable, corrosive, and reactive characteristics.

Ignitability, Corrosivity, Reactivity

The waste material in this waste stream does not meet the definition of ignitable, corrosive, and reactive as defined in 40 CFR 261.21.

The waste in this waste stream is not liquid and does not contain unreacted corrosive chemicals; therefore, it does not meet the definition of corrosivity found in 40 CFR 261.22.

The waste material in the waste stream does not meet the definition of reactivity in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change without detonating. The materials will not react violently with water, form potentially explosive mixtures with water, nor generate toxic gases, vapors, or fumes when mixed with water. Include other text such as the absence of sulfides and cyanides as appropriate.

Provide adequate detail to describe the absence of ignitable, corrosive, or reactive waste in the waste stream. Ensure the discussion closes with a statement such as, “The containers in the waste stream will be evaluated in accordance with the WIPP-WAP using radiography (and/or VE) prior to shipment to ensure the waste is not ignitable, reactive, or corrosive.

Ignitable (D001) wastes are prohibited from disposal at WIPP. Any potential D001 wastes in the waste stream must be evaluated and a determination of whether or not to apply the D001 number must be made.

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

Special care must be taken to address items such as metal powders which are not normally thought of as ignitable.

Some chemicals, to which the D001 EPA HWN is applied, may be identified in the AK. The D001 number is applied due to ignitability. The SPM must be able to address the ignitability of these wastes and determine that the characteristic of ignitability does not apply.

If the SPM can not positively state at the conclusion of this section that "The waste number for ignitability (D001) does not apply to this waste stream," contact the CCP Project Manager.

Corrosive (D002) wastes are prohibited from disposal at WIPP. Any potential D002 wastes in the waste stream must be evaluated and a determination of whether or not to apply the D002 number must be made.

If the SPM can not positively state at the conclusion of this section that "The waste number for Corrosivity (D002) does not apply to this waste stream," contact the CCP Project Manager.

Reactive (D003) wastes are prohibited from disposal at WIPP. Any potential D003 wastes in the waste stream must be evaluated and a determination of where or not to apply the D003 number must be made.

If the SPM can not positively state at the conclusion of this section that "The waste number for Reactivity (D003) does not apply to this waste stream," contact the CCP Project Manager.

Toxicity Characteristic

Determine if the waste in this waste stream meets the definition of toxicity as defined in 40 CFR 261.24. For each chemical listed in CFR 261.24, determine if the EPA HWN should be applied to the waste stream.

If it is not possible to identify a specific source of the chemical, but the determination is made to apply the number, state that the number is being applied based on the information available.

Listed Waste

F-Listed Waste

Determine if the waste in this waste stream meets the requirements for listing as an F-Listed (Hazardous Waste from Non-Specific Sources) as defined in 40 CFR 261.31. For each chemical listed in CFR 261.31, determine if the EPA HWN should be applied to the waste stream.

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

If it is not possible to identify a specific reason to apply the number for a chemical, but never the less the determination is made to apply the number, state that the number is being applied based on the information available.

K-Listed Waste

K-Listed wastes (Hazardous Waste from Specific Sources) are unlikely in waste to be shipped to WIPP. If K wastes are included, document as below for P- and U-Listed wastes.

P- and U-Listed Wastes

P- and U-Listed wastes are lists of chemicals that if present in the waste as pure un-used commercial chemical products would require the application of the EPA HWN.

Determine if the waste in this waste stream meets the requirements for listing as a P- or U-Listed as defined in 40 CFR 261.33. For each chemical listed in CFR 261.33, determine if the EPA HWN should be applied to the waste stream.

If it is not possible to identify a specific reason to apply the number for a chemical, but never the less the determination is made to apply the number, state that the number is being applied based on the information available.

Hydrofluoric acid (U134) and Beryllium (P015) are of special interest and must be addressed in every WSPF.

Polychlorinated Biphenyls

Evaluate the presence of Polychlorinated Biphenyls (PCBs) in the waste.

Prohibited Items

Include the appropriate prohibited items discussion from the AK Summary Report including a discussion as to how the prohibited items will be identified and remediated prior to shipment (such as radiography or VE).

Method for Determining Waste Material Parameter Weights per Unit of Waste

Describe the method used for determining waste material parameter weight estimates per unit of waste and include the WMP estimates table.

List of Any AK Sufficiency Determinations Requested for the Waste Stream

List applicable AK sufficiency determinations.

Attachment 2 – CCP Waste Stream Profile Form (Example) (Continued)

Transportation

Briefly discuss DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria For The Waste Isolation Pilot Plant* (WIPP-WAC) transportation requirements as they pertain to identified TRUCON codes as dictated by the waste stream.

Beryllium

Address the WIPP-WAC requirements for beryllium.

Radionuclide Information

Present the two most prevalent isotopes expected from the waste stream (CH only). Insert radionuclide table from the AK Summary Report.

Include a brief discussion on payload management per the WIPP-WAC, Appendix E.

Source Documents

Insert reference list from AK Summary Report.

Revision to the Waste Stream Profile Form Package

If a revision to the WSPF Package is needed, a revised WSPF is created. Reasons for revising the WSPF Package include:

- Addition of EPA HWNs
- Application of additional TRUCON Content codes
- Addition of material parameter weight estimates per unit of waste

Attachment 3 – CCP Characterization Information Summary Cover Page (Example)

Waste Stream: #: _____ Lot #: _____

AK Expert Review: _____ Date: _____

SPM Review: _____ Date: _____

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Controlled Copy

Attachment 4 – CCP Correlation of Container Identification Number to Batch Data Report Numbers (Example)

Waste Stream #: ______________________________ Lot #: __________

Container ID Number	NDA BDR	RTR BDR	VE BDR	Payload Management/ Overpack Yes

______________________________ ______________________________ ______________
Signature of Site Project Manager Printed Name Date

Attachment 5 – CCP RTR/VE Summary of Prohibited Items (Example)

CCP RTR/VE Summary of Prohibited Items

Waste Stream Number: _____ Lot(s)#: _____

Container Number	RTR Prohibited Items [a,b]	Visual Examination Prohibited Items [a,b]	Does the Physical Form of the Waste Match the Waste Stream Description as Determined by AK
a. See Batch Data Reports b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF)			
Justification for the selection of RTR and/or VE:			

Site Project Manager Signature Printed Name Date

Controlled
Copy

CCP-TP-005

Revision 26

CCP
Acceptable Knowledge Documentation

EFFECTIVE DATE: 08/12/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
4	01/17/2002	Revised to delete the requirement for signing the AK Summary and other minor changes. Added cis & trans-1,2-Dichloroethylene, Attachment 5.
5	01/24/2002	Minor change to Attachment 14 due to the following: Signature lines were struck and approved by all levels of review in previous revision. When preparing document to be issued signature lines were inadvertently left in and must now be removed. Printed name and "approved for use" are being inserted to reflect the CCP Procedure format.
6	07/23/2002	Revised document to: • Comments based on CH-WAC revision • Accommodate comments from an assessment at SRS Document Review Record for Technical and Quality Assurance • Comments from a Program Evaluation at ANL-E
7	09/06/2002	Revised document to: • Minor editorial changes to 2.1, 4.2, 4.3, and 4.4 Changes to 4.4.17 to comply with WAP requirements and Program Evaluation Changes to 4.4.26 to comply with Program Evaluations for NTS.
8	09/19/2002	Revised document based on comments from the ANLE Certification Audit and a CBFO Adequacy Review; revised Sections 3.1, 4.2, 4.3, 4.4, 4.5 and Attachments 7, 10, and 11.
9	09/26/2002	Revised document based on comments from the NTS Certification Audit; revised Sections 4.3, 4.4, 4.5, and 4.6.
10	10/24/2002	Revised step 3.2.13; added Section 3.6 and steps 4.7.18 and 4.7.19; and revised Attachment 10 based on comments from the SRS Recertification Audit.
11	02/05/2003	Revised document to address CAR #02-087 and CAR # 02-088 from the ANL-E Certification Audit. Revised steps 4.4.1 and added NOTE. Revised steps 4.4.17, 4.4.20, 4.4.24, 4.4.26, and 4.5.1 [D.2]

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
12	03/26/2003	Revised step 4.4.8 and preceding NOTE.
13	11/18/2003	Revised document to: - Perform minor editorial changes throughout document. Clarify that Attachments are example forms. Remove Attachments 11 and 12 to create electronically fillable forms of these attachments. Add Section 3.7 to include responsibility of Nondestructive Assay (NDA) Subject Matter Expert (SME) to perform assessment with the Acceptable Knowledge Expert. Update steps 4.4.17 and 4.4.18 to require that the uses and limitations of the radionuclide Acceptable Knowledge information is reviewed by the NDA SME. Add Section 4.9 to address CAR-SRS-006-03 for the process used to document the addition of containers to existing waste streams. Added a new Section 4.3.3 identifying the use of Memorandum to CCP Central Records. Added a new Section 4.6.3 to incorporate preparation of a letter/memorandum to Site Project Manager summarizing AK information; revision of Sections 4.6.4 and 5.1.1[J] to incorporate the addition of 4.6.3. Deleted Section 4.1.3 Process Equipment Description from the AK Summary Report Content Guide. - Modified Attachment 5.
14	11/19/2004	Revised document to: - Perform minor editorial changes and technical clarifications throughout document. - Revised procedure to address WIPP WAC Revision 1 and 2 changes relating to beryllium, payload container management, high plutonium content waste/material, and PCB requirements (Sections 1.0 and 4.4.24). - Revised Section 4.8.1 to allow for resolution of discrepancies within the AK Summary Report. - Deleted redundant records management requirement to attach copies of the AK Source Document Discrepancy reports to all affected sources. - Deleted step 4.4.8[B].

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
15	03/31/2005	Revised document to incorporate WIPP WAP AK requirements for LANL sealed sources. Addressed CBFO comments.
16	02/27/2006	Revised document to: Incorporate minor editorial changes and technical clarifications throughout the document. Add Sections 4.10 and 4.11 to address creation and maintenance of the Container Tracking Spreadsheet on the FTP (CAR-INL-0003-05). Replace revised Attachments 5 and 10 based on recent audit discussions.
17	06/05/2006	Revised to allow the use of attachments to this procedure during the management of Remote-Handled (RH) Acceptable Knowledge (AK) in accordance with DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan* (WCPIP). Revised Attachment 6, Waste Form, Waste Material Parameters, Prohibited Items, and Packaging – Example Form per Los Alamos National Laboratory (LANL) Certification Audit A-06-11.
18	11/16/2006	Revised to implement the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/Remote-Handled (RH) Permit Modification Request (PMR). Addressed Carlsbad Field Office (CBFO) Document Review Record (DRR) comments.
19	07/06/2010	Revised document to address the Waste Isolation Pilot Plant (WIPP) Form WF09-171 from an internal Central Characterization Project (CCP) audit and to incorporate minor editorial changes and technical clarifications noted as a result of various Acceptable Knowledge audits.
20	11/01/2010	Revised to allow new and updated attachments and source documents to be submitted anytime after the initial submittal.
21	12/29/2010	Revised to implement the revision of the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*.
22	04/21/2011	Revised to address changes in Revision 2 of the *Remote-Handled Tru Waste Characterization Program Implementation Plan* (WCPIP). Incorporated editorial changes and technical clarifications throughout procedure.
23	06/30/2011	Revised to clarify what constitutes a record as part of the resolution to resolve CBFO CAR11-043.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
24	11/28/2011	Revised to address comments from inspectors during U.S. Environmental Protection Agency (EPA) Baseline Inspection EPA-SNL-CCP-RH-06.11-8 (June 6/8, 2011). Also revised to incorporated lessons learned from Carlsbad Field Office (CBFO) records surveillance.
25	06/19/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes and to implement the Permit Modification Request Class 2 approved by New Mexico Environment Department (NMED) dated March 13, 2013.
26	08/12/2013	To clarify the evaluation of nondestructive assay (NDA) results by the site project manager (SPM) and acceptable knowledge expert (AKE). Also, to incorporate changes as a result of CAR-LANL-0003-13.

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1.0 PURPOSE

The *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan* (WIPP-WAP), authorizes the use of acceptable knowledge (AK) in appropriate circumstances to delineate waste streams and to characterize hazardous waste. WIPP WAP AK requirements are addressed in CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, and implemented through this procedure. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WIPP-WAC), AK requirements are addressed in CCP-PO-002, *CCP Transuranic Waste Certification Plan*. Additionally, implementation of this procedure will generate information required by CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control* (*CCP CH-TRAMPAC*) and CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control* (*CCP RH-TRAMPAC*). This procedure applies to Central Characterization Program (CCP) personnel who perform AK activities for retrievably stored and newly generated transuranic (TRU) waste streams that may be eligible for disposal at Waste Isolation Pilot Plant (WIPP).

1.1 Scope

This procedure describes the processes the CCP uses to compile, review, evaluate, update, and report AK documentation. The procedure also describes how the CCP determines AK Sufficiency, AK accuracy; re-evaluates AK documentation when necessary; resolves AK documentation discrepancies, and uses AK to delineate waste streams and determine whether the waste is hazardous. A waste stream is defined as waste materials that have common physical form, that contain similar hazardous constituents (similar radiological properties for DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan* [WCPIP] compliance), and that are generated from a single process or activity.

Only CCP personnel trained in accordance with CCP-QP-002, *CCP Training and Qualification Plan,* will compile, evaluate, and document AK information in accordance with this procedure. Sites hosting the CCP may assist CCP personnel in the collection of AK information; however, this procedure will be used by the CCP to generate the required AK in accordance with CCP-PO-001, CCP-PO-002, CCP-PO-003, and CCP-PO-505.

AK includes any documentation that describes or verifies site history, mission, and operations, in addition to waste stream-specific information used to define the generating process, waste matrix, waste quantities and contaminants (radiological and chemical).

The information acquired in the performance of this procedure is used to prepare an AK Summary Report or an AK Sufficiency Determination.

This information is provided in the following attachments:

- Attachment 1 – Acceptable Knowledge Documentation Checklist – Example Form
- Attachment 2 – Record of Communication – Example Form
- Attachment 3 – Acceptable Knowledge Source Document Summary – Example Form
- Attachment 4 – Acceptable Knowledge Information List – Example Form
- Attachment 5 – Hazardous Constituents – Example Form
- Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging
- Attachment 7 – Radionuclides – Example Form (CH only)
- Attachment 8 – Waste Containers List – Example Form
- Attachment 9 – Attachment 9 is no longer required and Attachment number is reserved for future use.
- Attachment 10 – Acceptable Knowledge Re-evaluation Checklist – Example Form
- Attachment 11 – Acceptable Knowledge Source Document Discrepancy Resolution – Example Form
- Attachment 12 – Example Form and Content Guide for AK Summary Reports
- Attachment 13 – CCP Waste Stream Characterization Checklist – Example Form
- Attachment 14 – CCP Acceptable Knowledge Accuracy Report – Example Form
- Attachment 15 – CCP TRU Waste Correlation and Surrogate Summary Form – Example Form

The attached forms are provided as examples for the required AK information to be prepared for CCP Records. The forms identify the minimum information that will be prepared to document the AK collection and review process described in this procedure. Attachment 4, Acceptable Knowledge Information List – Example Form, lists all of the information that was collected and considered during the preparation of an AK Summary Report. Only those sources of information that are referenced in the AK Summary Report are considered source documents and submitted to CCP Records.

Remote-Handled (RH) TRU AK management will be performed in accordance with WCPIP to address U.S. Environmental Protection Agency (EPA) requirements; and CCP-PO-001 to address WIPP-WAP requirements. The attachments for AK management in this procedure were reviewed and determined to meet or exceed the information requirements described for AK management in the WCPIP, and will be used, as appropriate, during the compilation, review, evaluation, and reporting associated with RH AK information.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- DOE/WIPP 89-004, *TRUPACT-II Content Codes* (TRUCON)

Referenced Documents

- DOE/LLW-217, *DOE Waste Treatability Group Guidance. Idaho Falls*, Idaho, INEL-Lockheed Idaho Technologies
- DOE/TRU-12-3425, *Annual Transuranic Waste Inventory Report – 2012,* (or current revision), Carlsbad, New Mexico, U.S. DOE Carlsbad Field Office
- DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria For the Waste Isolation Pilot Plant*
- DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
- 20 NMAC 4.1, New Mexico Administrative Code
- 40 CFR Part 261, *Identification and Listing of Hazardous Waste*
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control* (*CCP CH-TRAMPAC*)
- CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control* (*CCP RH-TRAMPAC*)
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*
- CCP-QP-010, *CCP Document Preparation, Approval, and Control*
- CCP-QP-029, *CCP Corrective Action Management*

- CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*
- CCP-TP-069, *CCP Sealed Source Visual Examination and Packaging*
- CCP-TP-101, *CCP Off-Site Source Recovery Project Sealed Source Radiological Characterization*
- 42 U.S.C. 10101, *Nuclear Waste Policy Act of 1982*, U.S. Congress
- 40 CFR part 761*, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions,* U.S. EPA

2.2 Training Requirements

2.2.1 All personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002*,* prior to performing this procedure.

3.0 RESPONSIBILITIES

3.1 Site Project Manager (SPM)

3.1.1 Ensures that trained AK Experts (AKE) are available to implement this procedure in coordination with the Host site.

3.1.2 Approves, resolves, and requests re-evaluation of AK as necessary.

3.1.3 Makes final waste stream determinations, EPA Hazardous Waste Number assignments, and compares, confirms, and approves the AK documentation.

3.1.4 Prepares the AK Accuracy Report.

3.1.5 Confirms the chemical compatibility to the assigned TRUCON code and reviews the characterization data for each waste stream.

3.2 CCP Inventory and AK Support Manager

3.2.1 Manage and direct AKEs to ensure qualified individuals are performing tasks specified.

3.2.2 Coordinate between AKE and SPM for development of AK Summary Reports and Waste Stream Profile Forms.

3.2.3 Provide site-by-site tracking of AK development to allocate AK resources as needed.

3.3 AK Expert (AKE)

3.3.1 Identifies, locates, compiles, documents, summarizes, and evaluates required AK information.

3.3.2 Delineates waste streams and assigns waste stream numbers.

3.3.3 Recommends hazardous waste determinations to the SPM.

3.3.4 Prepares and revises AK Summary Reports.

3.3.5 Collects, reviews, prepares, and submits source documents as necessary.

3.3.6 Prepares and revises the AK Sufficiency Determination Request.

3.3.7 Documents and resolves discrepancies with AK information.

3.3.8 Records meetings, telecommunications, interviews and other communications.

3.3.9 Completes and maintains document summaries and information lists.

3.3.10 Reviews and verifies AK information.

3.3.11 Develops waste stream descriptions.

3.3.12 Assigns Summary Category Groups and Waste Matrix Codes, and estimates waste material parameter (WMP) weights.

3.3.13 Prepares auditable file of AK information.

3.3.14 Re-evaluates and updates AK as needed.

3.3.15 Reviews and concurs on the Waste Stream Profile Form (WSPF).

3.3.16 Supports the development of the AK qualification method(s) and compliance with the applicable Data Quality Objectives (DQOs) for RH wastes streams in accordance with the WCPIP.

3.4 Off-Site Source Recovery (OSR) Program

3.4.1 For Los Alamos National Laboratory (LANL) sealed sources, assists the AKE in preparing the Nondestructive Assay (NDA) Memorandum discussed in step 4.4.24.

3.5 Nondestructive Assay (NDA) Expert Analyst (EA)

3.5.1 Performs the assessment for the NDA Memorandum discussed in step 4.4.24 with the AKE.

4.0 PROCEDURE

NOTE

The data collection, documentation, and AK preparation steps can be performed in any sequence as long as the AK data collection requirements found in CCP-PO-001 are met.

NOTE

The attached forms referenced in this section are provided as examples for the required AK information to be prepared for CCP Records. The forms identify the minimum information that will be prepared to document the AK collection and review process described in this procedure. All attachments submitted must contain a header with the procedure number, revision number, procedure title, effective date, and page number as displayed in the Example Attachments. Attachments must also contain the Attachment number and title immediately following the header, as shown on the Example Attachments.

4.1 AK Documentation Management

AKE

4.1.1 As they are collected, maintain the compiled AK documents with reasonable care (protection from damage or loss).

4.1.2 Assign a unique tracking number to each document collected as AK information using the Acceptable Knowledge Information List (see Attachment 4 for an example), for each waste stream. Describe the specific convention used to assign the unique identifiers to the source documents in the AK Summary Report. Examples of source document categories are as follows:

(EXAMPLE)

C – Correspondence
D – Documents
M – Miscellaneous
P – Procedures and Published Documents
DR – Discrepancy Resolution
U – Unpublished Documents

4.2 Compiling AK Documentation

AKE

4.2.1 Locate and obtain source documents with assistance of the Host site for documents with reference sections, as applicable.

4.2.2 Compile (i.e., gather) source documents that identify TRU waste management program information in the Acceptable Knowledge Documentation Checklist , AK #s PR1-PR8 (see Attachment 1, Acceptable Knowledge Documentation Checklist - Example Form, for facilities that generated the waste stream.

NOTE

Information collected must be sufficient to accurately characterize the waste stream.

NOTE

Source documents may include published or unpublished documents, correspondence, databases, quality assurance (QA) protocols, operating procedures, work instructions, waste storage/disposal records, waste certification summaries, process flow diagrams, analytical and testing data packages from previous waste characterization activities, and other sources of information descriptive of elements on the Checklist.

4.2.3 Apply a unique waste stream number based on the information in DOE/TRU-12-3425, *Annual Transuranic Waste Inventory Report* (ATWIR), and/or information from the Host site for each waste stream (Refer to CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*, for appropriate numbering format).

4.2.4 Compile and record source documents that identify TRU waste stream-specific information specified in the Acceptable Knowledge Documentation Checklist, AK #s WS1-WS12 for each waste stream.

4.2.5 Compile and record source documents that identify additional AK documentation specified in the Acceptable Knowledge Documentation Checklist, AK #s S1-S16.

[A] Obtain additional AK information as appropriate to augment required information and provide any other information obtained to further characterize the waste stream.

[B] All additional specific, relevant AK documentation assembled and used in the AK process, whether it supports or contradicts any required AK documentation, shall be identified and an explanation provided for its use (e.g., identification of a toxicity characteristic).

[C] Additional documentation may be used to further document the rationale for the hazardous characterization results. If discrepancies exist between additional information and the required information, assess and evaluate the information to determine the appropriate hazardous waste numbers consistent with RCRA requirements. Document the resolution of RCRA hazardous waste number assignment discrepancies on an Acceptable Knowledge Source Document Discrepancy Resolution (see Attachment 11, Acceptable Knowledge Source Document Discrepancy Resolution - Example Form), or in the AK Summary Report.

4.2.6 For LANL sealed sources, compile source documents that identify OSR-specific documentation specified in the Acceptable Knowledge Documentation Checklist, AK #s O1-O16.

[A] If source markings are needed to support radiological characterization, the SPM must verify that they have been documented in accordance with CCP-TP-069, *CCP Sealed Source Visual Examination and Packaging.*

NOTE

For RH waste streams, the documentation collected and compiled in Sections 4.1 and 4.2 may not be sufficient to meet the DQOs established for the selected parameters in accordance with the WCPIP. If there is insufficient AK information to address each of the DQOs, then either additional AK will be collected and/or the characterization methods described in the WCPIP will be initiated. A combination of AK and other characterization methods may be used to meet the WCPIP DQO requirements.

4.2.7 For RH waste, review the documentation compiled and determine which of the WCPIP DQOs that can be met using the AK information collected.

4.2.8 Collect additional AK documentation and/or identify the characterization method(s) recommended to meet the DQO in accordance with the WCPIP (see step 4.4.33[O]).

4.3 Recording AK Documentation

AKE

NOTE

There are two categories of source documents used to document AK for a waste stream. Documentation generated by CCP and documents and/or other media supplied by the generator site. Generator site provided documents and/or other media are external records created by the waste generator sites and are identified in this procedure as "historical source documents."

4.3.1 Copy the document or the pertinent information from the document that defines source document contents, including cover sheets, executive summaries, introductions, and table of contents, if available **AND** maintain this information in the working files.

NOTE

Classified material CAN **NOT** be copied. If source documents are classified, an unclassified summary will need to be provided by the Host site or the document will be developed and summarized on an Acceptable Knowledge Source Document Summary (see Attachment 3, Acceptable Knowledge Source Document Summary - Example Form), by the AKE **AND** reviewed by the Site's Authorized Derivative Classifier for release.

4.3.2 Record meetings, telecommunications, interviews, and other communication on a Record of Communication (see Attachment 2, Record of Communication - Example Form), including a detailed summary of the content of the communication and data limitations.

NOTE

To avoid redundancy, a Record of Communication form may **NOT** be required if the information is already provided on an interview-related source document.

4.3.3 As necessary, prepare a memorandum or letter to CCP Records and Record of Communication, as appropriate, documenting the method used by the AKE to review AK sources for the purpose of evaluating required AK parameters such as radionuclides, Waste Matrix Codes, assignment of EPA Hazardous Waste Numbers, estimating waste material parameter weights, etc. The memorandum must identify the sources of AK used during the evaluation and clearly document the AKE assumptions and conclusions.

NOTE

Collection and review of AK source documents is an ongoing activity. It is conducted initially during the development of the AK Summary Report and continues as additional information becomes available during subsequent waste stream characterization and management activities. Completion of the Acceptable Knowledge Source Document Summary (see Attachment 3 for an example), for the source documents is an iterative process performed during these activities.

If the source document is a collection of information (i.e., container data sheets, material safety data sheets [MSDS] sheets, etc.) provide a description in the Title field of the Attachment 3 and ensure that it matches the Title field in the AK Source Document section of the AK Summary Report.

Information documents collected but not referenced in the AK Summary Report are not required to be summarized on an Attachment 3.

4.3.4 Initiate an Acceptable Knowledge Source Document Summary for each source document that includes detail sufficient to justify the use of the information. The Acceptable Knowledge Source Document Summary must be completed by the time the associated AK Summary Report is finalized for all AK source documents referenced within the report. Identify the specific waste stream or streams that correspond to the source document in the Waste Stream Number field on Attachment 3. If a comprehensive library is used for all streams at the site, note this in this field.

[A] Source documents referenced in the AK Summary Report and their applicable attachments must be submitted to CCP Records on or before the date of issuance of the AK Summary Report as final.

4.3.5 **IF** the summary consists of multiple pages,
THEN provide the unique source document tracking number on each page **AND** paginate the number of pages (e.g., 2 of 6 pages).

4.3.6 Print name, sign, and date the Acceptable Knowledge Source Document Summary before submitting to CCP Records.

4.3.7 For source documents that CAN **NOT** be reproduced or removed from the source (e.g., classified documents or databases), indicate on the Acceptable Knowledge Source Document Summary that a copy of the source document is **NOT** available, and state the reason.

4.3.8 Include a note on the limitations of the information (e.g., if a document covers a specific period of time) on the Acceptable Knowledge Source Document Summary.

NOTE

Attachment 4 is a listing of relevant documents collected during the investigative process. Documents collected must be categorized in accordance with Step 4.1.2.

4.3.9 Create and maintain an Acceptable Knowledge Information List that includes the following:

- Site, waste stream number, and waste stream description
- Source document tracking number
- Source document title or description
- Name of author
- Original document number, or publisher's document number (if available)
- Revision number and document date (if applicable)

4.3.10 Print name, sign, and date the Acceptable Knowledge Information List before submitting to CCP Records.

4.4 Review and Submittal of AK Documentation

AKE

4.4.1 Evaluate the waste stream to verify that the waste materials do not meet the definition of spent nuclear fuel or high-level waste as defined in the in Section 10101(3) of the *Nuclear Waste Policy Act of 1982.*

4.4.2 Evaluate the waste stream to verify that the waste materials meet the definition of defense waste defined in CCP-PO-002.

NOTE

According to CCP-PO-002, a TRU waste is eligible for disposal at WIPP if it has been generated in whole or in part by one or more of the following functions:

- Naval reactors development
- Weapons activities including defense inertial confinement fusion
- Verification and control technology
- Defense nuclear materials production
- Defense nuclear waste and materials by-products management
- Defense nuclear materials security and safeguards and security investigations
- Defense research and development

4.4.3 **IF** there is no information linking the waste stream to defense related activities or commingled with defense materials, **OR** if the waste contains spent nuclear fuel or high-level waste,
THEN notify the SPM.

4.4.4 Document the defense determination, high-level waste and spent nuclear fuel assessments in the AK Summary Report.

4.4.5 Verify that 100 percent of the information specified in Acceptable Knowledge Documentation Checklist from AK #s PR1 through PR8 and WS1 through WS12 has been compiled.

4.4.6 **IF** 100 percent of this information is **NOT** available for a particular waste stream,
THEN notify the SPM that waste is **NOT** eligible for disposal at WIPP without the collection of additional information to augment the existing AK.

4.4.7 For LANL sealed sources waste containers, verify that the information on Acceptable Knowledge Documentation Checklist, AK #s O1-O16 has been compiled.

4.4.8 Review all AK information compiled in Section 4.2 of this procedure.

4.4.9 Document and resolve discrepancies regarding AK information among AK source documents as described in Section 4.9 of this procedure.

4.4.10 Print name, sign, and date the Acceptable Knowledge Documentation Checklist once the collection and review of the required AK information has been completed.

NOTE

A waste stream is defined as waste materials that have common physical form, that contain similar hazardous constituents (similar radiological properties for WCPIP compliance), and that are generated from a single process or activity. This definition will be used to obtain information for the waste stream specific description to be written in step 4.4.34.

4.4.11 Using the definition of a waste stream from above, the waste stream-specific documentation from the Acceptable Knowledge Documentation Checklist, and, if applicable, the description from the ATWIR, define the waste stream represented by the compiled AK information, **AND** provide this description in the AK Summary Report (see Attachment 12, Example Form and Content Guide for AK Summary Reports, for a format and content guide to be used when preparing the AK Summary Report). Provide a discussion to justify combining previously identified (i.e., ATWIR or site designations), TRU mixed waste and TRU non-mixed waste streams.

NOTE

A Waste Matrix Code will be assigned based on the physical form of the waste. DOE/LLW-217, *DOE Waste Treatability Group Guidance*, describes the convention for assignment of Waste Matrix Codes for low-level waste treatability groups, and can be used as the basis for the assignment of Waste Matrix Codes that bound the waste stream.

4.4.12 Assign and describe the Waste Matrix Code assigned to each waste stream identified.

NOTE

The Waste Matrix Code Groups identified in CCP-PO-001 are:

- Solidified inorganics
- Solidified organics
- Salt waste
- Soils
- Lead/cadmium metal
- Inorganic nonmetal waste
- Combustive waste
- Graphite
- Filters
- Heterogeneous debris waste
- Uncategorized metals

4.4.13 Assign the waste stream to the appropriate Waste Matrix Code Group.

4.4.14 Assign the waste stream to the appropriate Summary Category Group as defined below:

- S3000 Homogeneous Solids – Homogeneous solids are defined as solid material, excluding soil, that does not meet the New Mexico Environment Department (NMED) criteria for classification as debris (20.4.1.800 New Mexico Administrative Code [NMAC] [incorporating 40 CFR §268.2(g) and (h)]). Included in the series of homogeneous solids are inorganic process residues, inorganic sludges, salt waste, and pyrochemical salt waste. Other waste streams are included in this Summary Category Group based on the specific waste stream types and final waste form. This Summary Category Group is expected to contain toxic metal and spent solvents. This category includes wastes that are at least 50 percent by volume homogeneous solids.

- S4000 Soil/Gravel – This Summary Category Group includes S4000 waste streams that are at least 50 percent by volume soil/gravel. This Summary Category Group is expected to contain toxic metals.

- S5000 Debris Wastes – This Summary Category Group includes heterogeneous waste that is at least 50 percent by volume material that meets the criteria specified in 20.4.1.800 NMAC (incorporating 40 CFR §268.2[g]). Debris means solid material exceeding a 2.36 inch (60 millimeter) particle size that is intended for disposal and that is a manufactured object, plant or animal matter, or natural geologic material. Particles smaller than 2.36 inches in size may be considered debris if the debris

is a manufactured object and if it is **NOT** a particle of S3000 or S4000 material.

4.4.15 **IF** waste DOES **NOT** include at least 50 percent of any given Summary Category Group by volume,
THEN assign the Summary Category Group constituting the greatest volume of waste for that waste stream.

4.4.16 Review the AK information to determine if the waste is listed under 20 NMAC 4.1.200 (incorporating 40 CFR 261.30), Subpart D. If so, assign the appropriate HWNs.

4.4.17 Review the AK information to determine if a toxicity characteristic 20 NMAC 4.1.200 (incorporating 40 CFR 261.20), Subpart C contaminant is identified and has **NOT** been assigned a listed HWN from step 4.4.16. Evaluate the available data and assign the toxicity characteristic HWN consistent with RCRA requirements.

4.4.18 Compare the HWNs assigned from steps 4.4.16 and 4.4.17 to the HWNs listed in CCP-PO-001, Table C-9.

4.4.19 **IF** any HWNs are **NOT** included in CCP-PO-001, Table C-9,
THEN notify the SPM.

4.4.20 Include the justification and basis for steps 4.4.16 and 4.4.17 in the TRU waste stream-specific description of AK Summary Report,
AND complete the Attachment 5.

4.4.21 Print name, sign, and date Hazardous Constituents form.

4.4.22 Assess available AK radionuclide data.

NOTE

For LANL sealed sources, the SPM must confirm sufficient radionuclide data is available in accordance with CCP-TP-101, *CCP Off-Site Source Recovery Project Sealed Source Radiological Characterization.*

4.4.23 For contact-handled (CH) waste streams and RH waste streams characterized using NDA techniques, review all source documents to determine the two most prevalent radionuclides for the waste stream, and estimated isotopic ratios for the following 10 WIPP-required radionuclides: Sr-90; Cs-137; U-233; U-234; U-238; Pu-238; Pu-239; Pu-240; Pu-242; and Am-241.

4.4.24 Prepare an NDA Memorandum to CCP Records (CH waste only), evaluating the radionuclide characterization of the waste stream. The NDA Memorandum must include a section for an assessment written with the NDA EA determining how the AK will be applied

during assay. For LANL sealed sources waste, the NDA Memorandum must be written with input from the OSR group. This assessment should include a discussion of the limitations of the radiological characterization in the AK document and a description of the required assay methods, if any. Any NDA issues for both measured and calculated radionuclides should be discussed and resolved.

4.4.25 **IF** AK is intended as the sole basis for meeting the radiological characterization requirements in CCP-PO-002,
THEN state so in the AK Summary Report.

4.4.26 Prepare a Waste Material Parameter Evaluation Memorandum to CCP Records that estimates the waste material parameter weights for the waste stream. The expected weight percent for each waste material parameter will be calculated using historical waste generator information for the materials in the waste stream or industry documentation for similar waste inventories. This evaluation should include the technical assumptions, justification, and limitations for the estimated weight percentages.

NOTE

The WIPP-WAP allows the generator to utilize visual examination (VE) and real-time radiography (RTR), if there is insufficient AK to estimate for the waste material parameter weight percentages.

4.4.27 Complete the following forms as appropriate:

[A] See Attachment 6, Waste Form, Waste Material Parameters, Prohibited Items, and Packaging - Example Form for an example. Include the Waste Material Parameter Evaluation Memorandum described in step 4.4.26 as an addendum to Waste Form, Waste Material Parameters, Prohibited Items, and Packaging.

[B] See Attachment 7, Radionuclides - Example Form (CH only), for an example. Include the NDA Memorandum (signed by the AKE and NDA EA) described in step 4.4.24 as an addendum to Radionuclides.

[C] See Attachment 8, Waste Containers List – Example Form, (or an equivalent form, e.g., spreadsheet). Prepare or update the Container Tracking Spreadsheet as described in Section 4.11 for the containers identified in Waste Containers List and corresponding Waste Stream Container Evaluation Memorandum prepared in steps 4.10.3 and 4.10.4.

4.4.28 Print name, sign, and date all forms generated in step 4.4.27.

4.4.29 Review the waste management program AK documentation specified on the Acceptable Knowledge Documentation Checklist, **AND** write a TRU Waste Management Program Description that addresses AK #s PR1-PR8 in Acceptable Knowledge Documentation Checklist. Include the following:

- Correlation to the waste stream identification and description found in the ATWIR or indication that the waste stream was not included in the ATWIR.
- Determination of whether the TRU waste materials were generated as a result of, or mixed with materials from, defense-related activities as specified in CCP-PO-002.

4.4.30 **IF** prohibited items or incompatible materials are listed on the Waste Form, Waste Material Parameters, Prohibited Items, and Packaging,
THEN perform the following:

[A] Notify the SPM.

SPM

[B] Notify the Host site as directed in the Interface Document between CCP and that site.

AKE

4.4.31 Correlate TRU waste management program information (AK #s PR1 - PR8) and TRU waste stream-specific information (AK #s WS1 - WS12) with regard to the time of generation, waste generation processes, rate and quantity of newly generated waste (when appropriate), and areas and building or facility where the waste stream was generated (Acceptable Knowledge Documentation Checklist).

4.4.32 Identify AK source document tracking numbers, as applicable, in the TRU waste management program description and TRU waste stream-specific description.

4.4.33 Review the waste stream-specific AK documentation specified on the Acceptable Knowledge Documentation Checklist and information developed in steps 4.4.11 through 4.4.32), **AND** describe the waste stream in the AK Summary Report, including the following:

[A] Waste stream description and waste stream number. The waste stream number is limited to 20 alpha-numeric characters.

[B] Explain the selection of the Waste Matrix Code in the TRU waste stream-specific description of the AK Summary Report.

[C] Ensure the description of the waste stream is sufficient to allow the radiography and VE Operators to determine whether the waste in individual containers is included in the waste stream and the physical form of the waste matches the waste stream description.

[D] Include the justification and basis for determination of waste material parameters weights expected in the waste stream.

[E] Include the justification and basis for the method by which the radionuclide AK has been compiled.

[F] For waste streams characterized using NDA, state the method for determination of the (2) most prevalent radionuclides (see CCP-PO-002).

[G] Include the following assessment information:

- Waste identification and categorization schemes relevant to the isotopic composition of the waste
- Description of the isotopic composition of waste streams
- Physical/chemical composition that could affect isotopic distributions
- Numerical adjustments (e.g., scaling factors, decay/ingrowth corrections and secular equilibrium consideration) applied to derive isotopic compositions
- Specification of the isotopic ratios for the 10 WIPP - tracked radionuclides

- Radionuclides other than the ten WIPP-tracked radionuclides that contribute to 95 percent of the radioactive hazard for a payload container

[H] Provide justification for the assumption that the waste stream is TRU waste (i.e., it contains more than 100 nanocuries [nCi] of alpha-emitting radionuclides with half-lives greater than 20 years per gram of waste), as specified in CCP-PO-002.

[I] For waste streams with containers selected for payload management, include an assessment estimating the percentage of the TRU waste stream volume above and below 100 nanocuries per gram (nCi/g) in accordance with CCP-PO-002. The AK Summary Report must demonstrate that the waste stream has been historically managed as TRU waste, as applicable for payload management.

[J] Provide justification for determining the estimated concentration (less than or equal to 1 percent or greater than 1 percent by weight) of beryllium (metal and oxides) for each payload container within the waste stream as required in CCP-PO-002.

[K] Provide justification for determining that prohibited items are not present in the waste stream or describe the potential prohibited items and how they will be identified and remediated. Identify process controls associated with the management of prohibited items, physical form, and hazardous waste content.

[L] Provide justification for determining if any waste in the waste stream contains polychlorinated biphenyls (PCBs) in concentrations equal to or greater than 50 parts per million (ppm). Identify the type of waste containing PCB contamination (e.g., remediation, bulk product), **AND** provide justification for determining that the waste stream will **NOT** contain residual PCB liquids as defined in CCP-PO-002.

[M] For waste streams assigned the EPA Hazardous Waste Number U134 for hydrofluoric acid, provide information demonstrating neutralization of this acid, if available, as required by CCP-PO-001.

[N] **IF** correlating or surrogate information from similar materials or waste streams generated at the same site or other sites is used to support the characterization of the waste stream, **THEN** complete the CCP TRU Waste Correlation and

Surrogate Summary Form (see Attachment 15, CCP TRU Waste Correlation and Surrogate Summary Form – Example Form) **AND** describe the use of the information in the AK Summary Report.

[O] For RH waste streams, identify the AK and/or characterization methods to be used to meet the DQOs. Identify how each DQO will be met and describe the qualification method(s) selected for AK used solely to meet a specific DQO in the AK Summary Report.

4.4.34 Summarize the waste stream-specific description in Section 2.0 of the AK Summary Report. Provide a physical, chemical, and radiological description of the waste stream in Section 5.0 of the AK Summary Report (see Attachment 12 for an example format and content guide to be used when preparing the AK Summary Report). This description may be abbreviated for use on attachments as needed.

NOTE

Use the Example Form and Content Guide for AK Summary Reports in Attachment 12 to prepare the AK Summary Report. This guide provides the recommended format for preparation of the reports. However, the format of the report and content of the sections may vary, as long as the required AK elements are presented.

4.4.35 Prepare the AK Summary Report by combining the TRU waste management program description and each of the completed TRU waste stream-specific descriptions, as well as the information from forms 1-8 and Acceptable Knowledge Source Document Discrepancy Resolution (see Attachment 11 for an example), if applicable.

4.4.36 Submit the AK Summary Report to Document Services to initiate the review and approval process in accordance to CCP-QP-010, *CCP Document Preparation, Approval, and Control.*

NOTE

Electronic media for historical source documents shall be managed in accordance with CCP-QP-008, *CCP Records Management*.

4.4.37 Submit records identified in Section 5.0 to CCP Records in accordance with CCP-QP-008.

NOTE

As the AK Summary Report is revised, resubmit report to CCP Document Services.

4.5 Waste Stream Characterization

NOTE

The following comparison may be performed for a waste stream or a waste stream lot.

SPM

4.5.1 Ensure that audit and other internal and external surveillance reports relating to CCP characterization programs are available.

4.5.2 **IF** any AK Sufficiency Determination Request has been approved by Carlsbad Field Office (CBFO) for any characterization parameter (see Section 4.7),
THEN note the approval for that parameter on the CCP Waste Stream Characterization Checklist (see Attachment 13, CCP Waste Stream Characterization Checklist - Example Form).

4.5.3 Compare the testing results from VE and Radiography, and NDA characterization activities to the waste stream AK by completing a CCP Waste Stream Characterization Checklist, to certify a waste stream (or lot) for disposal at WIPP.

[A] Radiography and VE Data

[A.1] Compare Radiography and VE results (obtained from CCP Records) in VE Data Forms, and Radiography Data Sheets to AK information in Waste Form, Waste Material Parameters, Prohibited Items, and Packaging of this procedure to verify the physical form of the waste stream and absence of prohibited items.

[A.2] **IF** AK information CAN **NOT** be resolved upon completion of these comparisons,
THEN note any inconsistencies on CCP Waste Stream Characterization Checklist, **AND** proceed with Section 4.8 of this procedure.

[B] NDA Data – CH Waste

[B.1] Compare radionuclides reported on Attachment 7 by Weight percent, Activity, or other parameters justified in the AK Summary Report with NDA Radioassay results.

[B.2] Compare the two most prevalent radionuclides in AK with those identified in the NDA results for the waste stream and waste stream lot.

[B.3] Compare the radionuclides identified by the AK as expected to be present with those reported in the NDA results.

[B.4] Report the differences between NDA results and those expected from AK in the Comments section of the CCP Waste Stream Characterization Checklist.

[B.5] Provide rationale in the Comment section of CCP Waste Stream Characterization Checklist, if any of these conditions were anticipated based on AK.

[B.6] Attach applicable data and description to CCP Waste Stream Characterization Checklist.

[B.7] **IF** AK information CAN **NOT** be resolved upon completion of these comparisons,
THEN note any inconsistencies on CCP Waste Stream Characterization Checklist, **AND** proceed with Section 4.8 of this procedure.

[C] Radiological Characterization – RH Waste

[C.1] Identify the characterization method (e.g., Dose-to-Curie) on the CCP Waste Characterization Checklist.

[C.2] Identify the drums in which the radiological characterization differ from that expected; provide rationale in the Comments section of the CCP Waste Stream Characterization Checklist, if this condition was anticipate, otherwise notify the AKE to perform a re-evaluation as described in Section 4.8 of this procedure.

[C.3] Attach data and applicable description to CCP Waste Stream Characterization Checklist.

4.5.4 **IF** AK information can be resolved upon completion of the comparisons with the testing results,
THEN print name, sign, and date CCP Waste Stream Characterization Checklist, **AND** forward it to the AKE for signature **AND** submit to CCP Records.

4.6 Determining AK Documentation Accuracy

NOTE
The quality assurance objectives (QAOs) and their applicability to AK are discussed in CCP-PO-001. Calculation of the accuracy of AK documentation is required and is performed as follows.

SPM

4.6.1 Obtain a copy of the completed CCP Waste Stream Characterization Checklist, **AND** any Acceptable Knowledge Re-evaluation Checklists (see Attachment 10, CCP Waste Stream Characterization Checklist), applicable to the waste stream or waste stream lot, and any necessary supporting documentation from CCP Records.

NOTE
The Acceptable Knowledge Accuracy Report is used to determine the percentage of containers reassigned to a new Waste Matrix Code, designated with a hazardous waste number assignment different from AK, or inconsistent with anticipated radionuclide composition determined from AK.

NOTE
For AK Accuracy Reports that are prepared for waste stream lots within a waste stream, updates to AK accuracy shall be issued periodically. Although there is no specified timeframe for AK accuracy updates, they should typically be issued annually.

4.6.2 Complete the CCP Acceptable Knowledge Accuracy Report (see Attachment 14, CCP Acceptable Knowledge Accuracy Report - Example Form), after characterization has been completed for a subset of containers in the subject waste stream or waste stream lot.

4.6.3 Prepare an AK Accuracy Memorandum summarizing the following AK accuracy information:

[A] Purpose

[B] Methodology

[C] Results of accuracy determination

[D] Other considerations, if applicable

[E] Summary

4.6.4 For RH waste, **IF** the AK accuracy falls below 90 percent for assigning containers to a Summary Category Group, **THEN** CBFO shall be notified of this significant condition adverse to quality, **AND** appropriate corrective actions implemented before proceeding with further characterization activities on the affected waste stream, in accordance with CCP-QP-029, *CCP Corrective Action Management*.

NOTE

For RH waste, significant discrepancies between the radionuclide information in the AK record and measured values will be assessed during preparation of the Acceptable Knowledge Accuracy Report. What constitutes a significant discrepancy will depend on site- and waste stream-specific considerations for each waste stream.

4.6.5 For RH waste, describe any significant discrepancies between the radionuclide information in the AK record and measured values in the Acceptable Knowledge Accuracy Report.

4.6.6 Review, print name, sign, and date **AND** submit CCP Acceptable Knowledge Accuracy Report to CCP Records. At the option of the SPM, CCP Acceptable Knowledge Accuracy Report may list only the containers with accuracy issues, as long as the complete list of containers represented by the accuracy report is included by attachment to, or referenced in, the cover memorandum or letter.

4.7 AK Sufficiency Determination

SPM/AKE

NOTE

An AK Sufficiency Determination Request to meet all or part of the waste characterization requirements may be used if AK information available for a waste stream permits.

4.7.1 Evaluate the AK information available for a waste stream to determine if an AK Sufficiency Determination is possible or desirable.

4.7.2 Prepare an AK Sufficiency Determination Request that includes the following information:

[A] An introduction that briefly describes the waste stream, the type of AK Information available, whether AK alone can be used to meet the characterization requirements.

[B] Identification of any mandatory requirements supported only by upper tier documents (i.e., there is insufficient supporting data).

[C] Description demonstrating that the AK process described in CCP-PO-001 was followed (for example, AK personnel were appropriately trained; discrepancies were documented, etc.).

[D] Information demonstrating that CCP has assessed the AK process (e.g., internal audits).

4.7.3 Obtain copies of the following information from CCP Records and attach to the AK Sufficiency Determination Request:

[A] AK Summary Report for the waste stream;

[B] Acceptable Knowledge Documentation Checklist providing an AK roadmap and cross reference between mandatory programmatic and waste stream information with references supporting these requirements.

[C] Acceptable Knowledge Information List, providing a complete reference list including all mandatory and additional AK documentation.

[D] Current revision of this procedure to demonstrate that CCP has developed a written procedure for compiling AK information and assigning hazardous waste numbers.

[E] Relevant additional information for the required programmatic and waste stream data addressed in the AK Summary Report, as applicable or if requested by CBFO.

4.7.4 Submit the AK Sufficiency Determination Request and attachments to the SPM for approval and submittal to CBFO.

4.7.5 **IF** comments are received from CBFO,
THEN address the comments and resubmit the AK Sufficiency Determination Request.

4.8 Re-evaluating AK Documentation

NOTE

Differences in Waste Matrix Codes, state and EPA Hazardous Waste Numbers, and NDA results may exist between those previously assigned in the AK documentation and those indicated as a result of waste characterization activities performed to certify waste for disposal at the WIPP or during the confirmation performed by the Permittee. Under these circumstances, the AK information is re-evaluated and the required AK information associated with the new designation is documented. Characterization data associated with the waste is re-evaluated and changes in AK resulting from the re-evaluation are documented.

SPM

4.8.1 **IF** re-evaluation is warranted as a result of 1) inconsistencies noted during the process of comparing AK information to characterization results **OR** 2) the initiation of an nonconformance report (NCRs) that identifies potential changes to the AK of a waste stream (including NCRs generated as a result of discrepancies identified during confirmation performed by the Permittee),
THEN notify the AKE.

AKE

4.8.2 Retrieve copies of applicable characterization data and AK information from CCP Records.

4.8.3 **IF** a waste must be assigned to a different Waste Matrix Code (i.e., different waste stream or waste stream lot) based on Radiography or VE,
THEN perform the following:

[A] Review existing information based on the waste container identification number and document all differences in EPA HWN assignments. Consider all generator specific waste streams and hazardous waste number assignments; original site-specific permit requirements; and other state-enforced agreements in this analysis.

[B] **IF** differences exist in the EPA Hazardous Waste Numbers that were assigned,
THEN reassess **AND** document required applicable AK information associated with the new designation.

[C] Reassess **AND** document applicable testing data associated with the waste.

[D] Verify **AND** document that waste with a reassigned Waste Matrix Code was generated within the specified time period, area buildings and waste generating process; and that the process material inputs are consistent with the waste material parameters identified during Radiography or VE.

[E] Record all changes to the AK records on the appropriate forms and resubmit to CCP Records.

[F] **IF** unresolved discrepancies exist in the AK information for the reassigned Waste Matrix Code, EPA Hazardous Waste Numbers, or radionuclides,
THEN document the segregation of this container, **AND** define the actions necessary to fully characterize the waste.

4.8.4 **IF** testing results indicate that additional or different EPA Hazardous Waste Numbers may apply to the waste,
THEN review the existing AK and characterization information,
AND perform the following:

[A] **IF** a hazardous waste, not originally identified by AK, has been identified during testing (lead items, circuit boards, etc.),
THEN assign the applicable state and EPA Hazardous Waste Numbers unless an alternative assignment can be justified or representative quantitative data are available to preclude the assignment.

4.8.5 **IF** NDA results indicate the presence of additional radionuclides or different prevalent radionuclides in the waste,
THEN review existing AK and characterization information.

4.8.6 **IF** changes are required,
THEN document the need for changes in the appropriate comment section of the Acceptable Knowledge Re-evaluation Checklist.

4.8.7 Resolve all AK documentation discrepancies, if applicable, as described in Section 4.9 of this procedure.

4.8.8 Modify the AK Summary Report as appropriate.

4.8.9 Forward the completed Acceptable Knowledge Re-evaluation Checklist **AND** the revised AK Summary Report to the SPM for review and approval.

4.8.10 Submit changes to the Document Writers for distribution and approval.

SPM

4.8.11 Review the Acceptable Knowledge Re-evaluation Checklist and the revised AK Summary Report.

4.8.12 **IF** the AK Summary Report requires correction,
THEN return to AKE.

4.8.13 **IF** no correction is required,
THEN approve the Acceptable Knowledge Re-evaluation Checklist by printing name, signing, and dating the checklist.

4.8.14 Approve the revised AK Summary Report.

4.8.15 Review the WSPF to see if the change to the AK Summary Report affects the WSPF.

4.8.16 **IF** the WSPF requires change,
THEN revise the WSPF in accordance with CCP-TP-002.

4.8.17 Submit the Acceptable Knowledge Re-evaluation Checklist and revised AK Summary Report to CCP Records.

[A] Any new source documents referenced in the revised AK Summary Report and the applicable attachments must be submitted to CCP Records on or before the date of issuance of the revised AK Summary Report as final.

4.8.18 Once the re-evaluation is approved, complete the CCP Waste Stream Characterization Checklist, as described in step 4.5.3.

4.9 Resolving AK Discrepancies

NOTE
AK discrepancies may be identified during AK source document compilation, review, characterization, confirmation, and re-evaluation activities.

AKE

4.9.1 Document the nature of the discrepancy **AND** identify the documents involved for the particular waste stream or waste container on the Acceptable Knowledge Source Document Discrepancy Resolution or in the appropriate section of the AK Summary Report.

4.9.2 Use information from interviews, telephone contacts, or other correspondence or other supporting information to resolve the discrepancy.

4.9.3 Record interviews, telephone conversations, and correspondence needed to resolve discrepancy issues on a Record of Communication.

4.9.4 Print name, sign, and date a Record of Communication.

4.9.5 Complete an Acceptable Knowledge Source Document Summary for each Record of Communication form.

4.9.6 Print name, sign, and date Acceptable Knowledge Source Document Summary, attach to the Record of Communication form, **AND** submit to CCP Records.

4.9.7 Verify that process inputs (hazardous constituents and waste material parameters) are consistent with waste material parameters identified during Radiography and VE.

4.9.8 Assign **OR** revise the AK identified waste material parameters, as necessary, and document the change and the assumptions made on the Acceptable Knowledge Source Document Discrepancy Resolution.

4.9.9 Assign **OR** reassign Waste Matrix Codes, as necessary, using guidance specified in the DOE/LLW-217, **AND** document the assignment and assumptions made on the Acceptable Knowledge Source Document Discrepancy Resolution.

4.9.10 Evaluate the sources of discrepancies among sources of isotopic distribution data to determine whether the sources are credible. Identify limitations of data **AND**, if the data is **NOT** used, provide a justification on the Acceptable Knowledge Source Document Discrepancy Resolution. Otherwise, describe data limitations in the AK Summary Report, as applicable.

4.9.11 Assign or revise the identified radionuclides present, as necessary, **AND** document the change and the assumptions made on the Acceptable Knowledge Source Document Discrepancy Resolution.

4.9.12 Assign or revise state and EPA Hazardous Waste Number, as necessary. Assign the Hazardous Waste Numbers consistent with RCRA requirements. Document the assignment and the assumptions and justifications made on the Acceptable Knowledge Source Document Discrepancy Resolution.

4.9.13 Obtain the affected AK source documentation, as necessary.

4.9.14 Make necessary changes to Acceptable Knowledge Source Document Summary, as appropriate.

4.9.15 Complete, print name, sign, and date the Acceptable Knowledge Source Document Discrepancy Resolution documenting final disposition of the discrepancy.

4.9.16 Complete, print name, sign, and date an Acceptable Knowledge Source Document Summary for each Acceptable Knowledge Source Document Discrepancy Resolution.

4.9.17 Attach the Acceptable Knowledge Source Document Summary to the Acceptable Knowledge Source Document Discrepancy Resolution.

4.9.18 **IF** the form consists of multiple pages,
THEN add a footer identifying the page number and total number of pages.

4.9.19 Forward the form and supporting documentation (if requested) to the SPM for review and concurrence.

SPM

4.9.20 Review the Acceptable Knowledge Source Document Discrepancy Resolution and supporting documentation, as applicable, print name, sign, and date the form if the discrepancy has been resolved, **AND** forward the completed form to the AKE.

AKE

4.9.21 Confirm that the Acceptable Knowledge Source Document Discrepancy Resolution is signed and dated by the SPM.

4.9.22 Submit the original Acceptable Knowledge Source Document Discrepancy Resolution and supporting documentation, as applicable, to CCP Records.

4.9.23 Revise the AK Summary Report as needed.

NOTE

Discrepancies which CAN **NOT** be resolved by CCP will result in the container being returned to the Host site. If the discrepancy is **NOT** container-specific, containers from the subject waste stream will **NOT** be shipped to WIPP until such time as the discrepancy has been resolved. If the discrepancy is related to radiological characterization, notify the SPM that direct measurements of the impacted waste population may be required.

SPM

4.9.24 **IF** the discrepancy CAN **NOT** be resolved,
THEN issue an NCR (if not already identified in an NCR) and manage corrective actions in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*, CCP-QP-029, *CCP Corrective Action Management*, and the CCP/site interface document.

4.9.25 Record the NCR number on the Acceptable Knowledge Source Document Discrepancy Resolution.

4.9.26 Coordinate with the Host site to place a hold tag on, **AND** segregate waste containers associated with the NCR, if applicable, in accordance with applicable procedures.

4.9.27 Assess the potential timeframe of the noncompliance, the potentially affected waste populations, and the reassessment and recertification of the waste, if applicable.

4.9.28 Coordinate resolution of the nonconforming condition with the AKE.

4.9.29 Document information identified during the corrective action process as described in CCP-QP-005.

4.9.30 Once the discrepancy is resolved, applicable NCR(s) closed, and corrective action is completed, sign and date the Acceptable Knowledge Source Document Discrepancy Resolution **AND** forward the form to the AKE.

AKE

4.9.31 **WHEN** discrepancies are resolved, applicable NCRs are closed, **AND** corrective actions completed,
THEN review the discrepancy form, document any supporting AK information generated, assign the appropriate waste material parameters, Waste Matrix Code, radionuclides or hazardous waste numbers as applicable, **OR** justify the use of alternates and confirm that it has been signed.

4.9.32 Submit the original Acceptable Knowledge Source Document Discrepancy Resolution to CCP Records.

4.10 Updating AK for Additional Waste Stream Containers

NOTE

The following process is followed when the SPM identifies additional containers to be included in a waste stream defined in an existing AK Summary Report. The Waste Containers List identifies the AK source document number(s) designated for the Waste Stream Container Evaluation Memorandum, adding containers, if applicable.

SPM

4.10.1 Provide the AKE with a list of containers to be assessed for inclusion in an existing waste stream.

AKE

4.10.2 Collect container-specific documentation and evaluate the following information for each container:

- Waste generation location and process
- Time period of generation
- Physical form compared to the assigned Waste Material Parameters and Waste Matrix Code
- Chemical content
- Prohibited items
- Radionuclides

4.10.3 **IF** the containers are bounded by the existing AK Summary Report for the waste stream,
THEN notify the SPM **AND** submit a Waste Stream Container Evaluation Memorandum documenting the evaluation to CCP Records.

4.10.4 **IF** the containers are **NOT** bounded by the existing AK Summary Report, but should be included in the waste stream,
THEN revise the AK Summary Report; update the Waste Containers List; notify the SPM, **AND** revise and submit the updated Waste Containers List and Waste Stream Container Evaluation Memorandum documenting the evaluation to CCP Records.

4.11 Container Tracking Spreadsheet Development

AKE or Designee

4.11.1 Develop a spreadsheet which identifies the following minimum criterion for each container listed on Waste Containers List:

- Container I.D.
- Waste Stream I.D.
- Generation Date
- Vent Date
- Associated Defense Determination (required for OSRP containers only)
- Change Reason
- New Closure Date
- New Vent Date
- Container Type

4.11.2 Post the copy of the Container Tracking Spreadsheet to the secure file transfer protocol (sftp) site.

4.12 Container Tracking Spreadsheet Maintenance

AKE or Designee

4.12.1 **WHEN** notified of a change to the status of a container(s) identified by the SPM, CCP personnel, Host site personnel, or during the addition of containers to the waste stream inventory,
THEN evaluate the change based on the data provided.

[A] **IF** the change is routine and DOES **NOT** adversely affect data,
THEN GO TO step 4.12.2.

[B] **IF** the change is non-routine or adversely affects data,
THEN notify the SPM to take the appropriate actions prior to proceeding to step 4.12.2.

4.12.2 Update the Container Tracking Spreadsheet and post the change to the sftp site.

4.12.3 Notify the SPM of the change.

5.0 RECORDS

5.1 Records generated during the performance of this procedure in Section 5.1.1 are maintained as QA records. The following records will be maintained in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Lifetime Records

[A] Acceptable Knowledge Documentation Checklist

[B] Records of Communication

[C] Acceptable Knowledge Source Document Summary forms, and when applicable attached CCP generated source documents

[D] Acceptable Knowledge Information List

[E] Hazardous Constituents forms

[F] Waste Form, Waste Material Parameters, Prohibited Items, and Packaging forms

- Waste Material Parameter Evaluation Memorandum

[G] Radionuclides forms

- NDA Memorandum

[H] Waste Containers List

[I] Acceptable Knowledge Re-evaluation Checklist

[J] Acceptable Knowledge Source Document Discrepancy Resolution, which include Acceptable Knowledge Source Document Summary forms as attachments

[K] CCP Waste Stream Characterization Checklist

[L] CCP Acceptable Knowledge Accuracy Report, including cover memorandum or letter

- AK Accuracy Memorandum

[M] CCP TRU Waste Correlation and Surrogate Summary Form

[N] AK Summary Reports

[O] AK Sufficiency Determination Request

[P] SPM Notifications (emails, letters, memorandums, etc.), as applicable

[Q] AK Container Tracking Spreadsheet (submitted to CCP Records after notification by the site SPM that waste shipments to WIPP have been completed)

5.1.2 Non-QA

[A] Historical Source Documents

Attachment 1 – Acceptable Knowledge Documentation Checklist - Example Form

Site(s): _____

Waste Stream Description:_____

Waste Stream Number(s): _____

Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
Mandatory generator site TRU waste program (PR) information:			
Map of the generator site that identifies TRU waste generation, treatment, and storage areas.	PR1		
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	PR2		
Overview of the generator site and generator site TRU waste management operations in the context of the facility's mission.	PR3		
Descriptions of historical and current TRU waste generating operations, including how waste is tracked and managed and/or how operations relative to isotopic composition were tracked.	PR4		
Waste identification and/or categorization schemes and terminology used at the generator site, including codes correlating to specific isotopic distributions.	PR5		
Types and quantities of TRU waste generated, including historical generation through future projections.	PR6		
Correlation of waste streams and description of time of generation, waste generating processes, and area and building/facility where each waste stream was generated.	PR7		
Certification procedures for waste to be sent to the WIPP facility (i.e., procedures to ensure that prohibited items are documented and managed in accordance with site-specific certification plans).	PR8		
Mandatory generator site TRU waste stream (WS)-specific information:			
Waste stream designation	WS1		
Area(s) and building(s) from which the waste stream was or is generated.	WS2		
Waste stream volume and time period of generation	WS3		
Waste generating process (describe for each building) including processes associated with U134 waste generation, if applicable.	WS4		

Attachment 1 – Acceptable Knowledge Documentation Checklist - Example Form (Continued)

Waste Stream Number(s): _____

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
Process flow diagrams. For research/development, analytical laboratory waste, or other similar processes where process flow diagrams cannot be created, a description of the waste generating processes, rather than a formal process flow diagram, may be included, if justified.	WS5		
Summary of basis and rationale for delineating each waste stream including justification for combining waste historically managed separately as TRU mixed and TRU non-mixed waste streams into a single waste stream, that is traceable to referenced documents.	WS6		
Generator site mission descriptions related to TRU waste generation and management identifying defense and non-defense operations.	WS7		
Material inputs or other information that identified the chemical contents of the waste and the stream. Includes events or processes that may have modified the chemical properties of the waste stream after generation.	WS8		
Physical waste form (e.g., glovebox materials and chemicals handled during glovebox operations, if applicable), assigned Summary Category Group, Waste Matrix Code and materials inputs, including waste material parameters present in the waste stream. Includes events or processes that may have modified the physical properties of the waste stream after generation.	WS9		
Waste identifiers assigned by the generator site (e.g., item description code, packaging identification numbers).	WS10		
Specification of the isotopic ratios for the ten WIPP-tracked radionuclides and all radionuclides other than the ten WIPP-tracked radionuclides that contribute to 95 percent of the radioactive hazard for a payload container. Chemical and physical information that could affect the waste isotopic distribution, as well as calculations used to derive the isotopic distribution.	WS11		

Attachment 1 – Acceptable Knowledge Documentation Checklist - Example Form (Continued)

Waste Stream Number(s): _____

Acceptable Knowledge Information	[1]AK#	Compiled? (Y/N)	Source Document Tracking Number
State and EPA hazardous waste constituents in the waste stream and state and EPA Hazardous Waste Numbers assigned, including documentation regarding how the site has historically managed the waste, including the historical regulatory status of the waste (i.e., TRU mixed versus TRU non-mixed waste).	WS12		
Additional acceptable knowledge documentation (briefly describe):			
Process design documents (e.g., Title II Design)	S1		
Standard operating procedures that may include a list of raw materials or reagents, a description of the process or experiment generating the waste, and a description of the waste generated and how the wastes are managed at the point of generation	S2		
Preliminary and Final Safety Analysis Reports and technical safety requirements	S3		
Waste Packaging records	S4		
Test plans or research project reports that describe the reagents, radionuclides, and other raw materials used in experiments	S5		
Site databases (e.g., chemical inventory database for SARA Title III requirements, SNM or nuclear material databases)	S6		
Information from site personnel (e.g., documented interviews)	S7		
Standard industry documents (e.g., industry specification sheets, handbooks, reference materials, or other vendor information)	S8		
Analytical data relevant to the waste stream, including results from fingerprint analyses, spot checks, routine verification sampling or other processes that collected information pertinent to the waste stream. This may include new information (or previously collected data) which augments required information (e.g., visual examination not performed in compliance with CCP-PO-001, radiography screening for prohibited items).	S9		
Material Safety Data Sheets, product labels, or other product information	S10		
Laboratory notebooks that detail the research processes and raw materials used in an experiment	S11		
Comparable or surrogate sampling and analysis data	S12		
Other (describe)	S13		

Attachment 1 – Acceptable Knowledge Documentation Checklist - Example Form (Continued)

Waste Stream Number(s): _____

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number	
Safeguards and security, Materials Control and Accountability, and other nuclear material control system data Reports of nuclear safety or criticality accidents involving special nuclear materials (SNM)	S14			
NMMA logs or inventory records or waste disposal logs providing SNM or nuclear material information	S15			
Packaging	S16			
OSR-Specific Information (Applies only to sealed sources)				
Evidence that the waste meets the definition of a sealed source reference 10CFR30.4 and 10CFR835.2	O1			
Documentation that sources are Special Form, such as certificates DOT Special Form Class 7 per 49CFR173.403	O2			
Contamination survey results for each source reference requirements of 10CFR34.27	O3			
Source manufacturer's sales catalogues	O4			
Source purchase records	O5			
Manufacturer fabrication documents	O6			
Manufacturer drawings	O7			
Fuel capsule assembly reports	O8			
Manufacturer's operational procedures for meeting cleanliness requirements	O9			
Manufacturer's shipping documents or records	O10			
Manufacturer welding records	O11			
TRU batch material records	O12			
National database radiological information (e.g., NMMSS, NRC Device Registry)	O13			
NRC or agreement state regulatory licensing information	O14			
Documentation of physical markings on the outer source casing or labels attached to devices housing sources	O15			
Unique physical description attributed to specific source models	O16			

Attachment 1 – Acceptable Knowledge Documentation Checklist - Example Form (Continued)

Waste Stream Number(s): _____

Acceptable Knowledge Information	(1)AK#	Compiled? (Y/N)	Source Document Tracking Number
Acceptable knowledge information regarding waste generated off-site or from similar process:			
(1) AK#s are used as identifiers for program, waste stream-specific and supporting elements. The identifiers are to be used in the Acceptable Knowledge Source Document Summary and Acceptable Knowledge Information List to aid in the page location of program and waste stream-specific elements within a given document. N/A means that item is not applicable.			

Additional comments:

_____
_____
_____
_____
_____

All required AK information has been compiled and source document tracking numbers assigned.

Acceptable Knowledge Expert: _____ / _____ Date: _____
Print Sign

Attachment 2 – Record of Communication – Example Form

Corresponding Source Document Tracking No:		
Interviewer:	Date:	Time:
Interviewee:	Group/Organization: Job Title:	Phone: E-mail:
Subject:		
Summary:		
Data Limitations:		

Acceptable Knowledge Expert: _____ / _____ Date: _____
Print Sign

Attachment 3 – Acceptable Knowledge Source Document Summary – Example Form

Site(s):	Source Document Tracking Number:
Waste Stream Number: (Applicable only when site library is not in use)	
Acceptable Knowledge Documentation Type: ☐ TRU Waste Management Program Information ☐ Waste Stream-Specific Information ☐ Additional Information	Category: ☐ C - Correspondence ☐ D - Documents ☐ M - Miscellaneous ☐ P - Procedure ☐ DR - Discrepancy Resolution ☐ U - Unpublished Documents
Title or Description of Source Document [a]:	
Source Document Reference Information (author(s), document and revision number, date, publisher):	

AK #[b]	Source Doc. Page #[c]	AK Information Summary

Source Document Data Limitations (if any):

Acceptable Knowledge Expert:

_____/_____ Date: _____
Print Sign

[a] Provide description for non-titled information (i.e., container paperwork, MSDS sheets, etc)
[b] Obtain from Acceptable Knowledge Documentation Checklist
[c] For microfilm or microfiche, identify box, tape, reel number and location.

Controlled
Copy

Attachment 4 – Acceptable Knowledge Information List – Example Form

Site(s): _____

Waste Stream Number(s): _____

Waste Stream Description: _____

Source Document Tracking Number[a/c]	Title or Description [a]	Author	Document #[b]	Document Revision # and Date

[a] From Acceptable Knowledge Source Document Summaries (Attachments 3)
[b] Or publisher's document number if available
[c] In the case where an AK Summary Report has been revised based on information in Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution form, identify the tracking number.

Acceptable Knowledge Expert: _____ / _____ Date: _____
Print Sign

Attachment 5 – Hazardous Constituents – Example Form

Site(s): _____

Waste Stream Description: _____

Compound	Suspected Present? (Y/N)	Used as a solvent? [a] (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Toxicity Characteristic Metal Compounds (40 CFR Part 261)								
Arsenic		N/A		D004	N/A	N/A		
Barium		N/A		D005	N/A	N/A		
Cadmium		N/A		D006	N/A	N/A		
Chromium		N/A		D007	N/A	N/A		
Lead		N/A		D008	N/A	N/A		
Mercury		N/A		D009	N/A	U151		
Selenium		N/A		D010	N/A	N/A		
Silver		N/A		D011	N/A	N/A		
Volatile Organic Compounds (40 CFR Part 261)								
1,1,1-Trichloroethane			N/A	N/A	F001/F002	U226		
1,1,2,2-Tetrachloroethane		N/A	N/A	N/A	N/A	U209		
1,1,2-Trichloro-1,2,2-trifluoroethane			N/A	N/A	F001/F002	N/A		
1,1,2-Trichloroethane			N/A	N/A	F002	U227 [c]		
1,1-Dichloroethylene		N/A		D029	N/A	U078		
1,2-Dichlorobenzene			N/A	N/A	F002	U070		
1,2-Dichloroethane		N/A		D028	N/A	U077 [c]		
1,4-Dichlorobenzene		N/A		D027	N/A	U072		
1, 4-Dioxane		N/A	N/A	N/A	N/A	U108		
2-Ethoxyethanol			N/A	N/A	F005	U359 [c]		
2-Nitropropane			N/A	N/A	F005	U171 [c]		
Acetone			N/A	N/A	F003	U002		

Attachment 5 – Hazardous Constituents – Example Form (Continued)

Compound	Suspected Present? (Y/N)	Used as a solvent? [a] (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Volatile Organic Compounds (continued)								
Acetonitrile		N/A	N/A	N/A	N/A	U003		
Benzene				D018	F005	U019		
Butanol (n-Butyl alcohol)			N/A	N/A	F003	U031 [c]		
Carbon disulfide			N/A	N/A	F005	P022 [c]		
Carbon tetrachloride				D019	F001	U211 [c]		
Chlorobenzene				D021	F002	U037		
Chloroform		N/A		D022	N/A	U044		
Cyclohexanone			N/A	N/A	F003	U057 [c]		
Ethyl acetate			N/A	N/A	F003	U112 [c]		
Ethyl benzene			N/A	N/A	F003	N/A		
Ethyl ether			N/A	N/A	F003	U117 [c]		
Formaldehyde		N/A	N/A	N/A	N/A	U122		
Hydrazine		N/A	N/A	N/A	N/A	U133		
Isobutanol			N/A	N/A	F005	U140 [c]		
Methanol			N/A	N/A	F003	U154		
Methyl ethyl ketone				D035	F005	U159		
Methyl isobutyl ketone			N/A	N/A	F003	U161 [c]		
Methylene chloride			N/A	N/A	F001/F002	U080 [c]		
Pyridine				D038	F005	U196		
Tetrachloroethylene				D039	F001/F002	U210		
Toluene			N/A	N/A	F005	U220		
trans-1,2-Dichloroethylene		N/A	N/A	N/A	N/A	U079		
Trichloroethylene				D040	F001/F002	U228		
Trichlorofluoromethane			N/A	N/A	F001/F002	U121 [c]		
Vinyl Chloride		N/A		D043	N/A	U043		
Xylenes			N/A	N/A	F003	U239		

Attachment 5 – Hazardous Constituents – Example Form (Continued)

Compound	Suspected Present? (Y/N)	Used as a solvent? [a] (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Semivolatile Organic Compound (40 CFR Part 261)								
2,4-Dinitrotoluene		N/A		D030	N/A	U105		
Cresols				D026	F004	U052		
Dimethyl sulfate		N/A	N/A	N/A	N/A	U103		
Hexachlorobenzene		N/A		D032	N/A	U127 [c]		
Hexachlorobutadiene		N/A		D033	N/A	U128 [c]		
Hexachloroethane		N/A		D034	N/A	U131 [c]		
Nitrobenzene				D036	F004	U169 [c]		
Pentachlorophenol		N/A		D037	F027 [c]	N/A		

Attachment 5 – Hazardous Constituents – Example Form (Continued)

Compound	Suspected Present? (Y/N)	Used as a solvent? [a] (Y/N/NA)	TC constituent concentration less than regulatory level? [a] (Y/N/NA)	TC Hazardous Waste Number [a]	F-Listed Hazardous Waste Number [a]	U- or P-Listed Hazardous Waste Number [a]	EPA Hazardous Waste Number Assigned (N/Specify HWN)	State Hazardous Waste Number [b]
Other Constituents								
Wastewater treatment sludges from electroplating operations		N/A	N/A	N/A	F006	N/A		
Spent cyanide plating bath solutions from electroplating operations		N/A	N/A	N/A	F007	N/A		
Spent cyanides stripping and cleaning bath solutions from electroplating operations		N/A	N/A	N/A	F009	N/A		
Beryllium powder		N/A	N/A	N/A	N/A	P015		
Cyanide (soluble cyanide salts)		N/A	N/A	N/A	N/A	P030		
Potassium cyanide		N/A	N/A	N/A	N/A	P098		
Potassium silver cyanide		N/A	N/A	N/A	N/A	P099		
Sodium cyanide		N/A	N/A	N/A	N/A	P106		
Vanadium pentoxide		N/A	N/A	N/A	N/A	P120		
Hydrofluoric acid		N/A	N/A	N/A	N/A	U134		
Total PCB Concentration [d]		N/A	N/A	N/A	N/A	N/A	N/A	
Additional EPA Hazardous Constituents (List)								
Additional State Hazardous Constituents [b] (List) [e]								
Potentially Flammable VOCs (List) [e,f]		N/A						

Attachment 5 – Hazardous Constituents – Example Form (Continued)

a. Source: Title 40 Code of Federal Regulations Part 261, Identification and Listing of Hazardous Waste
b. Source: Cite applicable state regulation
c. This EPA Hazardous Waste Number is not permitted for WIPP disposal.
d. Source: Title 40 Code of Federal Regulation Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.
e. Add rows or attach additional sheets as necessary
f. Flammable VOCs included in the CH-TRAMPAC

NOTE: If any of the information requested on this form is not available or not applicable, enter N/A in the appropriate box.

Acceptable Knowledge Expert: _____ / _____ Date: _____
Print Sign

Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging – Example Form

Site(s): _____

Waste Stream Description: _____

Container ID Numbers: _____

Waste Stream Number:	
Physical Waste Form (e.g., debris, solidified waste)	
Summary Category Group[a]	
Waste Matrix Code Group[a]	
Waste Matrix Code[b]	
Waste Material Parameter Weights[c]	Estimated Waste Stream Weight Percent Average (attach evaluation justifying percentages)
Iron-based metals/alloys	
Aluminum-based metals/alloys	
Other metals	
Other inorganic materials	
Cellulosics	
Rubber	
Plastics (waste materials)	
Organic matrix	
Inorganic matrix	
Soils/Gravels	
Packaging materials	Present (Y/N)?
Steel	
Plastics	
Prohibited Wastes[d, e, f, g]	Present (Y/N)?
Observable liquid shall be no more than 1 percent by volume of the outermost container at the time of RTR or VE. Observable liquid shall be no more than 60 milliliters or 3 percent by volume, whichever is greater, in an internal container. Observable liquid shall not be present in a container with EPA HWN U134 assigned.	
Non-radionuclide pyrophoric materials	

Attachment 6 – Waste Form, Waste Material Parameters, Prohibited Items, and Packaging – Example Form (Continued)

Sealed containers > 4 liters	
Hazardous waste not occurring as co-contaminants with TRU mixed waste (non-mixed hazardous waste)	

Waste Stream Number: _____

Explosives	
Compressed gases	
Residual hydrofluoric acid (if U134 assigned to stream)	
Residual PCB liquids[j]	
Ignitables (EPA Hazardous Waste Number D001)	
Corrosives (EPA Hazardous Waste Number D002)	
Reactives (EPA Hazardous Waste Number D003)	
Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes[h]	
Spent Nuclear fuel or high-level waste[i]	
Any unvented plastic bags > 4 liters that have been heat-sealed	
Additional Information (if available)	
Packaging	
Waste container type?	
Liner type?	
Is liner punctured?	
Is filter vent installed?	
Maximum number of confinement layers	

a. Source: *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (CCP-PO-001) Introduction.
b. Source: *Transuranic Waste Baseline Inventory Report* (DOE/CAO-95-1121) or DOE Waste Treatability Group Guidance (DOE/LLW-217). Note: the Waste Matrix Code should not be assigned at the Summary Category Group level.
c. Source: CCP-PO-001 - Table C3-1. Attach the Waste Material Parameter Evaluation Memorandum used to estimate values include in this Table (see Section 4.4.26).
d. Source: CCP-PO-001 - Section C-1c.
e. Source: *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WAC)(DOE/WIPP-02-3122), Section 3
f. Source: *TRUPACT-II Content Codes* (TRUCON) (DOE/WIPP 89-004)
g. Source: *TRUPACT-II Authorized Methods for Payload Control (TRAMPAC),* Nuclear Waste Partnership, LLC
h. This waste has been approved for disposal at the WIPP by the Permittee as documented by Appendix C1 of the WIPP RCRA Part B Permit Application and the Permittee's approval and assignment of the applicable TRUCON Codes for this waste stream.
i. Source: *Nuclear Waste Policy Act of 1982* (42 U.S.C. 10101)
j. Source: Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution and Commerce, and Use Prohibitions (40 CFR Part 761)

Acceptable Knowledge Expert: _____ / _____ Date: _____
Print Sign

Attachment 7 – Radionuclides – Example Form

*Attach current Radiological Characterization or NDA Memorandum

Site(s): _____

Waste Stream Number(s): _____

Waste Stream Description: _____

Radionuclide	Wt %[b]	Ci[b]	Suspected Present (Yes/No)
From CCP-PO-002			
Sr-90			
Cs-137			
U-233			
U-234			
U-238			
Pu-238			
Pu-239			
Pu-240			
Pu-242			
Am-241			
Other Radionuclides (List)			
[a]Source: *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WAC) (DOE/WIPP-02-3122), Section 3 [b]If available			

Acceptable Knowledge Expert: _____ / _____ Date: _____
Print Sign

Attachment 8 – Waste Containers List – Example Form

(This attachment may be provided in a different format)

Site(s): _____

Waste Stream Number(s): _____

Waste Stream Description: _____

Number of Waste Containers in Waste Stream: _____

Total Existing Volume (m^3): _____

Is waste expected to be generated in the future?: _____

If yes, Estimated Future Volume (m^3): _____

Assumptions: _____

Waste Stream Container Evaluation Memo(s) for Added Containers: _____

Container Identification Number	Generation Date	Generation Point

Acceptable Knowledge Expert: _____ / _____ Date: _____
Print Sign

Attachment 9 – Attachment 9 is no longer required and Attachment number is reserved for future use

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Attachment 10 – Acceptable Knowledge Re-evaluation Checklist – Example Form

Site(s): _____
Waste Stream Number(s): _____
Waste Stream Description: _____
NCR numbers(s) if applicable: _____
Inconsistency between waste characterization and acceptable knowledge information (describe): _____
_____

Requirements	Completed? Yes/No	Additional Documentation [a]
Review existing information based on the container identification number and document all differences in EPA Hazardous Waste Number assignments. [c]		
If differences exist in the EPA Hazardous Waste Numbers that were assigned, reassess and document all required AK information associated with the new designation. [b,c]		
Reassess and document all testing data associated with the waste. [c]		
Verify and document that the reassigned Waste Matrix Code was generated within the specified time period, area and buildings, waste generating process, and that the process material inputs are consistent with the waste material parameters identified during RTR or VE.		
If NDA results indicate the presence of additional or different radionuclides in the waste, reassess and document AK and characterization information associated with the new information. [c]		
Record all changes to the AK records on the appropriate Attachments and resubmit to the CCP Facility Records Custodian.		
If unresolved discrepancies exist in the AK information for the reassigned Waste Matrix Code, EPA Hazardous Waste Numbers, or radionuclides, document the segregation of this container, and define the actions necessary to fully characterize the waste.		

a. Cite the source document, nonconformance report number, attachment, or other documentation used to support a change or no change.
b. If a toxicity characteristic contaminant is identified, it is not included as a listed waste, and analytical data regarding the concentration are not available, the corresponding EPA Hazardous Waste Number is applied.
c. Not applicable for LANL sealed source waste stream.

Acceptable Knowledge Expert:

_____ Date: _____
Print Sign

Site Project Manager:

_____ Date: _____
Print Sign

Attachment 11 – Acceptable Knowledge Source Document Discrepancy Resolution – Example Form

Waste Stream Number(s): _____

Waste Stream Description: _____

AK Source Document Discrepancy Form Tracking Number:

Tracking #		Title	Document/Rev#	Author	Date		Page #

Nature of Discrepancy:

Resolution:

Discrepancy Resolved: [ ] Yes [ ] No

Acceptable Knowledge Expert: _____ / _____ Date: _____
Print Sign

Site Project Manager: _____ / _____ Date: _____
Print Sign

Attachment 12 – Example Form and Content Guide for AK Summary Reports

CCP-AK-SITE-XXX

Central Characterization Program
Acceptable Knowledge Summary Report
For

NAME OF THE SITE
NAME OF THE PROCESS

REVISION NUMBER
DATE

Printed Name

APPROVED FOR USE

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

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LIST OF TABLES
LIST OF FIGURES
LIST OF ATTACHMENTS
LIST OF ACRONYMS AND ABBREVIATIONS

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

1.0 EXECUTIVE SUMMARY

This Acceptable Knowledge (AK) Summary Report has been prepared for the Central Characterization Program (CCP) for Contact-Handled (CH) (Remote-Handled [RH]) Transuranic (TRU) waste generated and managed by *(NAME THE SITE[s])*. The waste described in this report was generated by (Building/Facility), (and the waste will be repackaged in [Building/Facility]). This report was prepared in accordance with CCP-TP-005, *CCP Acceptable Knowledge Documentation* (Reference 1), to implement the AK requirements of (**RH only** -DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan* [WCPIP] [Reference __]); *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan* (WIPP-WAP) (Reference __); and DOE/WIPP-02-3122, Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WIPP-WAC) (References __).

The WIPP WAP AK requirements are addressed in CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (Reference __). The WIPP-WAC AK requirements are addressed in CCP-PO-002, *CCP Transuranic Waste Certification Plan* (Reference __). Additionally, this report provides the AK information required by (**CH only** - CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control [*CCP CH-TRAMPAC] [Reference __]) **OR** (**RH only -** CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control* [CCP RH-TRAMPAC] [Reference __]).

The CCP is tasked with certification of TRU waste for transportation to and disposal at the Waste Isolation Pilot Plant (WIPP). This report was developed in accordance with CCP-TP-005 (Reference 1) and describes how AK is collected, reviewed, and managed by the CCP. The CCP is responsible for collection, review, and management of AK documentation in accordance CCP-TP-005 and reviews and approves this AK Summary Report. CCP maintains responsibility for this AK Summary Report and all CCP-TP-005 generated forms and records as quality assurance (QA) records. In addition, CCP maintains a copy of the “historical source documents” as non-QA records.

(Brief description of the waste stream, facility[ies], and generating process/activity).

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

This AK Summary Report, along with referenced supporting documents, provides a defensible and auditable record of AK for designated waste streams from the *NAME THE (FACILITY/PROCESS/ACTIVITY)*. The references and AK source documents used to prepare this report are listed in Sections 7.0 (8.0 for RH) and 8.0 (9.0 for RH). The source documents cited throughout this report are identified by alphanumeric designations corresponding to a unique Source Document Tracking Number (i.e., C001, D001, DR001, M001, P001, and U001 (as applicable to match Section 3).

This AK report includes information relating to the facility's history, mission, process operations, waste identification, characterization, and waste management practices. Information contained in this report was obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, and interviews with cognizant personnel.

This report and supporting source documentation provide the mandatory waste program and waste stream-specific information required by the WIPP-WAP (Reference 3). (**RH only -** This report also compiles data relevant to the applicable U.S. Environmental Protection Agency [EPA] requirements and presents the documentation necessary to satisfy each WCPIP data quality objective [DQO] and quality assurance objective [QAO] for RH TRU waste streams [Reference 2]).

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

2.0 WASTE STREAM IDENTIFICATION SUMMARY

Site Where TRU Waste Was Generated and Stored: *SITE ADDRESS and EPA ID*

Facility Where TRU Waste Was Generated: *NAME OF FACILITY*

Facility Mission: *DESCRIBE THE MISSION AND HOW THE WASTE WAS GENERATED*

2.1 Waste Stream #1 (Identifier and Name)

2.2 Waste Stream #2 (Identifier and Name) (repeat following for each waste stream)

Summary Category Group: (Assign per Section 4.4.11)

Waste Matrix Code Group: (Assign per Section 4.4.10)

Waste Matrix Code: (Assign per section 4.4.9)

TRUPACT-II Content Code (TRUCON): (Obtain TRUCON Code(s) from SPM

TRUPACT-III Content Code (TRUCON): (Obtain TRUCON Code(s) from SPM

Waste Stream Description:

As described in Section 5.4.1, waste stream (number) is comprised primarily of (describe type of waste).

(Describe any other specific waste items in the waste stream, equipment, items not included above, secondary waste/chemicals introduced during packaging/repackaging.)

This waste stream was determined to contain Resource Conservation and Recovery Act (RCRA)-regulated constituents and is assigned the following EPA hazardous waste numbers (HWNs): (list HWNs) (Refer to Section 5.4.3).

(Identify the two predominant radionuclides by mass and activity for waste characterized using NDA techniques) (Refer to Section 5.4.2)

(Identify potential prohibited items and characterization method[s] selected to ensure the absence of these items in the final packaging) (Refer to Section 5.4.5).

(Describe waste packaging/repackaging and final waste container configuration) (Refer to Section 5.5).

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

For CH - Waste Stream (number) meets the WIPP-WAP waste stream definition. The waste stream consists of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity.

For RH - Waste Stream (number) meets the WIPP-WAP and the WCPIP waste stream definitions. The waste is similar in material, physical form, hazardous constituents, and radiological properties and generated from a single process or activity.

3.0 ACCEPTABLE KNOWLEDGE DATA and INFORMATION

TRU waste destined for disposal at the WIPP must be characterized prior to shipment. Development of knowledge of the waste materials and processes that generate and control the waste is required to provide a clear and convincing argument about the characteristics of each waste stream. The AK characterization documented herein complies with the requirements of the WIPP-WAP (Reference__) (**RH only** - and the WCPIP [Reference 1]) and was developed in accordance with of CCP-PO-001, (Reference ___), and CCP-TP-005 (Reference 1).

RH only - The WCPIP identifies waste characterization requirements and methods to satisfy requirements in:

- 40 Code of Federal Regulations (CFR) Part 191, *Environmental Radiation Protection Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes* (Reference __).
- 40 CFR Part 194, *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR 191 Disposal Regulations* (Reference __).
- *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations: Certification Decision* (Reference __).

Public Law 102-579, *The WIPP Land Withdrawal Act (LWA)* (Reference __).

[Include a summary of the types and sources of AK information used].

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

The references and AK sources used to prepare this report are listed in Sections 7.0 (8.0 for RH) and 8.0 (9.0 for RH), respectively. The AK sources referenced within this report by alphanumeric designations (e.g., C001, D001, DR001, M001, P001, and U001) correspond to the Source Document Tracking Number using the following convention: (include as applicable)

- C – Correspondence
- D – Documents
- DR – Discrepancy resolution
- M – Miscellaneous
- P – Procedures and Published documents
- U – Unpublished documents

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

4.0 REQUIRED PROGRAM INFORMATION

This section presents the mandatory TRU waste program information required by the WIPP-WAP and the WCPIP for waste stream (number)(References __ and __). This section provides a description of the facility and operations associated with the generation of (facility/building/operation) TRU waste. Included is a description of the (facility/building/operation), summary of the mission, defense determination, and descriptions of (other operations including D&D, maintenance, repackaging, etc.) operations associated with the generation of waste stream (number) are provided.

4.1 Facility Location
4.2 Facility Description
4.3 Facility Mission
4.4 Defense Waste Assessment
4.5 High-Level Waste and Spent Nuclear Fuel Assessment
4.6 TRU Waste Management
4.6.1 Types and Quantity of TRU Waste Generated
4.6.2 Correlation of Waste Streams Generated from the Same Building and Process
4.6.3 Waste Stream Identification, Categorization, and Delineation
4.7 Description of Waste Generating Process

4.8 Waste Certification Procedures

5.0 REQUIRED WASTE STREAM INFORMATION
(Repeat the following information in additional waste stream sections, as needed)

This section presents the mandatory TRU waste stream specific information required by the WIPP-WAP (**RH only -** and the WCPIP) for waste stream (number) (References __ and __). The area of generation, waste stream volume, period of generation, prohibited items, waste packaging, and the physical, chemical, and radiological composition of the waste stream are described.

5.1 Area and Building of Generation

5.2 Waste Stream Volume and Period of Generation

5.3 Waste Generating Activities

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

5.4 Type of Waste Generated
5.4.1 Materials Related to Physical Form
5.4.1.1Waste Matrix Code
5.4.1.2Waste Material Parameters
5.4.2 Radiological Characterization
5.4.3 Chemical Content Identification - Hazardous Constituents
5.4.3.1F-Listed Constituents
5.4.3.2Toxicity Characteristic Constituents
5.4.3.3U- and P-Listed Constituents
5.4.3.4K-Listed Constituents
5.4.3.5Ignitables, Reactives, and Corrosives
5.4.3.6State Hazardous Waste Code or Number Assignment (if applicable)
5.4.4 Polychlorinated Biphenyls
5.4.5 Prohibited Items
5.5 Waste Packaging

6.0 QUALIFICATION OF AK – (**RH Only)**

As stated in CCP-PO-002, *CCP Waste Certification Plan,* (Reference __), this AK Summary Report provides a description of the characterization of this RH waste stream. CCP-AK-ORNL-XXX, *CCP RH TRU Waste Certification Plan for 40 CFR 194 Compliance and Confirmation Test Plan for Waste Stream (number)* (Reference __), describes how each DQO and QAO is met along with the rationale for selection of the AK qualification methods used. As required by the WCPIP (Reference __), the description of waste stream (number) is provided in Sections 4.0 and 5.0. The description of the confirmatory testing process, the percentage of containers that are subjected to the process, a discussion of why the process is considered representative of the waste stream, and quantitative acceptance criteria is presented in CCP-AK-ORNL-XXX (Reference __).

The CCP intends to use a combination of methods to qualify the AK information associated with the [site/facility/building] waste stream because this will make the best use of the information available (such as existing sampling and analytical data). Table XX, Waste Stream (number) Determination Summary, lists the DQOs to be addressed using AK associated with waste stream [number] relating to the defense waste, radiological, and physical waste stream determinations. The location (page number, section, etc.) of the relevant information is identified in the AK source identified in Table XX.

Table XX. Waste Stream (number) DQO Determination Summary
(Provide a summary of the AK and identify the AK sources and the characterization method for each WCPIP DQO).

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

6.0 CONTAINER-SPECIFIC INFORMATION **(Section 7.0 for RH)**

(Provide a summary of the AK documentation reviewed, including a list of the container-specific information).

In accordance with procedure CCP-TP-005 (Reference 1), a CCP Waste Containers List (Attachment 8 of the procedure) is completed and maintained as a quality record for waste tracking purposes. Information tracked includes container identification number, waste stream number, and the closure date for each container.

Attachment 12 – Example Form and Content Guide for AK Summary Reports
(Continued)

7.0 REFERENCE INFORMATION **[Section 8.0 for RH]**

1. CCP-TP-005, *CCP Acceptable Knowledge Documentation,* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

2. DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*, Carlsbad, New Mexico, U.S. DOE Carlsbad Field Office

3. *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan,* New Mexico Environment Department, Santa Fe, New Mexico

4. DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria For the Waste Isolation Pilot Plant,* Carlsbad, New Mexico, U.S. DOE Carlsbad Field Office

5. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan,* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

6. CCP-PO-002, *CCP Transuranic Waste Certification Plan,* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

7. CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC),* Carlsbad, New Mexico, Nuclear Waste Partnership, LLC.

8. CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC),* Carlsbad, New Mexico, Nuclear Waste Partnerhsip, LLC.

10. DOE/LLW-217, *DOE Waste Treatability Group Guidance*, Idaho Falls, Idaho, INEL-Lockheed Idaho Technologies

11. 40 CFR Part 191, *Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes*, Washington, D.C., U.S. EPA

12. 40 CFR Part 194, *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations*, Washington, D.C., U.S. EPA

Attachment 12 – Example Form and Content Guide for AK Summary Reports (Continued)

13. *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations: Certification Decision*, Washington, D.C., U.S. EPA

14. Public Law 102-579, *The Waste Isolation Pilot Plant Land Withdrawal Act*, October 30, 1992 as amended by Public Law 104-201

15. 42 U.S.C 10101, *Nuclear Waste Policy Act of 1982*, U.S. Congress

Attachment 12 – Example Form and Content Guide for AK Summary Reports
(Continued)

8.0 AK SOURCE DOCUMENTS **[Section 9.0 for RH]**

Document Number	Title

[INSERT ALL REFERENCED FIGURES]

Attachment 13 – CCP Waste Stream Characterization Checklist – Example Form

CCP Waste Stream Characterization Checklist

Site(s):

Waste Stream Number: Lot # (if applicable)

Waste Stream Description:

Acceptable Knowledge Information or other data points[a]	Characterization Method(s)	Acceptable Knowledge Re-evaluation Required? Yes/No[b]?	Comments[c]
Physical waste form/description			
Waste material parameters weights			
Waste percent volume consistent with nondestructive examination or visual examination data and audio/video tapes or equivalent media			
Summary Category Group assignment			
Waste Matrix Code assignment			
Absence of prohibited items			
EPA Hazardous Waste Number assignment[d]			
Toxicity characteristic code assignment			
VOCs from packaging materials or radiolysis present			
State Hazardous Waste Number assignment			
Radionuclides present			
Other radiological parameters: (specify)			

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Attachment 13 – CCP Waste Stream Characterization Checklist – Example Form (Continued)

CCP Waste Stream Characterization Checklist

Additional Comments:_____

a. Identified in the AK Summary Report or included in the in-process record documentation (e.g., BDR's)
b. If "yes," AKE completes an *Acceptable Knowledge Re-evaluation Checklist.*
c. Identify the source of the waste testing information (e.g., VE or RTR batch data reports). Note if an AK Sufficiency Determination has been approved to meet any characterization parameter.
d. Ensure that, if a toxicity characteristic contaminant is identified, it is not included as a listed waste, and if analytical data regarding the concentration are not available, the corresponding EPA Hazardous Waste Number is applied.

Site Project Manager:

Date:

Print Sign

Acceptable Knowledge Expert:

Date:

Print Sign

Attachment 14 – CCP Acceptable Knowledge Accuracy Report – Example Form

CCP Acceptable Knowledge Accuracy Report

Site(s):_____

Waste Stream Number(s):_____

Waste Stream Description:_____

Waste Containers:	Waste Matrix Code Reassigned? (Y/N)	EPA Hazardous Waste Number Reassigned? (Y/N)	Radiological Data Consistent with AK? (Y/N)

Total containers in this report:_____
Total containers consistent with AK: _____
Percent containers consistent with AK:_____

Site Project Manager:
_____/_____ Date:_____
Print Sign

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Attachment 15 – CCP TRU Waste Correlation and Surrogate Summary Form – Example Form

CCP TRU Waste Correlation and Surrogate Summary Form

Generator/Storage Site(s): _____

Waste Stream(s): _____

Waste Used to Correlate: _____

Waste Used as Surrogate: _____

Information	Y/N	Source of Information
Is physical form identified?		
Are chemicals identified?		
Is the absence of prohibited items confirmed?		
Are radiological data described?		

Explain/Justify the Use of Correlating/Surrogate Waste Stream Information:
(Attach additional supporting information, as applicable)

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CCP-TP-028

Revision 8

CCP
Radiographic Test Drum and Training Container Construction

EFFECTIVE DATE: 06/17/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
2	02/04/2004	In response to CAR No: CAR-CCP-010-03, revision change to create electronically fillable form and update references. Change FQAO to CCP Training and add Facility Records Custodian in Responsibilities section of procedure. Minor editorial corrections throughout procedure. Revision to Waste codes on Attachment 1 and fillable form.
3	01/19/2006	Revised procedure steps and Attachment 1, CCP NDE Test Drum Inventory Sheet to allow for multiple Summary Category Groups to be represented in a test/training drum. Revised Drum Contents section of Attachment 1 to include WAP-required items and other non-WAP items.
4	05/26/2010	Revised to clarify the difference between a Test Drum and a Training Drum and how they are to be constructed.
5	07/27/2010	Revised to correct editorial errors.
6	12/29/2010	Revised to incorporate training containers in place of training drums. Also revised training container assembly procedures to meet the requirements of the revised *Waste Isolation Pilot Plant Hazardous Waste Facility Permit.*
7	07/13/2012	Revised to allow Vendor Project Manager (VPM) to assemble Training Containers.
8	06/17/2013	Revised to include section 4.3 Reconfiguration of Previously Assembled Training Containers.

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LIST OF ATTACHMENTS

Attachment 1 – CCP NDE Test Drum Inventory Sheet 12
Attachment 2 – CCP NDE Training Container Inventory Sheet 13

1.0 PURPOSE

The purpose of this procedure is to provide the requirements for the assembly of nondestructive examination (NDE) test drums and training containers, required by CCP-PO-002*, CCP Transuranic Waste Certification Plan* and training containers, required by CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan,* and the *CH-TRU Payload Appendices* which are used to qualify Radiography Operators in accordance with CCP-QP-002, *CCP Training and Qualification Plan.*

1.1 Scope

This procedure provides the instruction for assembling test drums and training containers. Test drums are representative of the Waste Matrix Codes (WMC) for which the Waste Stream Profile Form (WSPF) approval is being sought. Training containers are required to be scanned semi-annually.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- *CH-TRU Payload Appendices*

Referenced Documents

- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-008, *CCP Records Management*

3.0 RESPONSIBILITIES

3.1 Vendor Project Manager (VPM) or Cognizant Engineer (CE)

3.1.1 Ensures that test drums and training containers are constructed in accordance with the requirements of this procedure.

3.1.2 Completes Attachment 1, CCP NDE Test Drum Inventory Sheet, and Attachment 2, CCP NDE Training Container Inventory Sheet.

3.2 CCP Training

3.2.1 Tracks the use of test drums and training containers to ensure that testing and evaluation of NDE Operators are conducted on test drums and training containers, as specified in CCP-QP-002.

PROCEDURE

4.1 Test Drum Assembly

NOTE
Test Drums are to be assembled representing all three Summary Category Groups, with the bottom ¼ being sludge, a spacer (e.g., cardboard), next ¼ being naturally occurring soil, and the top half containing debris using the listed required items and other material representing all the waste material parameters for debris.

VPM

4.1.1 Identify **AND** obtain the items needed to match the WMCs (items common to the waste streams to be characterized).

4.1.2 Obtain the following required items for each drum to be constructed:

[A] US Department of Transportation (DOT) Type A 55-gallon drum

[B] Aerosol can with puncture

[C] Horsetail bag (Liner Bag)

[D] Pair of coveralls

[E] Empty bottle

[F] Irregular-shaped pieces of wood

[G] Empty one-gallon paint can

[H] Full container

[I] Aerosol can with fluid

[J] One-gallon bottle with three tablespoons of fluid

[K] One-gallon bottle with one cup of fluid

[L] Leaded glove or leaded apron

[M] Wrench

4.1.3 Construct the test drum(s) as follows:

NOTE
NDE test drum identification number format is NDE-TEST-01, NDE-TEST-02.

[A] Label the test drum with a unique identification number obtained from Central Characterization Program (CCP) Training.

[B] Record the test drum identification number and date on Attachment 1.

[C] Place sludge and spacer in drum.

[D] Place soil in drum.

NOTE
The one-gallon bottle with one cup of fluid (step 4.1.2[K]) MUST be placed upside down in the test drum. In addition, the test drum will be divided into layers with varying densities to represent different situations that may occur during radiography examinations.

[E] Place the remaining items listed in Section 4.1.2 (steps 4.1.2[B] through 4.1.2[M]), along with items common to the waste stream(s) (step 4.1.1), in the test drum.

[F] Record the placement of items (step 4.1.3[E]) on Attachment 1.

[G] Secure the lid to the test drum using the outside ring.

[H] Place a tamper indicating device/lock on the test drum.

[I] Complete Attachment 1, print name, sign, **AND** date on Attachment 1.

4.1.4 Repeat steps in Section 4.1.3 for each NDE test drum constructed.

4.1.5 Submit Attachment 1, in accordance with CCP-QP-008, *CCP Records Management*.

4.2 Assembling Training Containers

CE or VPM

4.2.1 Obtain the following items for each training container to be constructed:

- Container type regularly examined, for example a 55-gallon drum or standard waste box (SWB)
- Items which can be identified by real-time radiography (RTR), items that are representative of the physical properties of the waste based on acceptable knowledge documentation reviewed (including internal containers of various sizes with various amounts of liquid), and prohibited items (for example, liquids in excess of one percent)

NOTE
NDE Training container identification number format is NDE-TRAINING-01.

4.2.2 Label the training container with a unique identification number obtained from the training department.

4.2.3 Place the items in the containers.

4.2.4 Record training container identification number on Attachment 2.

4.2.5 Record date of construction on Attachment 2.

4.2.6 Record the inventory of the items on Attachment 2.

4.2.7 Install the container lid.

4.2.8 Install tamper indicating device/lock on the training container.

4.2.9 Print name, sign, and date Attachment 2.

4.2.10 Repeat steps in Section 4.2 for each NDE training container constructed.

4.2.11 Forward Attachment 2 to CCP Training.

4.3 Reconfiguration of Previously Assembled Training Containers

CE or VPM

4.3.1 Obtain the following items for each container to be reconfigured.

- Container to be reconfigured
- Current inventory list of the container
- New waste stream specific items listed in the site's AK documents

4.3.2 Empty contents of the training container EXCEPT for the soil and sludge.

4.3.3 Label the training container with a unique identification number obtained from the training department.

4.3.4 Empty liquid from internal containers.

4.3.5 Refill internal containers with an amount of liquid different than previous inventory sheet indicates with some being prohibited amounts.

4.3.6 Place items back into the container EXCEPT any waste stream specific items previously included on the inventory.

4.3.7 Place new waste stream specific items in the container.

4.3.8 Record training container identification number on Attachment 2.

4.3.9 Record date of construction on Attachment 2.

4.3.10 Record the inventory of the items on Attachment 2.

4.3.11 Install the container lid.

4.3.12 Install tamper indicating device/lock on the training container.

4.3.13 Print name, sign, and date Attachment 2.

4.3.14 Forward Attachment 2 to CCP Training.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as quality assurance (QA) records in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Nonpermanent Records

[A] Attachment 1 – CCP NDE Test Drum Inventory Sheet

[B] Attachment 2 – CCP NDE Training Container Inventory Sheet

Attachment 1 – CCP NDE Test Drum Inventory Sheet

Test drum identification number:	Date:
Drum contents:	

CCP-PO-002 required items	Other items
1. Aerosol can with puncture	1.
2. Horsetail bag (Liner Bag)	2.
3. Pair of coveralls	3.
4. Empty bottle	4.
5. Irregular-shaped pieces of wood	5.
6. Empty one-gallon paint can	6.
7. Full container	7.
8. Aerosol can with fluid	8.
9. One-gallon bottle with three (3) tablespoons of fluid	9.
10. One-gallon bottle with one (1) cup of fluid (upside down)	10.
11. Leaded glove or leaded apron	11.
12. Wrench	12.

Comments:

VPM Printed Name	Signature	Date

Attachment 2 – CCP NDE Training Container Inventory Sheet

Training container identification number:	Date:
Container contents:	
1.	14.
2.	15.
3.	16.
4.	17.
5.	18.
6.	19.
7.	20.
8.	21.
9.	22.
10.	23.
11.	24.
12.	25.
13.	26.
Comments:	

CE or VPM Printed Name	Signature	Date

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CCP-TP-030

Revision 33

CCP
CH TRU Waste Certification and WWIS/WDS Data Entry

EFFECTIVE DATE: 11/19/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

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RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
24	08/20/2008	Revised in response to Central Characterization Project Corrective Active Report CAR 08-025, deleted Characterization Data System Waste Certification Official review form, and made editorial changes.
25	01/22/2009	Revised to update data sources for the Waste Isolation Pilot Plant (WIPP) Waste Information System (WWIS) Data Spreadsheet (SS). Also made minor editorial changes.
26	05/27/2009	Revised to implement changes made to the *Contact-Handled Transuranic Waste Authorized Methods for Payload Control* (CH-TRAMPAC).
27	12/14/2009	Revised to allow use of the Waste Data System (WDS).
28	05/12/2010	Revised to include steps for direct load 100-Gallon drums that require characterization prior to placement in a direct load Standard Waste Box (SWB) and for minor editorial changes.
29	04/26/2011	Revised Attachment 2, WCO Waste Certification Requirements, to include Standard Large Box 2 (SLB2) Waste Certification Official (WCO) Waste Certification Requirements. Also revised Sections 3.1.6, 4.2.6, and Attachment 1 of the Data Sources for the WDS Master Template.
30	05/21/2012	Revise Table 1, Data Sources for the WDS Master Template, to include the acceptable knowledge (AK) Tracking Spreadsheet (SS) for another source for Layers of Confinement; added the reference for the Transuranic Package Transporter (TRUPACT)-III; added new records section for waste data system (WDS) flammable gas analysis (FGA) Certification.
31	11/19/2012	Revised to address CAR-CCP-0003-12 and various editorial changes. Also revised to better streamline the nonconformance report (NCR)/Corrective Action Report (CAR) quality assurance (QA) request.
32	06/20/2013	Revised to implement the Permit Modification Request Class 2 approved by New Mexico Environment Department (NMED) dated March 13, 2013 and *Contact-Handled Transuranic Waste Authorized Methods for Payload Control* (CH-TRAMPAC) changes.

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RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
33	11/19/2013	Revised to implement Shielded Container Assembly information and various editorial changes. Also revised to change the (WDS) Master Template to WDS Spreadsheet. Revised Attachment 2, WCO Waste Certification Requirements to include more acceptable container types, as well as more detail within the entire attachment. Also revised to implement a corrective action from WF13-245.

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1.0 PURPOSE

The purpose of this procedure is to describe the steps the Central Characterization Program (CCP) uses for certifying contact-handled (CH) transuranic (TRU) waste for disposal at the Waste Isolation Pilot Plant (WIPP). This procedure also describes the process for entering data into the WIPP Waste Information System (WWIS)/Waste Data System (WDS) and reporting data on containers for disposal at the WIPP.

In addition, this procedure may be used to enter data into the WWIS/WDS for site-to-site waste shipments using Transuranic Package Transporter (TRUPACT)-IIs, TRUPACT-IIIs, or HalfPACTs. Site-to-site waste shipments are defined as shipments with destinations to sites other than the WIPP for storage, characterization, or treatment, and are distinct from site-to-WIPP waste shipments for disposal.

1.1 Scope

This procedure defines the parameters necessary for certification of CH TRU waste for disposal at the WIPP. This procedure includes the records that are generated to document that the CCP Waste Certification Official (WCO) has performed the necessary verifications and has certified the waste for disposal.

This procedure also describes how to obtain access and enter data into the WWIS/WDS for containers to be certified for disposal at the WIPP.

This procedure also describes the steps for entering data into the WWIS/WDS for site-to-site waste shipments. Site-to-site waste shipments are shipments of waste destined for sites other than the WIPP.

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2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-TP-035, *CCP Container Management*
- CCP-TP-068, *CCP Standardized Container Management*
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-050, *CCP TRUPACT-III TRU Waste Authorized Methods for Payload Control (CCP TRUPACT-III TRAMPAC)*
- *CH-TRU Payload Appendices*

Referenced Documents

- DOE/WIPP-09-3427*, Waste Data System User's Manual*
- DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
- DOE/WIPP-01-3194, *CH-TRU Waste Content Codes (CH-TRUCON)*
- DOE/WIPP-11-3458, *TRUPACT-III CONTENT CODES (TRUCON-III)*
- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*
- CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*
- CCP-TP-120, *CCP Container Management*

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2.2 Training Requirements

2.2.1 Personnel who use this procedure to certify waste will be trained and qualified to the requirements for the WCO in accordance with CCP-QP-002, *CCP Training and Qualification Plan*.

2.2.2 Personnel who use this procedure to enter data will be trained and qualified to the requirements for the Waste Certification Assistant (WCA) in accordance with CCP-QP-002*.*

2.2.3 Personnel who use this procedure to enter data into the WWIS/WDS will refer to DOE/WIPP-09-3427, *Waste Data System User's Manual.*

2.3 Equipment List

2.3.1 None.

2.4 Software

2.4.1 WDS Master Template.XLS

2.4.2 IDC WDS Spreadsheet (controlled by IDC)

2.4.3 concat_wds_files.bat

2.4.4 clean_container_files.bat

2.4.5 WDS FGA Template.XLSM

2.4.6 IDC WDS FGA Spreadsheet (controlled by IDC)

2.5 Precautions and Limitations

2.5.1 None.

2.6 Prerequisite Actions

2.6.1 None.

2.7 Definitions

2.7.1 None.

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NOTE
The Data Administrator (DA) in this document refers to the WWIS/WDS DA.

3.0 RESPONSIBILITIES

3.1 Site Project Manager (SPM) or Designee

3.1.1 Confirms that personnel performing this procedure are trained and qualified in accordance with applicable requirements in CCP-QP-002.

3.1.2 Prepares a list of candidate containers for certification and submits to the WCO and WCA.

3.1.3 Notifies the WCO and WCA of approved Waste Stream Profile Form (WSPF).

3.1.4 Notifies the WCO and WCA of completed Lot Characterization Information Summary (CIS).

3.1.5 Serves as focal point for resolution of data issues.

3.2 Quality Assurance (QA)

3.2.1 Provides assistance in verifying data, completing documentation, and reviewing requirements and provides status of applicable Nonconformance Reports (NCRs).

3.2.2 Confirms, individually and with an independent verification (does not have to be Quality Assurance [QA]), that there are no unresolved NCRs for containers to be certified when requested by the WCA or WCO.

3.3 Waste Certification Official (WCO) or Designee

3.3.1 Confirms that WCOs and WCAs are granted access to the WWIS/WDS.

3.3.2 Obtains a copy of the approved WSPF for applicable containers to be certified.

3.3.3 Certifies the data for the container to be certified as identified on the WDS Spreadsheet.

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3.4 Waste Certification Assistant (WCA)

3.4.1 Works with the WCO to obtain access to the WWIS/WDS.

3.4.2 Obtains copies of data for each container from CCP Records, IDC or the Site Project Manager (SPM) that show data to be entered into the WDS Spreadsheet.

3.4.3 Generates the WDS Spreadsheet and has a second WCA confirm the data are transferred correctly to the WDS Spreadsheet. The second data entry person verifies the information and places initials and date in the WDS Spreadsheet prior to certification by the WCO.

3.4.4 Forwards the WDS Spreadsheet to the WCO for certification.

3.4.5 Requests that QA confirm that NCRs associated with containers to be certified have been resolved, as appropriate, via electronic mail (E-mail).

3.4.6 Submits the container data from the WDS Spreadsheet to the WWIS/WDS, as applicable.

3.4.7 Submits data package to CCP Records Custodian in accordance with CCP-QP-008, *CCP Records Management.*

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NOTE

Throughout the procedure, "WDS Spreadsheet" is a generic term used to refer to both the "IDC WDS Spreadsheet" (primary) and the "WDS Master Template" (backup). Similarly, "WDS FGA Spreadsheet" refers to both the "IDC WDS FGA Spreadsheet" (primary) and the "WDS FGA Template" (backup). The primary and backup software perform identical functions; the backups are for use when the IDC is unavailable.

4.0 PROCEDURE

4.1 Obtaining and Changing Access to the WWIS/WDS

WCO

4.1.1 Determine which personnel need access to the WWIS/WDS (see Section 0 of DOE/WIPP-09-3427).

4.1.2 Request WWIS/WDS access for each person by filling out a WIPP/WDS access request form and submitting it to a DA.

4.1.3 Notify the DA when personnel who have received WWIS/WDS access:

[A] Leave the project;

[B] No longer need WWIS/WDS access; **OR**

[C] Need to change the type of WWIS/WDS access.

CCP Personnel

4.1.4 Once the DA has been notified by the WCO that access is to be granted, contact the DA to receive WWIS/WDS training and a WWIS/WDS username in accordance with the DOE/WIPP-09-3427.

4.2 Verifying WSPF in WWIS/WDS Tables and Listing Associated Containers

SPM

4.2.1 Obtain the WSPF Number in accordance with CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*.

4.2.2 Request the DA establish the WSPF Number in the WWIS/WDS.

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4.2.3 Confirm that the WSPF Number is correct in the WWIS/WDS Reference Table upon notification that the DA has added the WSPF Number to the WWIS/WDS.

4.2.4 Notify the WCO and WCA of the WSPF.

4.2.5 Develop a list of containers for certification under the appropriate WSPF.

4.2.6 Review the list of containers for certification, revise as necessary, **AND** submit the list to the WCO and WCA when the CIS is complete.

4.3 Entering and Verifying Characterization Data Using the WDS Spreadsheet

WCA

4.3.1 Obtain, from CCP Records, IDC or the SPM, a copy of the appropriate WSPF, Batch Data Reports (BDRs), Packaging Records, Acceptable Knowledge (AK) Summary Report, AK Tracking Spreadsheet, and radiological survey data as applicable.

4.3.2 Use copies of appropriate BDRs or other data source, from CCP Records, IDC or the SPM, as listed in Table 1, Data Sources for the WDS Spreadsheet, to enter characterization data for each container record used to support the WSPF.

NOTE

Section 4.3.3 is for data entry of waste that requires characterization prior to placement in a direct loaded Standard Waste Box (SWB).

4.3.3 Standard Waste Box(es) (SWBs) Direct Loaded

[A] **IF** the container is **NOT** an SWB direct loaded, **THEN** proceed to step 4.3.4.

[B] Add up the Waste Material Parameters (WMPs) from the real-time radiography (RTR) or visual examination (VE) data sheets for the drums loaded in the SWB, **AND** enter on the WDS Spreadsheet as single values for the SWB.

[C] Add up the drum weights, **AND** enter the value as steel waste by adding the value to the WMP for the steel waste on the WDS Spreadsheet.

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[D] Add up the drum liner weights, **AND** enter the value as plastic waste by adding the value to the WMP for plastic waste on the WDS Spreadsheet.

[E] **IF** the drums to be direct-loaded require gas generation testing (GGT) data,
THEN add up the GGT values for each drum and enter a single value for the SWB on the WDS Spreadsheet, **AND** report the oldest GGT completion date of the drums.

[F] **IF** the drums to be direct loaded are from a Polychlorinated Biphenyl (PCB) Waste Stream,
THEN assign the earliest closure date or the earliest Out-of-Service date on the AK tracking Spreadsheet of the direct-loaded drums as the Out-of-Service date for the PCB waste in the SWB.

[G] **IF** a flammable gas test is run on the SWB,
THEN use the results.

[H] **IF** SWB does not have flammable gas results,
THEN proceed to step 4.3.3[I].

NOTE

Use a flammable gas analysis (FGA) sample date one day after the closure and vent.

[I] The Volatile Organic Compound (VOC) concentration values for each 55-gallon drum packaged in the SWB shall be compared, and the highest single value for each flammable VOC shall be selected for reporting as the SWB values on the WDS Spreadsheet.

4.3.4 Enter DOE/WIPP-01-3194, *CH TRU Waste Content Codes* (CH-TRUCON) or DOE/WIPP-11-3458, *TRUPACT-III Content Codes (TRUCON-III)* as described in Attachment 1, Entering of Content Code and Shipping Category into the WWIS/WDS, as applicable.

4.3.5 Enter shipping categories as described in Attachment 1, if necessary.

4.3.6 Enter initials and submit the completed WDS Spreadsheet to a second WCA for verification.

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WCA (Verifier)

4.3.7 Confirm the data entered into the WDS Spreadsheet for each container record by checking the data to confirm the accuracy and completeness.

4.3.8 **IF** there are any discrepancies,
THEN the correction must be made by a WCA.

4.3.9 **IF** the discrepancies **CANNOT** be resolved,
THEN provide the WDS Spreadsheet to the WCO or SPM for resolution.

4.3.10 **WHEN** the WDS Spreadsheet is complete and verified,
THEN enter initials and date verified in the Spreadsheet, print the WDS Spreadsheet, **AND** submit to the WCO.

Table 1. Data Sources for the WDS Spreadsheet

Field Label	Source
Characterization, Certification, and Shipping Data	
Shipper Site ID or Site ID Location ID Destination Program ID Shipping Purpose	WDS reference table
Waste Stream Profile	AK Summary Report
Container Number	Completed CIS (Add "BN" to front of ID Number for the Advanced Mixed Waste Treatment Project [AMWTP] containers not being Overpacked); AK Tracking Spreadsheet
Container Type	Packaging records; visual inspection; AK Summary Report; or designate for Overpacking, AK Tracking Spreadsheet
Waste Acceptance Criteria (WAC) Rev #	DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
Cert Site	WDS reference table
Cert Date	Date WCO certifies payload container
Waste Handling Code	CH Radioassay BDR; Radiological Characterization BDR; WSPF
Waste Type Code	WSPF or AK Summary Report (TRU or mixed transuranic (waste) [MTRU]) (if no Hazardous Waste Numbers, enter TRU)
Waste Stream Baseline Inventory Report (BIR) ID	WSPF or AK Summary Report
Generator Site ID Item Description Code (IDC) Code Matrix Code	WSPF or AK Summary Report AK Summary Report (not applicable [NA] if no IDC available) WDS reference table
TRUCON Code	AK Summary Report, WSPF. See Attachment 1 and the CH-TRUCON or TRUCON-III.
Shipping Category	CH-TRUCON or TRUCON-III
TRU Alpha Act TRU Alpha Act Uncertainty TRU Alpha Act Concentration (conc.) Pu-239 Fissile Gram Equivalent Pu-239 Fissile Gram Equivalent Uncertainty Pu-239 eq. act. Decay Heat Decay Heat Uncertainty	Radioassay BDR, Radiological Characterization BDR Note – Nondestructive Assay (NDA) uncertainties must be reported to the WWIS/WDS at 1-sigma. Verify the data to be submitted to WWIS/WDS is at 1-sigma.
Field Label	Source
Layers of Packaging	VE BDR, RTR BDR, AK Tracking Spreadsheet or AK Summary Report
Fill Factor	VE BDR, RTR BDR or AK Summary Report
Liner Type or Liner Exists	VE BDR, RTR BDR or AK Summary Report
Liner Lid Present	VE BDR, RTR BDR or AK Summary Report

Table 1. Data Sources for the WDS Spreadsheet (Continued)

Liner Punctured, Liner Hole Size	VE BDR, RTR BDR, or AK Summary Report. No liner lid indicates liner is vented with default hole size of 478 mm for a 55-gallon drum
PCB Waste PCB Concentration PCB Mass PCB Out-Of-Service Date	WSPF or AK Summary Report VE BDR, RTR BDR, or AK Tracking Spreadsheet
Aqueous Material Beryllium (Be) less than or equal to 100 kg Be less than or equal to 1% Be Present Machine Compacted	AK Tracking Spreadsheet or AK Summary Report
Closure Date	AK Tracking Spreadsheet, Remediated Drum Spreadsheet, IDC, FGA BDR
Vent Date	AK Tracking Spreadsheet, Remediated Drum Spreadsheet, IDC, FGA BDR
Filter Install Date Filter Manufacturer Filter Model Number Number of Filters Installed	FGA BDR, VE BDR, AK Tracking Spreadsheet, Remediated Drum Sheet, Drum Filter Change Out Form, or Container Inspection Report, SLB2 Vent Configuration Sheet
Waste Gen Date Filter Reduction Date Reduced Filter Model	AK Tracking Spreadsheet
Aspiration Method ID	AK Tracking Spreadsheet, Remediated Drum Spreadsheet, AK Summary Report, FGA BDR, Off-site Sealed Source Recovery (OSR) Project AK Summary Report
Gas Generation Rate Hydrogen/Methane Gen. Rate Generation Completion Date	GGT BDR, Long Term Objective (LTO) as applicable
Gross Weight	VE BDR, Radiography BDR, CCP-TP-120, *CCP Container Management* (OSR only),
Gross Weight Uncertainty	2.3 kg for drums, 16.3 kg for SWBs, and 90.7 kg for SLB2s may be entered as the bounding case where actual measurement data are not readily available
Field Label	Source
Alpha Surf Cont Beta/Gamma Surf Cont Neutron Dose Rate Beta/Gamma Dose Rate	Radiological Control Technician (RCT) Report
Radionuclide Data Radionuclide Activity (curie [Ci] Activity Uncertainty (Ci) **Assay Method Data** Radioassay Method Data Package Number Assay Date (actual assay date)	Radioassay BDR, Radiological Characterization BDR Note – NDA uncertainties must be reported to the WWIS/WDS at 1-sigma. Verify the data to be submitted to WWIS/WDS is at 1-sigma. Certification Letters or Certified Equipment List, Radioassay BDR, Radiological Characterization BDR
Material Parameter Data WMP Weight of Material Parameter	VE BDR or Radiography BDR, AK Summary Report
Characterization Method Data Charz Method ID Data Package Number Charz Method Date	RTR, VE BDR, Certification Letters or Certified Equipment List

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Table 1. Data Sources for the WDS Spreadsheet (Continued)

Hazardous Waste Numbers Data Hazardous Waste Numbers	WSPF or AK Summary Report
Sample Type Layer No. Sampled Date Sampled Method ID Data Package Number	FGA BDR, OSR AK Summary Report, Certification Letter, Certification Equipment List
Analyte	FGA BDR, OSR AK Summary Report, Certification Letters, or Certified Equipment List Analytical BDR
Concentration (% volume [vol.], milligram/kilogram [mg/kg], parts per million [ppm]) Date Analyzed	FGA BDR, OSR AK Summary Report
Reporting Flag D Reporting Flag U Reporting Flag N/A	FGA BDR, OSR AK Summary Report

4.4 Waste Certification (By Container of Waste)

NOTE
Steps 4.4.1 through 4.4.13 can be performed in any order.

WCO

4.4.1 Verify the appropriate WDS Spreadsheet is being used.

NOTE
For waste streams that are approved for load management, TRU alpha activity concentrations of less than 100 nanocuries per gram (nCi/g) are allowed, if containers meet step 4.4.7, and must be assigned an overpack status.

4.4.2 Confirm that the TRU alpha activity concentration is greater than 100 nCi/g for each payload container.

4.4.3 Confirm that the WDS Spreadsheet contains accurate and complete information for the container by checking that the WCA has completed their input and review.

4.4.4 **IF** there are any open NCRs,
THEN verify that each container certified has no unresolved NCRs.

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4.4.5 Review the waste stream information against the applicable Content Code and data sources to confirm the waste is **NOT** an incompatible waste.

4.4.6 Verify that the WDS Spreadsheet contains the correct WSPF Number for that container as listed in the AK Tracking Spreadsheet.

4.4.7 Verify at least one TRU isotope is greater than the lower limit of detection (LLD) for waste containers.

4.4.8 Confirm the criteria on Attachment 2, WCO Waste Certification Requirements, have been met.

4.4.9 **IF** the Methane concentration is greater than or equal to 1,250 ppm,
THEN the container is **NOT** eligible for certification.

4.4.10 **IF** the Methane concentration is less than the minimum detectable limit (MDL) as indicated by a "U" flag,
THEN adjust the Methane concentration to 2.5 percent of the Hydrogen concentration, as appropriate.

4.4.11 **IF** GGT is indicated for the waste container,
THEN ensure that the shipping period of the selected Shipping Category is valid for the testing period of GGT.

NOTE

The designator "BN" must be added to the beginning of the Container number for all data sets for waste containers from AMWTP waste streams and containers **NOT** designated to be overpacked. This designator is only required to be applied to the Container ID for submittal to the WWIS/WDS.

WCO

4.4.12 **IF** the container is certifiable,
THEN sign and date the WDS Spreadsheet, **AND** forward to WCA for submittal to WWIS/WDS.

4.4.13 **IF** container is **NOT** certifiable,
THEN attempt to resolve issue with SPM.

4.4.14 **IF** a deficiency in data is identified after a Container Data Folder is created and before submittal to the WWIS/WDS,
THEN perform the following:

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[A] Write a description of the deficiency near the top of Page 1 of the WDS Spreadsheet.

[B] Initiate an NCR in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control,* as necessary.

4.4.15 **IF** a container does not have an approved/proper TRUCON code, **THEN** have the container put on an electronic exclusion in the Integrated Data Center (IDC) database.

4.5 Waste Certification Data Submittal

WCA

4.5.1 Request that QA confirms that each container certified and entered into the WDS Spreadsheet has **NO** unresolved NCRs, if applicable.

QA

4.5.2 Prepare a report verifying that each container certified has **NO** unresolved NCRs.

4.5.3 Forward report to WCA.

NOTE

The WCA uses a macro (CreateTmpTables) and ancillary worksheets that are part of the WDS Spreadsheet.

WCA

4.5.4 Generate tab-delimited files from the electronic WDS Spreadsheet corresponding to the WWIS/WDS Database Tables.

4.5.5 OPEN TempTables Folder to run batch programs, **AND** run concat_wds_files to copy all containers into upload files readable by WWIS/WDS.

4.5.6 LOGON to the WWIS/WDS.

[A] Select Data Upload Function.

[B] Select Browse to open Temp Tables Folder.

[C] Select the text file to be uploaded.

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[D] Select Certification or Characterization based on whether or not the waste stream is approved.

[E] Select perform evaluations as applicable.

[F] Select upload containers.

[G] **IF** container upload is successful,
THEN GO TO step 4.5.7.

[H] **IF** container upload fails,
THEN select view exit codes or print error messages on screen as applicable.

[I] **IF** container transfer error(s) can be fixed,
THEN fix errors, **AND** repeat steps 4.5.6[A] through 4.5.6[I] until successful, **OR** container errors **CANNOT** be fixed.

[J] **IF** container transfer **CANNOT** be fixed,
THEN exit the system, **AND** RETURN Container Data Folder to WCO.

4.5.7 **WHEN** complete,
THEN Open the TempTables Folder and RUN clean_container_files to clear the TempTables Folder of all uploaded file data.

WCO

[A] Write a description of the deficiency near the top of Page 1 of the WDS Spreadsheet.

[B] Initiate an NCR in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*, as necessary.

4.5.8 **IF** a deficiency is identified after the container data is submitted to the WWIS/WDS,
THEN:

[A] Request in writing CCP management approval for the WCO to reject the container from the WWIS/WDS, if applicable, **AND;**

[B] Obtain confirmation that the container is rejected, if applicable.

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[C] Initiate an NCR in accordance with CCP-QP-005, as necessary.

WCA

4.5.9 Compile the following items used in the submission of data to the WWIS/WDS, **AND** submit to CCP Records:

[A] The completed WDS Spreadsheet for each CH Packaging Payload Container submitted to and approved by the WWIS/WDS.

[B] NCR check from QA E-mail.

[C] Any correspondence (e.g., memorandum/E-mail notifications) associated.

WCO or WCA

4.6 Data Entry into the WWIS/WDS of FGA Data Generated by CCP for Non-CCP Waste Containers

4.6.1 Obtain List of Non-CCP Waste Containers that require CCP-Generated FGA Data from Ad Hoc Query from WWIS/WDS.

4.6.2 Enter and Verify FGA Data for Non-CCP Waste Containers using the WDS FGA Spreadsheet.

WCA

[A] Obtain, from CCP Records, IDC or the WCO, a copy of the FGA BDRs.

[B] Use copies of FGA BDRs from CCP Records, IDC or a WCO as listed in Table 1 to enter FGA data into the appropriate WDS FGA Spreadsheet for each waste container.

[C] Enter initials **AND** submit the completed WDS FGA Spreadsheet to a WCA for verification.

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NOTE
Section 4.6.2[D] is for data entry of waste that requires characterization prior to placement in a direct loaded SWB.

NOTE
Use a FGA sample date one day after the closure and vent.

[D] For SWBs Direct Loaded, the VOC concentration values for each 100-gallon drum packaged in the SWB shall be compared and the highest single value for each flammable VOC shall be selected for reporting as the SWB values on the WDS FGA Spreadsheet.

WCA (Verifier)

[E] Confirm the data entered into the WDS FGA Spreadsheet for each container record by checking the data to confirm the accuracy of the data.

[E.1] **IF** there are any discrepancies,
THEN forward to WCA for correction.

[E.2] **IF** the discrepancies **CANNOT** be resolved,
THEN provide the WDS FGA Spreadsheet to a WCO for resolution.

[E.3] **WHEN** the WDS FGA Spreadsheet is complete **AND** verified,
THEN enter initials and date verified on the WDS FGA Spreadsheet, **AND** submit to a WCO.

4.6.3 Waste Certification of Non-CCP Waste Containers with CCP-Generated FGA Data

WCO/WCA

[A] Request that QA confirms that each container certified and entered into the WDS Spreadsheet has **NO** unresolved NCRs, if applicable.

QA

[B] Prepare report verifying that each non-CCP waste container being certified has **NO** unresolved NCRs.

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[C] Forward report to WCA and WCO.

WCO

[D] Verify the appropriate WDS FGA Spreadsheet is being used.

[E] Confirm that the WDS FGA Spreadsheet contains accurate information for the non-CCP waste container by checking that the appropriate review and input has been completed.

NOTE

Steps [F] and [G] shall only be performed for 100-gallon drums containing 55-gallon puck drums.

[F] **IF** the hydrogen/methane concentration is greater than 5,883 ppm, but less than 17,150 ppm,
THEN designate the container for a 10-day controlled shipment.

[G] **IF** the hydrogen/methane concentration is greater than or equal to 17,150 ppm,
THEN place the non-CCP waste container on hold, **AND** initiate an NCR in accordance with CCP-QP-005.

[H] **IF** the Methane concentration is less than the MDL as indicated by a “U” flag,
THEN adjust the Methane concentration to 2.5 percent of the Hydrogen concentration, as appropriate.

[I] Select and enter appropriate shipping category for non-CCP waste container.

[J] **IF** a deficiency in data is identified after a WDS FGA Spreadsheet is created and before copying data to the WWIS/WDS,
THEN place the waste container on hold, **AND** initiate an NCR in accordance with CCP-QP-005, as necessary.

[K] **IF** the container is certifiable,
THEN submit the WDS FGA Spreadsheet to WWIS/WDS.

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WCA/WCO

[L] Generate tab-delimited files from the electronic WDS FGA Spreadsheet corresponding to the WWIS/WDS container record.

[M] Open TempTables Folder to run batch programs, **AND** RUN concat_wds_files.to copy all containers into upload files readable by the WWIS/WDS.

[N] LOGON to the WWIS/WDS.

[A.1] Select Data Upload Function.

[A.2] Select Browse to find upload file.

[A.3] Select Certification.

[A.4] Select upload containers.

[O] **IF** container upload is successful,
THEN go to step 4.6.3[S].

[P] **IF** container upload fails,
THEN select view exit codes or print error messages on screen as applicable.

[Q] **IF** container transfer error(s) can be fixed,
THEN fix errors, **AND** repeat steps 4.6.3[N] through 4.6.3[Q] until successful, **OR** container errors **CANNOT** be fixed.

[R] **IF** container transfer error(s) **CANNOT** be fixed,
THEN exit the system, **AND** initiate an NCR in accordance with CCP-QP-005, if applicable.

WCO

[S] Go to Container Certification Data Submittal.

[T] Open the Container in the WWIS/WDS container certification date submittal, **AND** enter all data that was not part of the WDS FGA Spreadsheet flat files.

[U] Perform eTRAMPAC evaluation.

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[V] **IF** non-CCP waste container fails the eTRAMPAC evaluation,
THEN initiate an NCR in accordance with CCP-QP-005, if applicable.

[W] **IF** non-CCP waste container passes the eTRAMPAC evaluation,
THEN open the TempTables Folder AND run clean_container_files to clear the TempTables Folder of all unused data that is **NOT** in useable WWIS/WDS format.

[X] Exit the WWIS/WDS.

WCO (Verifier)

[Y] Confirm the data entered into the WWIS/WDS by checking the WDS FGA Spreadsheet to confirm the the data is accurate and complete.

[Z] **WHEN** data are accurate and complete,
THEN both WCO and WCO Verifier sign and date the WDS FGA Spreadsheet.

NOTE

The WWIS/WDS Overpack Data Entry Module utilizes edit limit checks when data are entered and selected. The WWIS/WDS steps in the following section may be repeated until Overpack compliance is satisfied. Default data may be used to generate the build list for the Transportation Certification Officials (TCOs).

WCO

4.7 Container Selection and certification for Overpacks/Load Management Containers using the WWIS/WDS

4.7.1 LOGON to the WWIS/WDS.

4.7.2 Enter the Overpack Planning and Completion Module.

4.7.3 Select New.

4.7.4 Enter the data for the Overpack information and select search.

[A] Select Overpack Configuration

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[B] Select Certification Program ID

[C] Select Current Location

[D] Select Destination Site ID

[E] Select Shipping Program

[F] Select Waste Stream Profile Code

[G] Select Search

4.7.5 Select the Containers for the Overpack.

4.7.6 Enter filter model number, number of filters, and date of filter installation and add as applicable.

4.7.7 Perform evaluation checks.

4.7.8 Select Accept and Enter Overpack number.

NOTE

To have the WWIS/WDS perform the edit and limit checks on the Overpack/Load Management Container without submitting the Overpack/Load Management Container for approval as in step 4.7.21, the WCO can select all evaluations as applicable and select execute checks.

4.7.9 Enter Beta/Gamma and Neutron dose rate, if applicable.

4.7.10 Enter Shipping Purpose.

4.7.11 Enter the Closure and Vent Date of the Overpack/Load Management Container, if applicable.

4.7.12 Enter the WAC revision number.

4.7.13 Enter Alpha Surface and Beta/Gamma Surface Contamination, if applicable.

4.7.14 Enter filter model number, number of filters, and date of filter installation, and add as applicable.

4.7.15 Select all evaluation checkbox, select execute checks, **AND**
IF fail,
THEN repeat steps 4.7.4 through 4.7.14 as applicable.

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4.7.16 Generate Overpack Build List.

4.7.17 Send Overpack Build List to applicable TCO's.

4.7.18 Receive the Loading Form from the TCO and enter the required certification data, **AND** enter certification date.

4.7.19 For the ten-drum overpacks (TDOPs), verify that the heavier drums are on the bottom layer and the lighter drums are on the top layer.

4.7.20 Submit the Overpack/Load Management Container for approval.

4.7.21 After successful submittal for approval, print the Overpack data report and print title, sign, and date the cover page of the report.

4.7.22 Compile the following items used in the submission of data to the WWIS/WDS, **AND** submit to CCP Records in accordance with CCP-QP-008:

[A] Copies of the data containing the Overpack/Load Management Container, radiological survey, and filter information used to enter data above.

[B] The completed Waste Container Data Report for the data submitted.

[C] Correspondence (e.g., memorandum/E-mail notifications).

4.8 Waste Certification (For Site-to-Site Shipments Only)

NOTE

The following section is only to be used for containers to be shipped to destinations other than WIPP. These containers are CCP containers that will be sent to a destination site other than WIPP for additional processing as needed. The steps that follow are for transportation only of the container to the site for additional processing and the return shipment from the additional processing location back to the original site. Only CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP-CH-TRAMPAC),* parameters are required to be entered.

WCA

4.8.1 Obtain, from CCP Records, IDC or the SPM, a copy of the appropriate WSPF, BDRs, Packaging Records, AK Summary

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Report, AK Tracking Spreadsheet, and radiological survey data as applicable.

4.8.2 Use copies of appropriate BDRs or other data sources, from CCP Records, IDC or the SPM, as listed in Table 1, to enter characterization data into the appropriate WDS Spreadsheet for each container record being used to support the WSPF.

WCA (Verifier)

4.8.3 Confirm the data entered into the WDS Spreadsheet for each container record by checking the data to confirm accuracy and completeness.

4.8.4 **IF** there are any discrepancies,
THEN the correction must be made by a WCA.

4.8.5 **IF** the discrepancies **CANNOT** be resolved,
THEN provide the WDS Spreadsheet to the WCO or SPM for resolution.

4.8.6 **WHEN** the WDS Spreadsheet is complete **AND** verified,
THEN enter initials and date verified in the Spreadsheet, print WDS Spreadsheet, **AND** submit to the WCO.

WCO

4.8.7 Verify the appropriate WDS Spreadsheet is being used.

4.8.8 Confirm that the WDS Spreadsheet contains accurate and complete information for the container by checking that the WCA has completed their input and review.

4.8.9 **IF** there are any open NCRs,
THEN verify that each container certified has no unresolved NCRs.

4.8.10 Review the waste stream information against the applicable Content Code and data sources to confirm the waste is **NOT** an incompatible waste.

4.8.11 Verify that the WDS Spreadsheet contains the correct WSPF Number, if applicable, for that container as listed in the AK Tracking Spreadsheet.

4.8.12 Verify at least one TRU isotope is greater than the LLD for waste containers.

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4.8.13 Confirm the criteria on Attachment 2, have been met.

4.8.14 **IF** the Methane concentration is greater than or equal to 1,250 ppm,
THEN the container is NOT eligible for certification.

4.8.15 **IF** the Methane concentration is less than the MDL as indicated by a "U" flag,
THEN adjust the Methane concentration to 2.5 percent of the Hydrogen concentration, as appropriate.

4.8.16 **IF** GGT is indicated for the waste container,
THEN ensure that the shipping period of the selected Shipping Category is valid for the testing period of GGT.

NOTE

A secondary visual check on the use of appropriate content codes will be completed by another WCO prior to submitting containers to WDS.

4.8.17 **IF** the container can be shipped,
THEN sign and date the WDS Spreadsheet, **AND** forward to WCA for submittal to WWIS/WDS.

4.8.18 **IF** container can NOT be shipped,
THEN proceed to step 4.8.19.

WCO

4.8.19 **IF** there is an issue with data,
THEN attempt to resolve issue with SPM.

4.8.20 **IF** a deficiency in data is identified after a Container Data Folder is created and before submittal to the WWIS/WDS,
THEN perform the following:

[A] Write a description of the deficiency near the top of Page 1 of the WDS Spreadsheet.

[B] Initiate an NCR in accordance with CCP-QP-005, as necessary.

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4.9 Waste Certification Data Submittal for Site-To-Site Shipments

WCA

NOTE
The WCA uses a macro (CreateTempTables) and ancillary worksheets that are part of the WDS Spreadsheet.

4.9.1 Request that QA confirms that each container being entered into the WDS Spreadsheet has NO unresolved NCRs, if applicable.

QA

4.9.2 Prepare a report verifying that each container has NO unresolved NCRs.

4.9.3 Forward report to WCA.

WCA

4.9.4 Generate tab-delimited files from the electronic WDS Spreadsheet corresponding to the WWIS Database Tables/WDS by selecting the Create Temp Tables button.

4.9.5 OPEN TempTables Folder to run batch programs, **AND** run concat_wds_files to copy all containers into upload files readable by WWIS/WDS.

4.9.6 LOG ON to the WWIS/WDS.

[A] Select Data Upload Function.

[B] Select Browse button to open Temp Tables folder.

[C] Select the text files to be uploaded.

[D] Select Intersite Shipping Module.

[E] Select perform evaluations and do not save if fail, as applicable.

[F] Select upload containers.

[G] **IF** container upload is successful,
THEN GO TO step 4.9.7.

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[H] **IF** container upload fails,
THEN select view exit codes or print error messages on screen, as applicable.

[I] **IF** container transfer error(s) can be fixed,
THEN fix errors, **AND** repeat step 1.1.1[A] through 1.1.1[I] until successful, **OR** container errors **CANNOT** be fixed.

[J] **IF** container transfer **CANNOT** be fixed,
THEN exit the system, **AND** return Container Data Folder to WCO.

4.9.7 **WHEN** complete,
THEN Open the TempTables Folder and RUN clean_container_files to clear the TempTables Folder of all upload file data.

WCO

4.9.8 **IF** a deficiency is identified after the container data are submitted to the WWIS/WDS,
THEN:

[A] Request in writing CCP management approval to reject the container from the WWIS/WDS, if applicable, **AND;**

[B] Initiate an NCR in accordance with CCP-QP-005, as necessary.

WCA

4.9.9 Compile the following items used in the submission of data to the WWIS/WDS, **AND** submit to CCP Records in accordance with CCP-QP-008:

[A] The completed WDS Spreadsheet for each CH Packaging Payload Container submitted to and approved by the WWIS/WDS.

[B] NCR check from QA E-mail.

[C] Any correspondence (e.g., memorandum/E-mail notifications) associated.

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5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as QA records in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Lifetime

[A] Container Certification:

[A.1] WDS Spreadsheet

[A.2] Correspondence (memorandum/E-mail notifications)

[A.3] Radiological Survey Information, if applicable

[B] Overpack Certification:

[B.1] Overpack Data Report (for Overpacks only, e.g., TDOP, SWB)

[B.2] Radiological Survey Information, if applicable

[B.3] Correspondence (memorandum/E-mail notifications)

[C] WDS FGA Certification

[C.1] WDS FGA Spreadsheet

[C.2] Correspondence (memorandum/E-mail notifications)

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Attachment 1 – Entering of Content Code and Shipping Category into the WWIS/WDS

1. INTRODUCTION

This attachment describes the steps used to enter assigned Content Codes into the WDS Spreadsheet using various sources of characterization data. Entering the Content Code is performed by the waste certification staff based on the waste material contents and the layers of packaging used for each container. Content Code assignment is reviewed and approved by the WCO during container certification.

2. ASSIGNING THE NUMERIC VALUE

Assign the Content Code based on the container waste stream assignment. The Content Code identified in AK will be confirmed by RTR and VE when performed, and to confirm the absence of incompatible waste in the waste stream. Enter the Content Code in WDS Spreadsheet.

3. ASSIGNING A LETTER DESIGNATOR FOR LEGACY WASTE

For retrievably-stored waste, the letter designator of the Content Code is assigned using packaging information from the following sources which are listed in order of priority of usage:

- VE BDRs, if available
- If RTR information is undetermined, use the default assignment given in (or determined from) the AK Summary Report for the applicable waste stream

4. OTHER

For waste packaged under a DOE CBFO audited and approved certification program (newly generated waste exempted from RTR), use the Content Code assigned in the packaging documents.

5. SHIPPING CATEGORY

After selection of appropriate Content Code using the CH-TRUCON or TRUCON-III, assign the Shipping Category number and document on the WDS Spreadsheet.

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Attachment 2 – WCO Waste Certification Requirements

Acceptable Container 55-gallon drums 85-gallon drums 100-gallon drums S100 POC S200 POC S300 POC SWB TDOP Standard Large Box 2 (SLB2) Shielded Container Assembly (SCA)
Gross Weight Limit 55-, 85- and 100-gallon drum – 1000lbs (453.6kg) 6" pipe POC- 328lbs (148.7kg) 12" pipe POC and gamma neutron shielded 12" pipe - 547lbs (248.7kg) S100 POC- neutron shielded 6" pipe - 550lbs (249.4kg) S200, S200B and S300 POC-547lbs (248kg) SWB – 4000lbs (1814.1kg) TDOP – 6700lbs (3038.5kg) SLB2 – 10500lbs (4761.9kg) SCA-2260lbs (1024.9kg)
Surface Contamination <20 (dpm)/100 cm^2 alpha & <200 dpm/100 cm^2 beta-gamma
Liner (if present) punctured filtered
Properly aspirated/ filter vents See CH-TRUCON document for all container types except SLB2 See TRUCON-III document for SLB2
Ten Required Isotopes AM-241; PU-238, -239, -240, -242; U-233, -234, -238; Sr-90; Cs-137. -1 value for LLD if expected. 0 value for LLD if not expected.
Pu-239 FGE + 2X error (Be ≤ 1 wt. %) ≤ 200 55-(excluding pipe overpacks), 85-, 100-gallon drum or SCA ≤ 325 SWB, TDOP, SLB2 ≤ 5 Kg Be & ≤ 200 55-gallon drum pipe overpack See WAC for machine compacted limits
Pu-239 FGE + 2X error (Be > 1 wt. %) ≤ 100 55- (excluding pipe overpacks), 85-, 100-gallon drum (up to 100kg) ≤ 100 SWB, TDOP, SLB2 (Be from AK) ≤ 140 Pipe overpacks (S100, S200 or S300 pipe overpack) See WAC for machine compacted limits
Be prohibited > 100 Kg/55-gallon Be > 18.14kg SWB, TDOP, SLB2 (Be from AK) >1% by weight SCA
Pu-239 Equiv. Activity (PE-Ci) ≤ 80 Drum (55-, 85-. and 100-gallon), Shielded Container ≤ 560 (SWB, SLB2 direct load) < 800 (TDOP Direct Load) ≤ 1100 (good 55-gallon drum overpacked into 85-gallon drum) ≤ 1200 (good SWB into TDOP) ≤ 1200 (overpacked 55, 85 undamaged into SWB, TDOP) ≤ 1800 (pipe overpacks, S100, S200, S300) ≤ 1800 all solidified/vitrified waste

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Attachment 2 – WCO Waste Certification Requirements (Continued)

Radiation Dose Equivalent < 200 millirem per hour (mrem/hr) contact <179 mrem/hr S100 pipe overpack <155 mrem/hr S300 pipe
Pyrophorics ≤1 % by weight (Radioactive) Non-radioactive pyrophorics – prohibited
Hazardous Waste Codes permitted for disposal at WIPP D001, D002 or D003 are not acceptable at WIPP
No explosives
No corrosives
No pressurized containers
PCBs Not all sites approved removed service date (Out-of-Service date), mass, type of waste (remediated or bulk)

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CCP-TP-033

Revision 20

CCP
Shipping of
CH TRU Waste

EFFECTIVE DATE: 06/19/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

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RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
2	12/17/2001	Addition of Attachment 6 - Container Integrity Checklist and other minor changes throughout procedure.
3	05/20/2002	The procedure is updated to the requirements of Rev 19 of the TRAMPAC and compatibility to the WAC DOE/WIPP 02-3122
4	06/26/2003	Revised sections 3.1.4, 4.1, and 4.2, added section 3.4, and other minor editorial changes. Revised CCP-TP-033-A1. Separated electronically fillable forms and updated references in procedure.
5	09/19/2003	Added reference DOE/WIPP 02-3220, *CH Packaging Operations for High Wattage Waste at LANL.*
6	10/12/2004	Revised to incorporate more generic title descriptions to accommodate the use of different titles at the sites. Added fillable forms back into procedure.
7	11/22/2004	Incorporation of CH-TRAMPAC Revision 1 requirements.
8	01/25/2005	Incorporation of requirements for controlled shipments.
9	03/23/2005	Incorporated changes to support the newly required requirements in DOE/WIPP 02-3184 Rev. 2.
10	02/01/2006	Revised to incorporate *CH-TRAMPAC*, Revision 2 requirements and *TRUPACT-II Safety Analysis Report*, Revision 21 requirements, and other editorial changes throughout procedure.
11	11/16/2006	Revised to implement the Waste Isolation Pilot Plant Hazardous Waste Facility Permit-requirements resulting from the Section 311/Remote-Handled (RH) Permit Modification Request (PMR). Revised to implement confirmation activities and to consolidate transportation Waste Isolation Pilot Plant Waste Information System (WWIS) steps from CCP-TP-030, *CCP TRU Waste Certification and WWIS Data Entry.* Addressed Carlsbad Field Office (CBFO) Document Review Record (DRR) comments.
12	03/07/2007	Added reference to 40 CFR Part 761, Subpart C § 761.40, Marking of PCBs and PCB Items.

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RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
13	03/28/2008	Revised to implement the new Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC) requirements and editorial changes. Also for the implementation of Advanced Mixed Waste Treatment Project (AMWTP) process.
14	11/05/2008	Revised to incorporate a second drum label verification as required by Central Characterization Project (CCP) Corrective Action Report (CAR)-LANL-0004-08. Also, revised to incorporate editorial changes and updates from shipping requirements.
15	07/08/2009	Revised based on changes in Revision 3 of the *CH-TRAMPAC* from the U.S. Nuclear Regulatory Commission (NRC). Editorial changes were also made. Polychlorinated Biphenyls (PCBs) checks added.
16	12/11/2009	Revised to incorporate Waste Data System (WDS) operations. Editorial changes were also made.
17	05/18/2010	Revised to align procedure with modifications made to the WDS system, and editorial corrections.
18	12/29/2010	Minor revision to update references to the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*.
19	05/23/2011	Revised to incorporate TRUPACT-III Shipping Certification
20	06/19/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes.

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1.0 PURPOSE

This procedure establishes requirements for assembling transuranic (TRU) waste payloads and performance of shipments in contact-handled (CH) packaging containers and ensures that the requirements of one of the following are met (as applicable):

- CCP-PO-003, (TRUPACT-II/HalfPACT), *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
- CCP-PO-050, (TRUPACT-III), *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
- U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) audited/approved site-specific CH TRU Waste Authorized Methods Payload Control (CH-TRAMPAC)

1.1 Scope

This procedure applies to the personnel who conduct the following transportation functions:

- CH packaging payload container and assembly verification.
- Assembling and loading the CH packaging containers.
- Reviewing shipping paper, marking, labeling, and placarding associated with each shipment of CH TRU waste transported in CH packaging containers by the Central Characterization Program (CCP).
- Radiological Control Technician (RCT) or equivalent position functions associated with CH packaging and transportation operations.

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2.0 REQUIREMENTS

2.1 References

Baseline Documents

- Appendix to 40 *Code of Federal Regulations* (CFR), *Protection of Environment,* Part 262, *Standards Applicable to Generators of Hazardous Waste, Uniform Hazardous Waste Manifest and Instructions* (EPA Forms 8700-22 and 8700-22A and their instructions)
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-TP-030, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry*
- DOE/WIPP-01-3194, *CH-TRU Waste Content Codes* (CH-TRUCON)
- DOE/WIPP 02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
- DOE/WIPP 02-3183, *CH Packaging Program Guidance*
- DOE/WIPP 02-3185, *CH Packaging Maintenance Manual*
- DOE/WIPP 11-3456, *TRUPACT-III Program Guidance*
- DOE/WIPP 11-3458, *TRUPACT-III Content Codes (TRUCON-III)*
- 40 CFR Part 262, *Standards Applicable to Generators of Hazardous Waste*
- 40 CFR Part 262, Subpart B, *The Manifest* § 262.20, *General Requirements*
- 40 CFR Part 262, Subpart C*, Pre-Transport Requirements*
- 40 CFR Part 761, *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions: Subpart C Marking of PCB's and PCB Items* § 761.40

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- 49 CFR, *Transportation,* Part 172, *Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans Subpart C* § 172.200, *Applicability*

- 49 CFR Part 172 Subpart H § 172.704, *Training Requirements*

- 49 CFR 172, Subpart G, *Emergency Response Information*

- 49 CFR Part 173, *Shippers – General Requirements for Shipments and Packagings,* Subpart I, *Class 7 Radioactive Materials* § 173.401 through 173.476

- *Safety Analysis Report for the TRUPACT-II Shipping Package* (SARP) (Docket 9218, Washington, D.C., U.S. Nuclear Regulatory Commission [NRC])

- *Safety Analysis Report for the HalfPACT Shipping Package* (SARP) (Docket 9279, Washington, D.C., U.S. NRC)

- Safety Analysis Report for the TRUPACT-III Shipping Package (SARP) (Docket 71-9305, Washington, D.C., U.S. NRC)

Referenced Documents

- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*

- CCP-PO-050, TRUPACT-III*, CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*

- CCP-QP-002, *CCP Training and Qualification Plan*

- CCP-QP-008, *CCP Records Management*

- *CH TRU Payload Appendices*

- DOE/WIPP-02-3184, *CH Packaging Operations Manual*

- DOE/WIPP 11-3451, *TRUPACT-III Operations Manual*

- DOE/WIPP-02-3220, *CH Packaging Operations for High-Wattage Waste*

- 10 CFR Part 21, *Reporting of Defects and Nonconformances*

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- 10 CFR Part 71, *Packaging and Transportation of Radioactive Materials*
- 40 CFR Part 262, Subpart B
- 40 CFR Part 262, Subpart C § 262.31, *Labeling*
- 40 CFR Part 262, Subpart C § 262.32, *Marking*
- 40 CFR Part 262, Subpart C § 262.33, *Placarding*
- 40 CFR Part 268, *Land Disposal Restrictions*, Subpart A, *General*
- 40 CFR Part 761, Subpart C § 761.40, *Marking of PCBs and PCB Items*
- 49 CFR Part 172, Subpart C, *Shipping Papers* § 172.201 through 172.205
- 49 CFR Part 172, Subpart D, *Marking* § 172.300 through 172.338
- 49 CFR Part 172, Subpart E, *Labeling* § 172.400 through 172.450
- 49 CFR Part 172, Subpart F, *Placarding* § 172.500 through 172.560
- TRANSCOM 2000 Designated User Handbook
- DOE/WIPP-09-3427, Waste Data System User's Manual

2.2 Training Requirements

2.2.1 Personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan,* prior to performing this procedure.

2.2.2 CCP Transportation Certification Officials (TCOs) completing the Payload Container Transportation Certification Documents (PCTCDs), Overpack Payload Container Transportation Certification Documents (OPCTCDs), and Payload Assembly Transportation Certification Documents (PATCDs), Payload Transportation Certification Documents (PTCD), as required by this procedure, are qualified in accordance with CCP-QP-002 prior to performing this procedure.

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2.3 Equipment List

2.3.1 None.

2.4 Precautions and Limitations

2.4.1 Nonconformances related to defects or failure to comply with requirements applicable to NRC-licensed packaging (e.g., TRUPACT-II, TRUPACT-III, HalfPACT) shall be reported to the CBFO Office of National TRU Program. The Waste Isolation Pilot Plant (WIPP) management and operating (M&O) contractor will evaluate issues and nonconformances for reporting to the NRC under 10 CFR Part 21, *Reporting of Defects and Nonconformances*, or 10 CFR Part 71, *Packaging and Transportation of Radioactive Materials*, and provide the results of this evaluation to CBFO.

2.4.2 TRUPACT-II/HalfPACT payload containers must have filter vents installed as specified in Section 2.5 of CCP-PO-003.

2.4.3 TRUPACT-III, Standard Large Box 2 (SLB2) payloads must have filter vents installed as specified in Section 2.4 of CCP-PO-050.

2.4.4 TRUPACT-II/HalfPACT Dunnage Containers

[A] Dunnage containers used for payload assembly shall have open vent ports (not filtered or plugged).

[B] Dunnage containers used for payload assembly shall be labeled either Dunnage or Empty.

[C] Dunnage shall have a unique serial number. If dunnage constitutes any of the following: seven packs, four packs, three packs, or SWBs, then the unique serial number is **NOT** required.

[D] Dunnage containers shall meet the requirements of Section 2.2 of CCP-PO-003.

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2.4.5 Radiation Dose Rates and Removable Surface Contamination

[A] The external radiation dose rates of individual payload containers and a loaded CH package to be shipped shall be less than or equal to 200 millirem/hour (mrem/hr) at the surface, and less than or equal to 10 mrem/hr at two meters for beta/gamma and neutron.

[B] Removable surface contamination of individual payload containers and a loaded CH package to be shipped to the WIPP shall **NOT** be greater than 20 disintegrations per minute (dpm)/100 centimeters square (cm^2) for alpha emitting radionuclides and 200 dpm/100 cm^2 for beta/gamma emitting radionuclides.

2.4.6 Controlled Shipments

[A] TRUPACT-II, For High-Wattage Waste Shipments, attachments from DOE/WIPP-02-3220, *CH Packaging Operations for High-Wattage Waste,* will be used to control and document loading, transport, and unloading times.

[B] For all other CCP Controlled TRUPACT-II Shipments, Attachment 1, CCP Shipping Site Control Checklist for Controlled Shipments, and Attachment 2 or equivalent, CCP Receiving Site Control Checklist for Receipt of Controlled Shipments, will be used to control and document loading, transport, and unloading times.

[C] For CCP Controlled TRUPACT-III Shipments, (Attachment 7, [TRUPACT-III] CCP Shipping Site Control Checklist for Controlled Shipments, and Attachment 8, [TRUPACT-III] CCP Receiving Site Control Checklist for Controlled Shipments), or equivalent, CCP Receiving Site Control Checklist for Receipt of Controlled Shipments, will be used to control and document loading, transport, and unloading times.

[D] Receipt sites may use CBFO-approved site-specific Controlled Shipment Receipt Forms in place of Attachment 2 and/or 8 (as applicable), provided that the same information is recorded and a completed copy is returned to the applicable TCO.

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2.5 Prerequisite Actions

2.5.1 Ensure that workers who will be working in a radiation area have read the applicable Radiation Work Permit (RWP) or equivalent site-specific document.

2.6 Definitions

2.6.1 **CH Package** – TRUPACT-II, TRUPACT-III, or HalfPACT

2.6.2 **Generator** – The organization/individual that generated the waste and/or is offering the waste for transport.

2.6.3 **Land Disposal Restrictions (LDR) Notification** – Notification to a receiving facility that the waste is subject to LDR (from 40 CFR, *Protection of Environment,* Part 268, *Land Disposal Restrictions*, Subpart A, *General*).

2.6.4 **Shipper** – Authorized personnel who declare, by signing the shipping paper, that the contents of the package are fully and accurately described, packaged, labeled/placarded, and proper for conditions of transport per appropriate regulations.

2.6.5 **Shipping Paper** – Uniform Hazardous Waste Manifest (UHWM) or Straight Bill of Lading-Short Form. The shipping paper accompanies the waste during transportation.

2.6.6 **Straight Bill of Lading-Short Form** – Shipping paper used to transport non-mixed radioactive TRU waste.

2.6.7 **Uniform Hazardous Waste Manifest (UHWM)** – The U.S. Environmental Protection Agency (EPA) Form 8700-22 prepared by a generator who transports or offers for transportation hazardous waste for off-site treatment, storage, or disposal (from 40 CFR Part 262, *Standards Applicable to Generators of Hazardous Waste,* Subpart B, *The Manifest*).

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3.0 RESPONSIBILITIES

3.1 Transportation Certification Official (TCO)

3.1.1 Interfaces and coordinates with the generator, shipper, Site Project Manager (SPM), Waste Certification Official (WCO), CCP Quality Assurance (QA), and CCP Operations Leaders to plan payloads for shipment.

3.1.2 Documents and certifies that containers prepared for shipments in CH packaging meet specified shipping criteria using the PCTCD, PATCD, PTCD, and OPCTCD spreadsheets and the Waste Data System (WDS) as appropriate.

3.1.3 Reviews payload certification documentation to ensure compliance with the applicable CCP CH-TRAMPAC requirements or a CBFO audited/approved site-specific CH-TRAMPAC.

3.1.4 Requests and obtains approval/authority from WIPP to effect WIPP shipments.

3.1.5 Provides the necessary TRU waste shipping data to the Host site Shipping Coordinator.

3.1.6 Ensures all manifests and shipping papers are correct, as required.

3.1.7 Ensures all labeling, marking, and placarding is correct, as required.

3.1.8 Provides PATCDs, PTCDs, and/or WDS Reports to the CCP CH Packaging and Transportation Team.

3.2 Radiological Control Technician (RCT) or Equivalent Position

3.2.1 Provides contamination and radiation surveys to the TCO for shipment certification purposes.

3.3 CCP CH Packaging and Transportation Team

3.3.1 Ensures the payload assembly and CH Packaging Containers are prepared in accordance with this procedure.

3.3.2 Ensures visible container identification (ID) labels, within a payload assembly, are an exact match to the ID numbers listed on the applicable PATCD or PTCD (as applicable).

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3.4 Host Site Shipping Coordinator

3.4.1 Interfaces with TCO and acts as the site point-of-contact (POC) for operations, manifesting, and release of shipments.

3.4.2 Assists TCO in scheduling and facilitating TRU waste shipments.

3.4.3 Provides data received from TCO to the Host site transportation and material control/accountability groups (as applicable).

3.5 State Motor Vehicle Department (SMVD)

3.5.1 Performs Commercial Vehicle Safety Alliance (CVSA) inspections of the tractor, trailer, and CH packages.

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4.0 PROCEDURE

NOTE

The WDS utilizes edit and limit checks when data is entered and selected. The WDS steps in Section 4.1 may be repeated until payloads and shipping compliance is satisfied.

NOTE

Steps in this procedure may be performed in parallel as applicable.

NOTE

Steps in this procedure are performed by the TCO, unless another group/discipline is mentioned in the step or a note preceding the step.

NOTE

Trained and qualified TCOs perform the WDS operation per the guidance found in DOE/WIPP-09-3427, Waste Data System User's Manual. The WDS manual is NOT required to be opened when performing the task listed below, but shall be available if questions arise.

NOTE

Contact Information of organizations called out in this procedure are listed as follows. Specific email addresses can be obtained by contacting the numbers below:

WIPP Shipment Scheduler 575-234-8993 or 575-234-8230

WIPP Transportation Group 575-234-8993 or 575-234-8230

WIPP RCT Group 575-234-8657

WIPP Central Monitoring Room (CMR) 575-234-8863 or 575-234-8640

FAX notifications can be made in lieu of emails if needed. FAX numbers can be obtained by contacting the specific group.

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4.1 WDS Data Entry/CH Shipment Certification

NOTE
Step 4.1.1 is only performed if dunnage is required for the payload. No dunnage is required for SLB2, TRUPACT-III shipments.

4.1.1 Creating Dunnage Container(s) using WDS

[A] Enter the following information into the WDS for each dunnage container:

- Unique container number
- Current Location (Site ID)
- Shipping Program (Site ID)
- Container Type

4.1.2 Creating Payloads Using the WDS

[A] Select the NEW button to create/generate a Payload Plan ID.

[B] For each payload enter the following information in the WDS:

- Payload Number
- Payload Container Type
- Current Location (Site ID)
- Destination Site (Site ID)
- Shipping Program (Site ID)

[C] For TRUPACT-II/HalfPACT, select payload container(s) until a CCP-PO-003 compliant payload is obtained.

[D] For TRUPACT-III, select payload container (SLB2) until a CCP-PO-050 compliant payload is obtained.

[E] Select the accept button.

[F] Select the submit button.

[G] Generate PCTCDs, preliminary PATCDs, PTCD, and OPCTCDs (as applicable).

[H] Review PCTCD, preliminary PATCD, PTCD, and OPCTCD reports (as applicable), **AND** confirm that all container/payload certification parameters have been met.

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NOTE
Containers designated for Controlled Shipment must be marked accordingly on PCTCD and applicable PATCD or PTCD (Controlled Shipment designated container(s) assigned to payload); Attachment 1 or 7 will be initiated for the applicable CH package/shipment (as applicable).

NOTE
The applicable certification document; PATCD or PTCD are signed after the TRUPACT-IIs/HalfPACTs or TRUPACT-IIIs are loaded so that the final information is entered into the WDS.

[I] For TRUPACT-II/HalfPACTs, once container/payload parameter requirements have been met, sign and initial the PCTCD and OPCTCD (if applicable) reports, as required, certifying that CCP-PO-003 requirements have been satisfied.

NOTE
For TRUPACT-II/HalfPACTs, once a CCP-PO-003-compliant payload assembly is approved, the payload is physically assembled (SWBs, drums, and shielded containers) in accordance with DOE/WIPP-02-3184, *CH Packaging Operations Manual,* or DOE/WIPP-02-3220, as applicable, and this procedure.

4.1.3 Creating Shipments Using the WDS

[A] Enter the following information into the WDS:

- Shipment Number (From WIPP 8-week Rolling Schedule)
- Shipping Program (Site ID)
- Current Location (Site ID)
- Destination Site (Site ID)

[B] For TRUPACT-II/HalfPACTs, select payloads until a CCP-PO-003 compliant payload set is obtained.

[C] For TRUPACT-III, select payload (SLB2) compliant with CCP-PO-050.

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NOTE
Once the submit button is selected, the confirmation process for the shipment, is activated.

[D] Once the virtual CCP-PO-003 or CCP-PO-050 (as applicable) compliant shipment is built, select Save then select the submit button.

NOTE
Transporter, Tractor, Trailer, and CH Package numbers are obtained from the WIPP Equipment Assignment email, generated by the WIPP Transportation Group. Default values contained in the WDS system are used for Handling Material Weights and Uncertainty. Handling Material weights uncertainty is left blank in the WDS system.

[E] When the following becomes available, enter the information into the WDS:

- Transporter Name
- Tractor Number
- Trailer Number
- CH Package Number(s)
- Handling Material Weights (if applicable)

[F] For controlled or High Wattage Shipment, email the WIPP Shipment Scheduler of impending shipment.

4.1.4 Finalizing Shipments Using the WDS

[A] Enter the following information into the WDS:

- Manifest Number
- Outer Containment Assembly (OCA) Lid Number (for each TRUPACT-II or HalfPACT) from DOE/WIPP-02-3184, Attachment 2, CH Packaging Loading Data Sheet, or DOE/WIPP-02-3220, Attachment 2, High-Wattage CH Packaging Loading Data Sheet, as applicable.

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- Closure Lid (CL) number for TRUPACT-III, from DOE/WIPP 11-3451, *TRUPACT-III Operations Manual,* Attachment 2, TRUPACT-III (Loaded) Shipment data sheet.

- Inner Containment Vessel (ICV) closure date and time for each TRUPACT-II or HalfPACT, from DOE/WIPP-02-3184 Attachment 2, CH Packaging Loading Data Sheet, or DOE/WIPP-02-3220, Attachment 2, High-Wattage CH Packaging Loading Data Sheet, as applicable.

- CL closure date and time for TRUPACT-III, from DOE/WIPP 11-3451, Attachment 2, TRUPACT-III (Loaded) Shipment data sheet.

- Dose Rate Surface (mrem/hr) (for each CH Package) from Radiological Survey Report.

- Dose Rate 1-meter (mrem/hr) (for each CH Package) from Radiological Survey Report.

- Dose Rate 2-meters (mrem/hr) (for each CH Package) from Radiological Survey Report.

- Alpha contamination survey results in dpm (for each CH Package) from Radiological Survey Report.

- Beta/gamma contamination survey results in dpm (for each CH Package) from Radiological Survey Report.

- U.S. Department of Transportation (DOT) Description (for each CH Package) from Bill of Lading or UHWM.

- Reportable Quantity (RQ) or Highway Route Control Quantity (HRCQ) flag(s) (as applicable) from Bill of Lading or UHWM.

[B] Select Save.

[C] Print final PATCDS or PTCD (as applicable).

[D] Review PATCDs or PTCD (as applicable), **AND** sign reports if all parameters are correct and in compliance with the appropriate TRAMPAC; CCP-PO-003 or CCP-PO-050.

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[E] Enter the send date and time in WDS.

[F] Select the Finalize button to complete the WDS process.

4.2 Shipping Preparations

NOTE
E-mail notifications may be performed by Host site Shipping Coordinator.

4.2.1 Transmit the draft PATCDs or PTCD (as applicable), WDS Shipment Summary Report, and WDS Shipment Data report to the Host site Shipping Coordinator for preparation of shipping papers.

4.2.2 Host site Transportation Personnel, develop shipping papers.

4.2.3 Host site Shipping Coordinator, provide TCO with draft copy of shipping paper and RadCalc work sheets (or equivalent).

4.2.4 Review the shipping documentation (Bill of Lading or UHWM) in accordance with 49 CFR Part 172, Subpart C, *Shipping Papers*.

NOTE
Completion of an LDR is necessary only for each initial shipment of a mixed waste stream. The LDR is completed in accordance with 40 CFR Part 268.

4.2.5 Complete Attachment 3, Land Disposal Restriction Exemption Notification.

4.2.6 Print name, sign, date, and initial Attachment 3.

4.2.7 Provide copy of Attachment 3 to Host site Shipping Coordinator.

4.2.8 Host site Shipping Coordinator, attach copy of Attachment 3 to the shipping papers.

4.2.9 As soon as available, prior to releasing the shipment, email a copy of the Draft Manifest to the WIPP Transportation group.

NOTE
If the Transportation Tracking and Communications (TRANSCOM) system is out of service, secondary shipment protocol is followed, as directed by the WIPP Transportation group. Step 4.2.10 can be omitted.

4.2.10 Prior to releasing the shipment to the carrier prepare the TRANSCOM system by entering a Draft Bill of Lading or UHWM in

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TRANSCOM per the guidance found in the TRANSCOM 2000 Designated User Handbook.

4.2.11 E-mail Draft Bill of Lading or UHWM to TRANSCOM. TRANSCOM email is transcom@transcom.energy.gov.

4.2.12 Host site Shipping Coordinator, notify the applicable State Motor Vehicle Department (SMVD) at least 24-hours prior to releasing a shipment.

[A] Request the performance of a Commercial Vehicle Safety Alliance (CVSA) inspection at the Host site of the trailer, tractor, and loaded CH Packaging Containers.

4.3 Inspections and Loading Operations

4.3.1 Verify that the payload containers are DOT Type 7A or equivalent (17C, 17H, UN1A2).

NOTE
The specific filter information is listed on the applicable PCTCD or OPCTCD.

4.3.2 For TRUPACT-II/HalfPACTs, verify filter vents, as specified in Section 2.5 of CCP-PO-003 and Section 6.12 of *CH TRU Payload Appendices* (as applicable), are installed in payload containers.

4.3.3 For TRUPACT-III verify filter vents as specified in Section 2.4 of CCP-PO-050 are installed in the SLB2.

4.3.4 Perform Container Integrity Inspection on each payload container identified for shipment per Attachment 5, CCP Container Integrity Checklist.

4.3.5 Print name, sign, and date Attachment 5.

4.3.6 Ensure the following labels are clearly marked on each payload container:

[A] Unique Identification Number (Bar Code)

- Minimum three (3) per 55-gal., 85-gal., 100-gal. drum, and shielded overpack
- Minimum two (2) per SWB
- Minimum one (1) per TDOP

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- Minimum one (1) per SLB2

[B] Caution Radioactive Material Label

[C] Hazardous Waste label, if applicable

[D] Polychlorinated Biphenyls (PCB) label, if applicable.

NOTE

The dunnage container(s) SHALL be labeled with a unique identification number. Exception: seven packs, four packs, three packs, or SWBs, are **NOT** required to be numbered uniquely. All dunnage containers SHALL also be labeled Dunnage or Empty. Dunnage containers are labeled in accordance with site-specific procedures.

4.3.7 For each TRUPACT-II/HalfPACT CH Package that has a dunnage container, complete Attachment 4, CCP Dunnage Certification Statement.

4.3.8 Print name, sign, date, and initial Attachment 4.

4.3.9 Ensure that each waste container is checked to see that there are **NO** Hold Tags attached.

[A] **IF** a Hold Tag is found,
THEN determine the disposition to ensure that the container is acceptable for shipping.

4.3.10 Host site RCT **OR** equivalent position, provide Container Contamination Survey Report(s) to the TCO.

NOTE

Host site personnel may assemble payload containers under the direction of the TCO or a CCP CH Packaging and Transportation team member.

4.3.11 Provide the PATCDs or PTCD to the CH Packaging and Transportation Team.

4.3.12 For TRUPACT-II/HalfPACT, record applicable Payload Pallet Identification Number or SWB Ratchet Strap Serial Numbers and inspection date on Attachment 6, Payload Accessories.

4.3.13 For TRUPACT-II/HalfPACT, CH Packaging and Transportation Team assemble the payload containers into a payload assembly in accordance with DOE/WIPP 02-3184, or DOE/WIPP-02-3220 (as applicable) or approved site-specific procedures.

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4.3.14 Host site RCT **OR** equivalent position, provide dose rate survey of the payload assembly.

4.3.15 Perform the following:

[A] Verify from the applicable PATCD or PTCD (as applicable) that the selected container(s) within a payload are correct for the designated CH Packaging Container to be loaded.

[B] Verify that all of the visible container ID labels are an exact match to the ID numbers listed on the PATCD or PTCD (as applicable).

[C] Record on the payload the designated CH Packaging number, payload ID number, initial, and date.

[D] **IF** not already performed,
THEN provide PATCDs or PTCD (as applicable) to the CCP CH Packaging and Transportation Team.

4.3.16 CCP CH Packaging and Transportation Team, perform the following:

[A] Verify from the applicable PATCD or PTCD (as applicable) that the selected container(s) within a payload are correct for the designated CH Packaging Container to be loaded.

[B] Verify that all of the visible container ID labels are an exact match to the ID numbers listed on the PATCD or PTCD (as applicable).

4.3.17 CH Packaging and Transportation Team, load the payload assembly into the CH Packaging Container(s) in accordance with DOE/WIPP-02-3184, DOE/WIPP 02-3220, or DOE/WIPP 11-3451 (as applicable).

NOTE
If High-Wattage shipments are loaded per DOE/WIPP 02-3220, then the attachments found in DOE/WIPP-02-3220 will be used.

4.3.18 Controlled Shipment Processing

[A] **IF** Controlled Shipment Payload, other than High-Wattage,
THEN record applicable dates and times of ICV or CL lid (as applicable) installation on Attachment 1 or 7 (as applicable),
AND ensure 24-hour Loading Time will not be exceeded.

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[B] **IF** total loading time is calculated to be ≥ 24-hours, **THEN** vent the package, **AND** repeat the lid installation process.

4.3.19 Host site RCT **OR** equivalent position, provide the dose rate and contamination surveys of CH Packaging Container(s) exteriors to the TCO. Dose Rates readings: on Contact, 1-meter, and 2-meter, including Neutron contribution.

4.3.20 Review the survey report of the loaded CH Packaging Container(s), **AND** verify that the survey data meets applicable radiation/contamination requirements.

4.4 Shipping Completion

4.4.1 Host site Transportation personnel, perform marking, labeling, and placarding (if applicable) of the CH Packages and Transport Trailer.

4.4.2 Ensure correct marking, labeling, and placarding (if applicable) per the following:

[A] Marking of CH Packaging Container shipments of CH TRU waste is conducted in accordance with 49 CFR Part 172, Subpart D, *Marking*, § 172.300 through 172.338; 40 CFR Part 262, Subpart C, § 262.32, *Marking*; and 40 CFR Part 761.40, Subpart C, *Marking of PCBs and PCB Items*.

[B] Labeling of CH Packaging Container shipments of CH TRU waste is conducted in accordance with 49 CFR Part 172,Subpart E, *Labeling*, § 172.400 through 172.450; and 40 CFR Part 262, Subpart C, § 262.31, *Labeling.*

[C] Placarding of CH Packaging Container transport vehicles of CH TRU waste is conducted in accordance with 49 CFR Part 172, Subpart F, *Placarding*, § 172.500 through 172.560; and 40 CFR Part 262, Subpart C, § 262.33, *Placarding.*

4.4.3 Trucking company, attach tractor to trailer.

4.4.4 **IF** the shipment contains Controlled Shipment Packages, **THEN** provide the following to the Host site Transportation personnel (as applicable):

[A] For High-Wattage Shipments, a copy of Attachment 9 from procedure DOE/WIPP 02-3220.

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[B] For Controlled Shipments, a copy of Attachment 1 or 7 (as applicable), from this procedure.

4.4.5 If the shipment contains High Wattage Packages, TCO contact the WIPP CMR for notification of impending High Wattage Shipment.

4.4.6 Host site Transportation personnel, sign the shipping documentation (Bill of Lading or UHWM) in accordance with 49 CFR Subpart C.

4.4.7 Host site Transportation personnel, provide carrier with appropriate shipping documentation package, including LDR (if applicable), and controlled shipment package attachments (if applicable).

4.4.8 SMVD, perform CVSA inspection of the tractor, trailer, and CH packages.

4.4.9 Host site Transportation personnel, provide TCO with a signed copy of the shipping documentation (Bill of Lading or UHWM).

4.4.10 Ensure Shipment Radiological Information is emailed to WIPP RCT group.

4.4.11 **IF** the shipment contains Controlled Shipment Packages, **THEN** ensure Attachment 9 from DOE/WIPP 02-3220 or Attachment 1 or 7 (as applicable), from this procedure is emailed to WIPP Transportation.

4.4.12 For TRUPACT-II/HalfPACT, ensure Attachment 6 is emailed to WIPP Transportation.

4.4.13 For shipment finalization, complete Sections 4.1.4.

4.4.14 For TRUPACT-II/HalfPact, ensure the PATCD's are signed to certify that the payload in each CH Packaging Container meets the requirements of the CCP CH-TRAMPAC, CCP-PO-003.

4.4.15 For TRUPACT-III, ensure the PTCD is signed to certify that the SLB2 in the CH Package meets the requirements of CCP CH-TRAMPAC, CCP-PO-050.

4.4.16 TCO **OR** Host Site Shipping Coordinator, contact WIPP CMR **AND** request to release shipment.

4.4.17 Once approval is granted, TCO or Host Site Shipping Coordinator, release shipment.

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4.4.18 Change WDS status to “In Transit”.

4.5 Shipment Receipt

NOTE
Receipt sites may use CBFO-approved site-specific Controlled Shipment or High-Wattage Receipt Attachments, provided that the same information is recorded **AND** a completed copy is returned to the applicable TCO.

4.5.1 **IF** the shipment contains Controlled Shipment Packages, **THEN** request the Receipt Site to email the following (as applicable) once the payloads are unloaded:

[A] For High-Wattage Shipments, completed Attachment 10 from procedure DOE/WIPP 02-3220, or site equivalent form.

[B] For TRUPACT-II/HalfPACT controlled Shipments, completed Attachment 2 from this procedure, or site equivalent form.

[C] For TRUPACT-III controlled Shipments, completed Attachment 8 from this procedure, or site equivalent form.

4.5.2 **ONCE** the shipment status in WDS is “Shipment Received”, **THEN** send an email to the Host site Shipping Coordinator, stating shipment received with the date of receipt.

4.5.3 **ONCE** the shipping data entry is complete, **THEN** compile and submit items listed in Section 5.1.1, to CCP Records.

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5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as QA records in accordance with CCP-QP-008, *CCP Records Management*. The records are the following:

NOTE

Records generated by DOE/WIPP-02-3184 or DOE/WIPP-02-3220 (see Section 3.1.5), as applicable are included in the Shipping Documentation Package.

QA/Nonpermanent

5.1.1 Shipping Documentation Package:

- PATCD, PCTCD, PTCD, OPCTCD Spreadsheet(s), as applicable
- WDS Shipment Summary Report
- Attachment 1, CCP Shipping Site Control Checklist for Controlled Shipments, if applicable
- Attachment 2, CCP Receiving Site Control Checklist for Receipt of Controlled Shipments (Receipt sites may use CBFO-approved site-specific Controlled Shipment Receipt Forms in place of Attachment 2), if applicable
- Attachment 3, Land Disposal Restriction Exemption Notification (initial shipment of a waste stream only)
- Attachment 4, CCP Dunnage Certification Statement (complete one statement for each group of dunnage containers)
- Attachment 5, CCP Container Integrity Checklist
- Attachment 6, Payload Accessories
- Attachment 7, (TRUPACT-III) CCP Shipping Site Control Checklist for Controlled Shipments
- Attachment 8, (TRUPACT-III) CCP Receiving Site Control Checklist for Controlled Shipments

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- Fax or email correspondence, if applicable
- Draft Bill of Lading or UHWM, if applicable

5.1.2 Radiological Surveys

- Dose Rate Survey Report
- Contamination Survey

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Attachment 1 – CCP Shipping Site Control Checklist for Controlled Shipments*

Shipment No. _____ Packaging No. _____.

To be completed by CCP Transportation Certification Official, or designee, for each package designated as a controlled shipment.

Activity	Date	Time	Completion of Activity (Indicate by initials)
Record date and time of ICV lid installation from Attachment 2, DOE/WIPP 02-3184 *CH Packaging Operations Manual*.			
Record date and time the shipment containing the loaded package is ready to depart from the site.			
Calculate and record total Loading Time. (Limit = 24-hours)			
Total Loading time ≤ 1 day, sign and date below. *Total Loading Time > 1 day, STOP, vent package, and repeat closure process.*			
I certify the above data is accurate and compliant with the Loading Time limit of 24-hours, as specified in Section 6.2.3 of the CCP CH-TRAMPAC.			
Printed Name Signature Date Initials CCP Transportation Certification Official (or designee)			

*Control shipments (10 days) shall be made in accordance with the conditions specified in Appendix 3.6 of the *CH-TRU Payload Appendices* and CCP CH-TRAMPAC Section 6.2.3.

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Attachment 2 – CCP Receiving Site Control Checklist for Receipt of Controlled Shipments*

Shipment No. _____ Packaging No. _____.

To be completed by designated Receiving Site Operations personnel for each package designated as a controlled shipment:

Activity	Date	Time	Completion of Activity (Indicate by initials)
Record date and time that the package was ready to depart from the shipping site (from data recorded on Attachment 1).			
Vent package within 9-days of date and time recorded above and record vent date and time.			
I certify the above data is accurate and compliant with the Unloading Time of 9-days, as specified in Section 6.2.3 of the CCP CH-TRAMPAC.			
Printed Name Receiving Site Personnel	Signature	Date	Initials

*Control shipments (10 days) shall be made in accordance with the conditions specified in Appendix 3.6 of the *CH-TRU Payload Appendices* and Section 6.2.3 of the CCP CH-TRAMPAC.

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Attachment 3 – Land Disposal Restriction Exemption Notification

The non-waste water identified in this shipment, Manifest Number _____, and bearing the EPA Hazardous Waste Number(s) listed below are exempted from the land disposal prohibitions of 20 NMAC 4.1, 268 because the waste is exempted by the WIPP Land Withdrawal Act. The Land Withdrawal Act also exempts this waste from the treatment standards in 20 NMAC 4.1, 268. This waste is **NOT** prohibited from land disposal.

EPA Hazardous Waste Number (No additional codes to those listed below can be accepted at the WIPP. Check only those that are included in this shipment.):

Waste Stream Profile Number: _____

☐	D004	Arsenic	05/08/92	☐	D038	Pyridine	09/19/96
☐	D005	Barium	08/08/90	☐	D039	Tetrachloroethylene	09/19/96
☐	D006	Cadmium	08/08/90	☐	D040	Trichloroethylene	09/19/96
☐	D007	Chromium	08/08/90	☐	D043	Vinyl Chloride	09/19/96
☐	D008	Lead	08/08/90	☐	F001	Spent Solvents	11/08/86
☐	D009	Mercury	05/08/92	☐	F002	Spent Solvents	11/08/86
☐	D010	Selenium	08/08/90	☐	F003	Spent Solvents	11/08/86
☐	D011	Silver	08/08/90	☐	F004	Spent Solvents	11/08/86
☐	D018	Benzene	09/19/96	☐	F005	Spent Solvents	11/08/86
☐	D019	Carbon Tetrachloride	09/19/96	☐	F006	Sludges	09/08/88
☐	D021	Chlorobenzene	09/19/96	☐	F007	cyanide salts	07/08/89
☐	D022	Chloroform	09/19/96	☐	F009	cyanide salts	07/08/89
☐	D026	Cresol	09/19/96	☐	P015	Beryllium Powder	08/08/90
☐	D027	1,4-Dichlorobenzene	09/19/96	☐	P030	Cyanides (soluble cyanide salts), not otherwise specified (H)	06/08/89
☐	D028	1,2-Dichloroethane	09/19/96	☐	P098	Potassium Cyanide (H)	06/08/89
☐	D029	1,1-Dichloroethylene	09/19/96	☐	P099	Potassium Silver Cyanide (H)	08/08/90
☐	D030	2,4-Dinitrotolune	09/19/96	☐	P106	Sodium Cyanide (H)	06/08/89
☐	D032	Hexachlorobenzene	09/19/96	☐	P120	Vanadium Pentoxide	08/08/90
☐	D033	Hexachlorobutadiene	09/19/96	☐	U002	Acetone	08/08/90
☐	D034	Hexachloroethane	09/19/96	☐	U003	Acetonitrile (I,T)	08/08/90
☐	D035	Methyl ethyl ketone	09/19/96	☐	U019	Benzene	08/08/90
☐	D036	Nitrobenzene	09/19/96	☐	U037	Chlorobenzene	08/08/90
☐	D037	Pentachlorophenol	09/19/96	☐	U043	Vinyl Chloride	08/08/90

Attachment 3 – Land Disposal Restriction Exemption Notification (Continued)

Waste Stream Profile Number: _____

☐	U044	Chloroform	08/08/90	☐	U226	1,1,1-Trichloroethane	08/08/90
☐	U052	Cresol	08/08/90	☐	U228	Trichloroethylene	08/08/90
☐	U070	1,2-Dichlorobenzene	08/08/90	☐	U239	Xylene	08/08/90
☐	U072	1,4-Dichlorobenzene	08/08/90	☐			
☐	U078	1,1-Dichloroethylene	08/08/90	☐			
☐	U079	1,2-Dichloroethylene (T) 156-60-5	08/08/90	☐			
☐	U103	Dimethyl Sulfate (T)	08/08/90	☐			
☐	U105	2,4-Dinitrotoluene (T) 121-14-2	08/08/90	☐			
☐	U108	1,4-Dioxane (T)		☐			
☐	U122	Formaldehyde	08/08/90	☐			
☐	U133	Hydrazine	08/08/90	☐			
☐	U134	Hydrofluoric Acid	08/08/90	☐			
☐	U151	Mercury	08/08/90	☐			
☐	U154	Methanol	08/08/90	☐			
☐	U159	Methyl Ethyl Ketone	08/08/90	☐			
☐	U196	Pyridine	08/08/90	☐			
☐	U209	1,1,2,2-Tetrachloroethane	08/08/90	☐			
☐	U210	Tetrachloroethylene	08/08/90	☐			
☐	U220	Toluene	08/08/90	☐			

TCO:

Printed Name/Signature	Date	Initials

REFERENCE:

20 NMAC 4.1, 268.7(a) (3)
OCT. 30, 1992–Public Law 102-579 as amended Sept. 23, 1996–Public Law 104-201, Subtitle F
WIPP Hazardous Waste Facility Permit, Attachment C-5a (2)
WIPP Hazardous Waste Facility Permit, Part 2, Table 2.3.4, Permitted TRU Mixed Wastes

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Attachment 4 – CCP Dunnage Certification Statement

Payload ID _____

Record dunnage container numbers.

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

	Acceptance Criteria	**Initials**
Container Type	55-gal. drum, 85-gal. drum, 100-gal. drum, or SWB (circle one)	
Surface Contamination	<20 dpm/100 cm^2 alpha <200 dpm/100 cm^2 beta-gamma	
Container Marking	"Dunnage"	
Liquids	Dry	
Pu-239 FGE	Zero	
Thermal Power	Zero	
Dunnage Properly Vented??	Minimum one open vent port	
Comments:		

I certify that I have reviewed the data for this assembly dunnage and have determined that it meets the requirements stated in the current revision of CCP-PO-003.

TCO:

_____ _____ _____
Printed Name/Signature Date Initials

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Attachment 5 – CCP Container Integrity Checklist

Payload ID _____

Record container numbers for the selected payload assembly.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

NOTE

Any YES answer on the inspection checklist will result in the operator immediately contacting the TCO. The TCO will have the drum segregated **AND** the appropriate site-specific corrective actions invoked. The TCO will provide another waste container **OR** dunnage for the selected payload assembly. The new waste container will require the same inspection per the checklist.

Visually examine 100% of each container for selected payload assembly per the checklist below.

CONTAINER EXAMINATION		DISCUSSION OF CRITERIA	CHECK ONE	
1.	Is the payload container obviously degraded?	Obviously degraded means clearly visible and potentially significant defects in the payload container or payload container surface.	YES ☐	NO ☐
2.	Is there evidence that the payload container is, or has been, pressurized?	Pressurization can be indicated by a fairly uniform expansion of the sidewalls, bottom or top. Past pressurization can be indicated by a notable outward deflection of the bottom or top. Verify that the drum payload container is not warped.	YES ☐	NO ☐

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Attachment 5 – CCP Container Integrity Checklist (Continued)

CONTAINER EXAMINATION		DISCUSSION OF CRITERIA	CHECK ONE	
3.	Is there any potentially significant rust or corrosion such that wall thinning, pin holes, or breaches are likely or the load bearing capacity is suspect?	Rust shall be assessed in terms of its type, extent, and location. Pitting, pocking, flaking, or dark coloration characterizes potentially significant rust or corrosion. This includes the extent of the payload container surface area covered, thickness, and, if it occurs in large flakes or built-up (caked) areas. Rusted payload containers may not be accepted if: • Rust is present in caked layers or deposits • Rust is present in the form of deep metal flaking, or built-up areas of corrosion products In addition, the location of rust should be noted; for example on a drum: top lid; filter region; locking chine; top one-third, above the second rolling hoop; middle one-third, between the first and second rolling hoops; bottom one-third, below the second rolling hoop; and on the bottom. Payload containers may still be considered acceptable if the signs of rust show up as: • Some discoloration on the payload container • If rubbed would produce fine grit or dust or minor flaking (such that wall thinning does not occur)	YES ☐	NO ☐
4.	Are any of the following apparent? • wall thinning • pin holes • breaches	Wall thinning, pin holes, and breaches can be a result of rust/corrosion (see discussion for #3).	YES ☐	NO ☐
5.	Are there any split seams, tears, obvious holes, punctures (of any size), creases, broken welds, or cracks?	Payload containers with obvious leaks, holes or openings, cracks, deep crevices, creases, tears, broken welds, sharp edges or pits, are either breached or on the verge of being breached. Verify that there is no warpage that could cause the container to be unstable or prevent it from fitting properly in the applicable package.	YES ☐	NO ☐
6.	Is the load-bearing capacity suspect?	The load-bearing capacity could be reduced for excessive rust (see discussion for #3), wall thinning (see discussion for #4), breaches, cracks, creases, broken welds, etc. (see discussion for #5).	YES ☐	NO ☐
7.	Is the payload container improperly closed?	Inspect the fastener and fastener ring (chine) if applicable for damage or excessive corrosion. Check the alignment of the fastener to ensure that it is in firm contact around the entire lid and the payload container will not open during transportation.	YES ☐	NO ☐

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Attachment 5 – CCP Container Integrity Checklist (Continued)

CONTAINER EXAMINATION		DISCUSSION OF CRITERIA	CHECK ONE	
8.	Are there any dents, scrapes, or scratches that make the payload container's structural integrity questionable or prevent the top and bottom surfaces from being parallel?	Deep gouges, scratches, or abrasions over wide areas are not acceptable. If top and bottom surfaces are not parallel, this would indicate that the container is warped. Dents should be less than ¼ inch deep by 3 inches long and between ½ inch to 6 inches wide. All other dents must be examined to determine impact of structural integrity.	YES ☐	NO ☐
9.	Is there discoloration which would indicate leakage or other evidence of leakage of material from the payload container?	Examine the payload container regions near vents, top lid fittings, bottom fittings, welds, seams and intersections of one or more metal sheets or plates. Payload containers must be rejected if evidence of leakage is present.	YES ☐	NO ☐
10.	Is the payload container bulged?	For the purposes of this examination, bulging is indicated by: • A fairly uniform expansion of the sidewalls, bottom, or top (e.g., in the case of a drum, either the top or bottom surface protrudes beyond the planar surface of the top or bottom ring, • A protrusion of the side wall (e.g., in the case of a drum, beyond a line connecting the peaks of the surrounding rolling hoops or a line between a surrounding rolling hoop and the bottom or top ring), or • Expansion of the sidewall (e.g., in the case of a drum, such that it deforms any portion of a rolling hoop).	YES ☐	NO ☐

Comments: _____
_____
_____
_____

Inspected By:

_____ _____ _____
Printed Name Signature Date

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Attachment 6 – Payload Accessories

CH Package S/N	Payload Pallet ID# and Inspection Date	SWB Ratchet Strap S/N and Inspection Date	SWB Ratchet Strap S/N and Inspection Date	SWB Ratchet Strap S/N and Inspection Date
Position #1:_____				
Position #2:_____				
Position #3:_____				

Shipment Number: _____

Trailer Number: _____

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Attachment 7 – (TRUPACT-III) CCP Shipping Site Control Checklist for Controlled Shipments

Shipment No. _____ Packaging No. _____

To be completed by Shipping Site Transportation Certification Official, or designee, for each package designated as a controlled shipment:

TRUPACT-III TRAMPAC Section No.	Activity	Recorded Date	Recorded Time	Completion of Activity (Indicate by checkmark [√])
6.2.3.1	Record date and time of TRUPACT-III closure			
6.2.3.2	Record date and time the shipment containing the loaded package is scheduled to depart from the site			
6.2.3.3	Calculate and record total **Loading Time** [Limit = 24 hours]			
	Total Loading Time ≤ 1 day, proceed to No. 6.2.3.4 *Total Loading Time > 1 day,* ***STOP.*** *Vent package and repeat closure process.*			
6.2.3.4	I certify that the above data is accurate and compliant with the Loading Time limit of 24 hours, as specified in Section 6.2.3 of the TRUPACT-III TRAMPAC. _____ / _____ TRANSPORTATION CERTIFICATION OFFICIAL (OR DESIGNEE) DATE			

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Attachment 8 – (TRUPACT-III) CCP Receiving Site Control Checklist for Controlled Shipments

Shipment No. _____ Packaging No. _____

To be completed by designated Receiving Site Operations Personnel for each package designated as a controlled shipment:

TRUPACT-III TRAMPAC Section No.	Activity	Recorded Date	Recorded Time	Completion of Activity (Indicate by checkmark [√])
6.2.3.5	Record date and time that The package was scheduled to depart from the shipping site			
6.2.3.6	Vent package within 9 days of date and time Recorded above and record vent date and time			
6.2.3.7	I certify that the above data is accurate and compliant with the Transport and Unloading Time Limit of 9 days, as specified in Section 6.2.3 of the TRUPACT-III TRAMPAC. _____ / _____ RECEIVING SITE OPERATIONS PERSONNEL DATE			

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CCP-TP-053

Revision 14

CCP
Standard Real-Time Radiography (RTR) Inspection Procedure

EFFECTIVE DATE: 09/25/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
9	09/30/2010	Revised to incorporate another test image type.
10	03/04/2011	Revised to address Carlsbad Field Office (CBFO) Corrective Action Report (CAR)-11-015. Deleted requirement to identify locations of dense waste material, sharp/heavy objects. Deleted requirement of identification of block and/or bracing of sharp/heavy objects and heterogeneity of the waste (e.g., DO **NOT** just list plastic, describe it as small plastic bottles, plastic tubing, plastic sheeting, or plastic coveralls etc.). Deleted requirement of recording of liquid amounts on attachments. All prohibited conditions will be addressed in the Nonconformance Report (NCR) process. Added the ability to use procedure to Real-Time Radiography (RTR) Remote-Handled (RH) waste.
11	07/20/2011	Revised to add checklist question based on agreement with New Mexico Environmental Department (NMED).
12	08/22/2012	Revised to change format of attachments. Clarified format of container weights and clarified steps for documenting nonconformance reports (NCRs) on Attachment 2, CCP Radiography Data Sheet (Example).
13	05/14/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes, to add software used, and other editorial changes.
14	09/25/2013	Revised to address Carlsbad Field Office (CBFO) CAR 13-034, CBFO CAR 13-051, and Central Characterization Program (CCP) CAR-SRS-0001-13.

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1.0 PURPOSE

Real-time radiography (RTR) inspection is used to verify that the physical form matches the waste stream description and that the Waste Matrix Code (WMC) assigned to the waste container is consistent with acceptable knowledge (AK) of the waste. The system is also used to estimate Waste Material Parameter (WMP) weights and identify prohibited items within a waste container.

This procedure contains the requirements for the collection of data and the generation level review of data from the RTR process.

1.1 Scope

This procedure applies to S3000 homogeneous solids, S4000 soils/gravel and S5000 debris transuranic (TRU) waste streams that require nondestructive examination (NDE). This procedure specifies instructions for performing NDE of waste containers using a RTR system. It also specifies methods for documenting the examination results as required by CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, CCP-PO-002*, CCP Transuranic Waste Certification Plan*, DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*, and CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*

Referenced Documents

- DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
- CCP-PO-001*, CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*

- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-005, CCP *TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*

2.2 Training Requirements

2.2.1 Personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan,* prior to performing this procedure.

2.3 Equipment List

2.3.1 Test Image

2.4 Software

2.4.1 RTR Data Sheet.xls

2.5 Precautions and Limitations

2.5.1 If this procedure CAN **NOT** be implemented as written, RTR personnel shall notify appropriate supervisors. If it is determined that a portion of the work CAN **NOT** be accomplished as described in this procedure, or would result in an undesirable situation, work shall be STOPPED. Work will **NOT** be resumed until this procedure is modified or replaced by a new document that reflects the current work practice.

2.5.2 Workers who will be working in a radiation area must have met the Host site requirements prior to entering the area.

2.5.3 Review the Job Hazards Analysis.

2.6 Prerequisite Actions

2.6.1 None

2.7 Definitions

2.7.1 **Internal Container** – A container inside the outermost container examined during radiography or visual examination (VE). Drum liners, liner bags, plastic bags used for contamination control, capillary-type labware, and debris not designed to hold liquid at the time of original waste packaging are not internal containers.

2.7.2 **Observable Liquid** – Liquid that is observable using radiography or VE as specified in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit.

3.0 RESPONSIBILITIES

3.1 RTR Operator

3.1.1 Operates the RTR system to determine the waste content attributes within a waste container.

3.1.2 Produces video/audio recorded media and a written record of the x-ray scan of the waste containers.

3.1.3 Performs the initial review of the data generated.

3.1.4 A second and independent qualified RTR Operator performs a Replicate Scan on one waste container. A BDR completed in one calendar day shall contain a Replicate Scan. BDRs that span over more than one day shall contain a separate Replicate Scan. In this context, independence means the individual did not perform, nor review the original work.

3.1.5 A second and independent qualified RTR Operator other than any RTR Operator involved in the original scan of the container selected performs an Independent Observation (IO) on a waste container, from a radiography video/audio recorded media. A BDR completed in one calendar day shall contain an IO. BDRs that span over more than one day shall contain a separate IO.

3.1.6 Assembles the Batch Data Report (BDR).

3.2 Independent Technical Reviewer (ITR)

NOTE
The Independent Technical Reviewer (ITR) will be a third and independent qualified RTR Operator.

3.2.1 Reviews the raw data (e.g., Attachment 2, CCP Radiography Data Sheet [Example]).

3.2.2 Completes Attachment 3, CCP Radiography Independent Technical Reviewer Checklist.

3.3 Lead Operator (LO)

3.3.1 Provides supervision of the overall operation of the RTR system.

3.4 Records Custodian

3.4.1 Receives, processes, and transmits records generated by this procedure in accordance with CCP-QP-008, *CCP Records Management*.

4.0 PROCEDURE

NOTE

All steps within this procedure will be performed by the RTR Operator unless otherwise specified.

4.1 Waste Container Preparation

4.1.1 Prepare the waste containers for examination in accordance with Host site and/or Central Characterization Program (CCP) procedures.

4.1.2 Install the Image Test device as applicable.

4.2 RTR System Startup

4.2.1 Startup the RTR system for operation in accordance with the CCP procedure.

4.3 Video/Audio Recorded Media System Startup/Image Test

NOTE

Video/audio recording of the RTR examination **MUST** be produced for all waste containers. The Image Test is performed once per day.

Attachments are found on the CCP secure file transfer protocol (sftp) site.

4.3.1 Record the following on Attachment 1, CCP RTR Measurement Control Report :

[A] Site.

[B] BDR Number.

[C] Examination Date.

4.3.2 Prepare the video/audio media recording systems for operation in accordance with the manufacturer's instructions.

[A] Verify/Turn ON all the video/audio media system components and monitors.

[B] Label each video/audio media with the following information:

[B.1] For the primary video/audio recording media, record the BDR Number followed by a unique identifier (e.g., LA-RTR1-060004A).

[B.2] **IF** additional recording media is required to complete a BDR,
THEN label the additional media with the BDR number followed by another unique identifier as described in step 4.3.2[B.1].

4.3.3 Perform a video/audio recorded media system check by recording the results of the Image Test on Attachment 1 as follows:

[A] Perform the Image Test.

[A.1] **IF** the test image is correctly observed (Minimum acceptable is five lines-pair/centimeters [cm] or the #6 sieve is viewable),
THEN record the results of the test, **AND** mark SAT on Attachment 1.

[A.2] **IF** the test image is **NOT** correctly observed,
THEN record the results of the test **AND** mark UNSAT on Attachment 1, STOP WORK **AND** notify the Lead Operator (LO) and Vendor Project Manager (VPM).

[B] Replay the video/audio recording media, **AND** verify the video/audio recording media check are satisfactory.

[B.1] **IF** the results of the video/audio recording media check are satisfactory,
THEN mark SAT on Attachment 1.

[B.2] **IF** the results of the video/audio recording media checks are **NOT** satisfactory,
THEN record the results of the test **AND** mark UNSAT on Attachment 1, STOP WORK, **AND** notify the LO and VPM.

4.3.4 Remove the Image Test device when it is conducive to operations.

4.3.5 Record comments if necessary, print name, sign, and date Attachment 1.

4.3.6 Place in holding file.

4.4 RTR System Operation

4.4.1 Waste Container Scanning

NOTE

Waste Container Identification (ID) Numbers shall be obtained by direct visual observation. An Attachment 2 must be completed for all waste containers examined.

[A] Enter the appropriate scan information (e.g., Container ID No., Date) on the video display.

[B] Start recording the examination scan **AND** record verbally the information for the waste container being examined.

[C] Manipulate the container and x-ray controls such that 100 percent of the container volume is examined.

[D] Scan the waste container.

[E] Record the results verbally **AND** in Section 3, Container Inventory and Comments of Attachment 2.

4.4.2 Data Entry

NOTE

The data required by steps [A.1] through [A.8], and [D.1] through [D.5](a), may be entered on Attachment 2 at any time after the waste container is loaded to the RTR unit. The remaining data required to be entered on Attachment 2 may be entered as the operator determines it during the scan.

All fractional weights will be recorded to 1/10 of a kilogram (kg).

Attachments are found on the CCP sftp site.

[A] Record the following data in Section 1 of Attachment 2:

[A.1] Check "√" the applicable type of RTR examination.

[A.2] Site ID.

[A.3] Batch Number.

[A.4] Examination Date.

[A.5] Waste Container ID.

[A.6] Waste Container ID at the top of Page 2 and Page 3 of Attachment 2.

[A.7] Video/Audio Recorded Media Number.

[A.8] Procedure and Revision No.

[A.9] Check "√" yes or no for NCR and if yes is checked record the NCR number.

[B] **IF** a container is identified in the S5000 summary category group that CAN **NOT** be penetrated by the RTR method because of the presence of lead, or other shielding, **THEN** initiate a nonconformance report (NCR) in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

[C] **IF** a container is identified in the S3000 or S4000 summary category group, **AND** RTR is **NOT** capable of penetrating the container so that any liquid present on the top, sides, or bottom of the waste form is identifiable, **THEN** initiate a NCR in accordance with CCP-QP-005.

[D] Ensure the following data is recorded in Section 2, Waste Container Data, of Attachment 2:

[D.1] Container Type.

[D.2] Content (TRUCON) Code.

[D.3] Waste Matrix Code.

[D.4] Waste Stream ID.

[D.5] Waste Container Weights (kg).

(a) Gross Weight (from the CCP Container Traveler or obtain the weight in accordance with the Host site Interface Document).

(b) Tare Weight (Total Packaging Weight from Section 4: Packaging Material and Waste Material Parameters, of Attachment 2).

(c) Net Weight (subtract Tare Weight from Gross Weight).

[D.6] Rigid Liner and Liner Vent Description.

(a) Check appropriate box for Liner or No Liner, Lid or No Lid, Liner Type, Vented or Not Vented, and Venting Method.

[D.7] Estimated number of Layers of Confinement.

NOTE

The fill percent of the container is based on the highest level of the bulk of the waste. Items (e.g., pipe, scrap angle, plastic bags) that protrude above the bulk of the waste are not to be included in the fill percent determination. The fill percent is to be recorded in five percent increments (e.g., 35%, 40%, 45%).

[D.8] Record the estimated Volume Utilization Percentage (VUP).

[E] Complete an itemized description of the waste inventory in the container in Section 3.

NOTE

Additional weight information for items commonly found in waste streams at each site may be provided in accordance with a controlled Operator Aid.

[F] Using packaging weight information provided by the Host site, record the estimated weight (kg) for the packaging materials in Section 4: Packaging Material and Waste Material Parameters, of Attachment 2.

[G] Using Table 2, Waste Material Parameters, Table 3, Waste Item Weights, and additional item weight information provided by the Host site, record the estimated weight for each WMP in Section 3 and sum all WMPs and record the total WMP weight in Section 4 of Attachment 2.

NOTE

The potential exists for prohibited items to be present in the waste container based upon shapes seen in the image and the RTR Operator's knowledge of the waste stream. For example; if the AK for the waste stream DOES **NOT** indicate the presence of Polychlorinated Biphenyl (PCB) free light ballasts, and a ballast is present in the container, the RTR Operator will have reason to believe that PCBs are present.

Internal containers (e.g., bottles, cans, etc.) shall have no more than 60 milliliters or 3 percent by volume, whichever is greater, observable liquid **AND** in no case, shall the total observable liquid volume (i.e., the sum of all internal and/or outermost container volumes) exceed >1%.

[H] Using Table 1, Prohibited Items, as a reference, complete the checklist in Section 5: RTR Summary, of Attachment 2, to confirm there are **NO** prohibited items in the waste container.

NOTE

Potential hazardous wastes identifiable by radiography include:

- Batteries
- Circuit Boards (may be contained in electrical equipment)
- Cathode Ray Tube (CRT)-based computer monitors or televisions
- Lead
- Mercury, mercury containing equipment (e.g., barometers, switches, thermometers, thermostats)
- Light Bulbs (both incandescent and fluorescent)

[H.1] **IF** any hazardous waste(s) **NOT** identified in the AK Summary Report(s) for the waste stream being characterized **OR** any nonconforming/prohibited items are noted during the RTR examination, **THEN** perform the following:

(a) Initiate an NCR in accordance with CCP-QP-005 **AND** record the NCR number in Section 1 and in the comments block of Attachment 2.

NOTE

The physical waste form requirements and waste stream descriptions for the waste stream being evaluated are found in the AK Summary Report. The AK Summary will be available in the work area and referenced as needed.

[H.2] **IF** the waste form DOES **NOT** match the Waste Stream description and/or the Waste Matrix Code, **THEN** initiate an NCR in accordance with CCP-QP-005, **AND** record NCR number in Section 1 and in the comments block of Attachment 2.

[I] Review Attachment 2 for completeness and accuracy.

NOTE

Data changes shall be made by the individual who originally collected the data or an equally qualified individual authorized to change the data.

[I.1] Ensure changes to the data have been initialed and dated with a justification, as necessary, provided in the Comments block of Attachment 2.

[J] Print name, sign, and date Attachment 2.

[K] Place in holding file.

[L] **IF** the waste container constitutes the last container of the batch or day,
THEN STOP, remove the video/audio recording media from the recording components, **AND** properly store the media.

[M] Repeat steps 4.4.1 through 4.4.2 until all containers in the batch have been examined.

4.5 Replicate Scan

NOTE

A BDR completed in one calendar day shall contain a Replicate Scan. BDRs that span over more than one day shall contain a separate Replicate Scan. The Replicate Scan is performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The Replicate Scan will be performed under the same uniform conditions as a routine scan of a waste container in Section 4.4.

Second RTR Operator

4.5.1 Prior to reviewing the initial, Attachment 2, scan the replicate waste container per Section 4.4, **AND** record the results on a new Attachment 2.

4.5.2 Review the original Attachment 2, **AND** compare the results with the second Attachment 2.

4.5.3 Perform the following when identification of the waste matrix code, liquids in excess of Treatment, Storage, Disposal Facility (TSDF)-Waste Acceptance Criteria (WAC) limits, and compressed gases differ between the two operators:

[A] Reconcile the results with the initial RTR Operator as follows:

[A.1] Jointly perform a real-time review of the Attachment 2(s).

[A.2] Jointly review the video/audio recording media **OR** re-scan the container, **AND** make corrections, as required, to the Attachment 2(s).

[B] **IF** the results CAN **NOT** be reconciled, **THEN** STOP WORK **AND** notify the LO.

4.6 Independent Observations

NOTE

A BDR completed in one calendar day shall contain an IO. BDRs that span over more than one day shall contain a separate IO. The IO will be performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The IO will be performed by observing the video recording of the original scan with no audio.

Second RTR Operator

4.6.1 Review the video/audio recording media of the original scan, **AND** complete a second Attachment 2.

4.6.2 Review the original Attachment 2 for the subject container, **AND** compare the results with the IO Attachment 2.

4.6.3 Perform the following when identification of the waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases differ between the two operators.

[A] Reconcile the results with the initial RTR Operator as follows:

[A.1] Jointly perform a real-time review of Attachment 2(s).

[A.2] Jointly review the video/audio recording media, **OR** re-scan the container, **AND** make corrections, as required, to the Attachment 2(s).

[B] **IF** the results CAN **NOT** be reconciled, **THEN** STOP WORK **AND** notify the LO.

4.7 RTR System Shutdown

4.7.1 Shutdown the RTR system in accordance with CCP procedure.

4.8 Video/Audio Recording Media System Shutdown

4.8.1 Verify all video/audio recording media have been finalized if necessary and removed from the recording components.

4.8.2 Turn OFF the video/audio media recording systems in accordance with the manufacturer's instructions.

4.9 Batch Data Report Preparation

NOTE

Attachment 5, CCP Radiography Batch Data Report Cover Sheet may be filled out at any time after the container is loaded and the remaining data may be entered during the BDR assembly.

RTR Operator

4.9.1 Assemble Attachment 2(s) for up to 20 waste containers (regardless of matrix) that have been processed from a single RTR unit.

4.9.2 Complete Attachment 5, **AND** record the following:

[A] BDR No.

[B] Contact-handled (CH) or remote-handled (RH) waste.

[C] Date.

[D] Waste Container ID Numbers.

[E] Record which containers are by designation, Replicate Scan and Independent Observation.

[F] Site ID

[G] Print name, sign, and date.

4.9.3 Assemble the following data for the BDR:

[A] Attachment 5, CCP Radiography Batch Data Report Cover Sheet

[B] Attachment 4, CCP Radiography Batch Data Report Table Of Contents and Batch Narrative

[C] Attachment 1, CCP RTR Measurement Control Report

[D] Attachment 2, CCP Radiography Data Sheet

[E] Copy of NCRs, if applicable.

[F] Attachment 3, CCP Radiography Independent Technical Reviewer Checklist

[G] Paginate the BDR.

[H] Two sets of Audio/Video Media.

4.9.4 Forward the BDR package to the ITR.

4.10 RTR Independent Technical Review

NOTE

The independent technical review is conducted by a third and independent qualified RTR Operator who was not involved in the generation or recording of the data under review. The ITR CAN **NOT** review his/her own work.

Attachments are found on the CCP sftp site.

ITR

4.10.1 Review Attachment 1, Attachment 2s, and associated video/audio media recordings, **AND** resolve any comments with the RTR Operator(s).

4.10.2 Review the BDR to the criteria in the checklist of Attachment 3, **AND** document the results.

4.10.3 Print name, sign, and date Attachment 3 and Attachment 5 and any additional Attachments to be inserted in the BDR.

4.10.4 Insert completed Attachment 3 into the BDR.

4.10.5 Insert any additional attachments generated during ITR into the BDR.

4.10.6 Forward the BDR package to the Records Custodian.

Records Custodian

[A] Receive, process, and transmit records in accordance with CCP-QP-008.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as QA records in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Lifetime

[A] Batch Data Report (BDR):

- Attachment 1, CCP RTR Measurement Control Report
- Attachment 2, CCP Radiography Data Sheet
- Attachment 3, CCP Radiography Independent Technical Reviewer Checklist
- Attachment 4, CCP Radiography Batch Data Report Table of Contents and Batch Narrative
- Attachment 5, CCP Radiography Batch Data Report Cover Sheet
- Copies of NCRs, if applicable

5.1.2 QA/Non-permanent

[A] Two sets RTR media VHS or DVD

Table 1. Prohibited Items

LIST OF PROHIBITED ITEMS
Liquid waste - Observable liquid shall be no more than 1 percent by volume of the outermost container. - Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited. - Containers with Hazardous Waste Number U134 assigned shall have no observable liquid.
Nonradioactive pyrophorics
Non-mixed hazardous waste
Incompatible wastes (Wastes that are incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, and/or other wastes).
Explosives
Compressed Gases/Pressurized containers (e.g., aerosol cans)
PCB liquids
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat Sealed Bags (unvented) with surface area less than 390 square inches and greater than 4 liters, or heat sealed bags not authorized in the RH TRUCON Code.
Sharp or heavy objects, that could reasonably be expected to cause a breach of the container during transport because it is not adequately blocked, braced, or packaged.

Table 2. Waste Material Parameters

Waste Material Parameter	Description
Iron-based metals/alloys (IM)	Iron and steel alloys in the waste; does not include the waste container materials
Aluminum-based metals/alloys (AM)	Aluminum or aluminum-based alloys in the waste materials
Other metals (OM)	All other metals found in the waste materials (e.g., lead, lead blankets)
Other inorganic materials (OI)	Nonmetallic inorganic waste, including concrete, glass, firebrick, ceramics, sand, and inorganic sorbents
Cellulosics (C)	Materials generally derived from high polymer plant carbohydrates (e.g., paper, cardboard, wood, cloth)
Rubber (R)	Natural or man-made elastic Latex materials (e.g., surgeon's gloves, leaded rubber gloves)
Plastics (waste materials) (XPM)	Generally man-made materials, often derived from petroleum feedstock (e.g., polyethylene, polyvinylchloride)
Organic matrix (OR)	Cemented organic resins, solidified organic liquids, and sludges
Inorganic matrix (IN)	Any homogeneous materials consisting of sludge, or aqueous-based liquids which are solidified with cement, calcium silicate, or other solidification agents (e.g., waste water treatment sludge, cemented aqueous liquids, and inorganic particulate)
Soils (S)	Generally consists of naturally occurring soils which have been contaminated with inorganic waste materials
Steel (packaging materials) (ST)	Steel Drums (55- and 85- Gallon)
Plastics (packaging materials) (PP)	90-mil polyethylene drum liner and plastic bags

Table 3. Waste Item Weights[a] Page 1 of 2

ITEM	WEIGHT
Electric Drill Motor	2.2 kg
Electric 4” Side Grinder	2.5 kg
Plastic bag for waste	0.6 kg
Fiber pack	13.0 kg
Fiber pack lead-lined	66.0 kg
Lead brick (5.1 x 10 x 20 cm)	12.0 kg
Leaded Rubber Glove	2.5 kg
Aluminum Sphincter Can	0.2 kg
Leaded Rubber Apron	2.4 kg
Vermiculite	0.1 kg/liter
Oil-Dry	0.4 kg/liter
Poly Bottles (1 gallon)	2.2 kg
Poly Bottles (1 liter)	0.5 kg
Metal Can (for salt wastes)	1.1 kg
Metal Can	0.2 kg
Uncured Portland Cement	2.9 kg/liter
Setup Portland Cement	1.1 kg/liter
High-Efficiency Particulate Air (HEPA) Filter (8 x 8 3-1/16)	1.0 kg
HEPA Filter (8 x 8 x 5-7/8)	1.9 kg
HEPA Filter (12 x 12 x 5-7/8)	2.5 kg
HEPA Filter (24 x 24 x 5- 7/8)	7.2 kg
HEPA Filter (24 x 24 x 11-1/2)	14.1 kg
10’ Tape Measure	0.1 kg
13 Oz. Aerosol Can ¼ Full	0.2 kg
17 Oz. Aerosol Can Full of Liquid	0.5 kg
17" Section of 1" Electrical Conduit	0.5 kg
17" Section of 1" Sch 40 S/s Pipe	1.1 kg
2-Gallon Car-boy ½ Full of Water	5.8 kg
2’ X 4’ Board 20" long	0.7 kg
25’ Plastic Suit Hose	2.3 kg
3" Roll of Duct Tape	0.7 kg
3" Roll of Masking Tape	0.4 kg
5-Gallon Metal Bucket	1.3 kg
50’ Plastic Suit Hose	5.0 kg
6-Gallon Car-boy ½ Full of Water	14.0 kg

Table 3. Waste Items Weights[a] (Continued) Page 2 of 2

ITEM	WEIGHT
Channel Lock Pliers	0.3 kg
Coveralls	0.9 kg
Crescent Wrench	0.2 kg
Empty 2-Gallon Car-boy	0.7 kg
Empty 6-Gallon Car-boy	2.0 kg
Flashlight with Batteries	0.5 kg
Flashlight Without Batteries	0.1 kg
Flat File	0.4 kg
Hacksaw with Blade	0.5 kg
Hammer	0.6 kg
Large Open End Wrench	0.5 kg
Plastic Suit Top and Pants	2.3 kg
Razor Knife	0.1 kg
Sand Bag ½ Full of Gravel	12.7 kg
Scissors	0.2 kg
Vice Grip Pliers	0.5 kg
Welder's Chipping Hammer	0.4 kg
Wire Brush	0.1 kg
Wooden Folding Ruler	0.2 kg
Wooden Wedge	0.2 kg
Liner Bags – Large	0.5 kg
Rad Bags – Medium and Small	0.1 kg

[a]The weights for waste packaging and containers will use the nominal values except where identified by the program. Additional Host site/AK specification weights for waste items shall be provided in accordance with an approved Operator Aid.

Attachment 1 – CCP RTR Measurement Control Report

Site ID:		
Batch Data Report No.:		
Examination Date:		
Control Checks		
Video/Audio Recorded Media System Check	☐ SAT	☐ UNSAT
Image Test : _____ (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☐ SAT	☐ UNSAT
Comments:		
RTR Operator:		
Printed Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet (Example)

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	
Batch Number:	
Examination Date:	
Waste Container ID:	
Video/Audio Recorded Media Number:	
Procedure and Revision No.:	Rev.
NCR(s) associated with the container? (e.g., Prohibited Items)	☐ NO ☐ YES NCR No.: _____ NCR No.:
Section 2: Waste Container Data	
Container Type:	
TRUCON Code:	
Waste Matrix Code:	
Waste Stream I.D.:	
Waste Container Weights:	Gross Wt.: _____ kg Tare Wt.: _____ kg Net Wt.: kg
Rigid Liner and Liner Vent Description:	Liner Present: ☐ NO ☐ YES Lid: ☐ NO ☐ YES Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ NO ☐ YES Fiberboard: ☐ NO ☐ YES
Number of Layers of Confinement:	
Volume Utilization Percentage:	

Attachment 2 – CCP Radiography Data Sheet (Example) (Continued)

Waste Container ID:

Section 3: Container Inventory and Comments (Detailed descriptions)
IM:
AM:
OM:
OI:
C:
R:
XPM:
OR:
IN:
S:

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	
Plastics (PP):	
Others:	
Total Packaging Weight	
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	

Attachment 2 – CCP Radiography Data Sheet (Example) (Continued)

Waste Container ID:

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)		
Is there observable liquid?	☐ YES	☐ NO
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ YES	☐ NO
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ YES	☐ NO
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134??	☐ YES	☐ NO
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ YES	☐ NO
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ YES	☐ NO
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match TRUCON Code[s])?	☐ YES	☐ NO
Is there an indication of wastes containing explosives or compressed gases?	☐ YES	☐ NO
Is there an indication of PCBs liquids?	☐ YES	☐ NO
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ YES	☐ NO
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ YES	☐ NO
CH or RH TRAMPAC		
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ YES	☐ NO
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ YES	☐ NO
Are there sealed containers GREATER than 4 liters?	☐ YES	☐ NO
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ YES	☐ NO
Comments:		
RTR Operator		
Print Name	Signature	Date

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.:_____

Description				
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☐ YES	
2.	Was the correct revision of the procedure used? Procedure: Rev.:	☐ NO	☐ YES	
3.	Are the WMPs entered correctly?	☐ NO	☐ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☐ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☐ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☐ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☐ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☐ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☐ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☐ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☐ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☐ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☐ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☐ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☐ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☐ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☐ YES	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist (Continued)

Batch Data Report No.:_____

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☐ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☐ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☐ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☐ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☐ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☐ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☐ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☐ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☐ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☐ YES	

Comments:

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Printed Name	Signature	Date

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.:_____ Date:_____

Table Of Contents		
Item	Description	Page No.
1	CCP Radiography Batch Data Report Cover Sheet	
2	CCP Radiography Batch Data Report Table Of Contents	
3	CCP RTR Measurement Control Report	
4	CCP Radiography Data Sheets	
5	Copy of NCRs (NA, If Not Applicable)	
6	CCP Independent Technical Reviewer Checklist	

Batch Narrative

RTR Operator _____ Signature _____ Date

Attachment 5 – CCP Radiography Batch Data Report Cover Sheet

Site ID:_____

Batch Data Report No.:_____ ☐ CH ☐ RH _____ Date:_____

Waste Container ID Numbers	
Replicate Scan:	
Independent Observation:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

RTR Operator:

Printed Name	Signature	Date

Independent Technical Reviewer:

Printed Name	Signature	Date

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CCP-TP-068

Revision 11

CCP
Standardized Container Management

EFFECTIVE DATE: 11/01/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

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RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	03/23/2005	Initial issue.
1	04/15/2005	Revised to incorporate changes to address CBFO DRR comments.
2	04/13/2006	Revised to provide a consistent and standardized container management procedure.
3	10/19/2006	Revised in response to CAR No.: 06-037.
4	12/14/2006	Revised to address United States Department of Energy (DOE) Carlsbad Field Office (CBFO) Document Review Record (DRR) comments to Revision 3.
5	09/20/2007	Revised to incorporate changes to Attachment 1 and add Oakridge National Laboratory (ORNL) requirements.
6	07/13/2008	Revised to clarify the order of performance for efficiency and to reflect the fact that waste containers will be sampled by SUMMA® and Flammable Gas Analysis (FGA) as the Idaho National Laboratory (INL) Laboratory no longer provides hydrogen or methane results for SUMMA® samples.
7	05/28/2010	Revised in response to Corrective Action Report (CAR)-Los Alamos National Laboratory (LANL)-0006-09 and to clarify when a waste container must be put through container management.
8	09/28/2010	Revised to clarify instructions.
9	01/30/2013	Revised to incorporate elements of Central Characterization Program (CCP) Standing Order CCP-SO-096 Rev. 0 for the application of administrative hold on containers when applying a Vender Project Manager (VPM) HOLD indicator tag and clarified visual examination (VE) operator requirements for traveler and VE data sheet.
10	06/06/2013	Revised in response to Corrective Action CAR-INL-0001-13 and permit modification changes.
11	11/01/2013	Revised to incorporate changes for Los Alamos National Laboratory (LANL), Savannah River Site (SRS), and Oak Ridge National Laboratory (ORNL).

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1.0 PURPOSE

This procedure describes and implements the Central Characterization Program (CCP) management, control, and tracking of contact-handled (CH) transuranic (TRU) waste containers during the characterization process.

1.1 Scope

This procedure applies to personnel who support CCP CH TRU waste characterization activities at various Host sites. The Host site shall use their procedures for container movement and handling. Container tracking and management through CCP activities will be conducted using this procedure.

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2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
- CCP-QP-005, CCP *TRU Nonconforming Item Reporting and Control*

Referenced Documents

- CCP-QP-008, *CCP Records Management*

2.2 Training Requirements

2.2.1 None.

2.3 Procedure Implementation Requirements

2.3.1 Within the constraints of this procedure and in order to meet operational needs, the Vendor Project Manager (VPM)/Designee may direct containers as required to allow for process efficiencies or corrective action for nonconforming conditions. Attachment 1, Container Traveler, serves as the container status indicator throughout characterization activities.

2.3.2 If a Nonconformance Report (NCR) is initiated at any time in the CCP process (from the initial introduction of the container into the CCP process to shipment of the container to the Waste Isolation Pilot Plant [WIPP]), the affected containers shall have a Hold Tag applied and be physically segregated if practical. Normally, the container(s) will not continue through the characterization process. If this is **NOT** the case, limitations or actions required in the approved NCR disposition shall be included on the NCR Hold Tag. In NO case, shall the container(s) proceed to shipment until the NCR disposition is complete.

2.3.3 NO waste container may enter the CCP normal characterization process (i.e., real-time radiography [RTR], nondestructive assay [NDA], flammable gas analysis [FGA]) without a completed Attachment 2, Container Inspection/Weight Report). Waste containers must be characterized at nondestructive examination (NDE) first, unless otherwise directed by the VPM/Designee.

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2.3.4 The inspection criteria in Attachment 3, Structural Integrity and Distortion Inspections Criteria, are used as a guide to determine if the container can be safely handled in the characterization activities. Containers that DO **NOT** meet container integrity requirements and are **NOT** safe to handle, shall be returned to the Host site. Containers that are unsatisfactory for Structural Integrity and Distortion Inspection, but are safe to handle, may be processed through the characterization activities.

2.3.5 Waste containers provided to the characterization process are normally stored in unheated storage areas. The VPM will determine if outside temperature dropped below the freezing temperature of water (32° F) during the 24 hours prior to delivery of the waste containers. Based on this information, the VPM will determine the need to heat the incoming containers and how long to heat the containers prior to RTR to ensure no frozen liquids exist in the waste container.

2.3.6 Not all characterization activities documented in Section 4.0 are conducted in each CCP characterization process. Container Management personnel will N/A characterization activities **NOT** performed by CCP.

2.3.7 Attachment 1 may be an adhesive label affixed directly to the container or a paper copy, in a protective sheet holder attached to the container as necessary.

2.3.8 Containers that require re-characterization through a process due to an NCR do not require a new container traveler. However, the operator will note the new completion date and initial the Attachment 1 per the applicable step.

2.4 Equipment List

2.4.1 Calibrated scale.

2.4.2 Scale check weight(s).

2.5 Precautions and Limitations

2.5.1 **IF** steps in this procedure CAN **NOT** be completed as written, **THEN** work must be STOPPED, equipment placed in a safe configuration, AND the VPM/Designee notified.

2.5.2 Workers who will be working in a radiation area must have read and signed that they understand the applicable authorized documents (e.g., Radiation Work Permit [RWP], etc.) as implemented by the Host site.

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2.5.3 The VPM/Designee will ensure containers characterized on Non-Certified equipment or under non-certified conditions (e.g., a higher calibration limit requiring a Tier 1 approval) at a certified site are controlled by a VPM Hold Tag.

2.6 Prerequisite Actions

2.6.1 None.

2.7 Definitions

2.7.1 None.

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3.0 RESPONSIBILITIES

3.1 Container Management Personnel

NOTE
Container Management personnel may be CCP and/or Host site personnel as determined by CCP and the Host facility.

3.1.1 Verifies containers, are on the acceptable knowledge (AK) Tracking Spreadsheet.

3.1.2 Verifies containers have a legible radiological label/tag with a radiation dose equivalent rate of less than 200 millirem/hour (mrem/hr).

3.1.3 Performs container integrity inspection using Attachment 3, as a guide and documents on Attachment 2.

3.1.4 Performs container filter inspection and documents results on Attachment 2.

3.1.5 Performs scale calibration check and container weighing.

3.1.6 Records container weight information on Attachment 2.

3.1.7 Completes and provides Attachment 2 to the VPM/Designee.

3.1.8 Enters the Gross Weight, Waste Stream ID, and the Container ID Number on Attachment 1.

3.1.9 Ensures that containers selected for Gas Generation Testing (GGT), if required, are annotated on Attachment 1.

3.1.10 Affixes an Attachment 1 to containers designated for CCP characterization activities.

3.1.11 Provides direction to move containers, as required.

3.1.12 Assists with the segregation of deficient containers.

3.1.13 Assists with the segregation of CERTIFIED containers ready to be shipped for final disposal.

3.2 VPM/Designee

3.2.1 Schedules container movements with the Host site.

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3.2.2 Reviews Attachment 2.

3.3 SPM

3.3.1 Helps administer Administrative Hold Tags.

3.4 RTR Operator

3.4.1 Records and updates the applicable RTR information on Attachment 1.

3.4.2 Provides the container processing information (Container ID Number, Batch Data Report [BDR] Number, NCR Number if applicable, and reason for NCR) to the VPM/Designee.

3.5 Nondestructive Assay (NDA) Operator

3.5.1 Records and updates the applicable NDA information on Attachment 1.

3.5.2 Provides the container processing information (Container ID Number, BDR Number, NCR Number if applicable, and reason for NCR) to the VPM/Designee.

3.6 Flammable Gas Analysis (FGA) Operator

3.6.1 Records and updates the applicable FGA information on Attachment 1.

3.6.2 Provides the container processing information (Container ID Number, BDR Number, NCR Number if applicable, and reason for NCR) to the VPM/Designee.

3.7 Gas Generation Testing Program (GGTP) Operator

3.7.1 Records that GGT Sampling and Analysis is complete on Attachment 1.

3.7.2 Provides the container processing information (Container ID Number, BDR Number, NCR Number if applicable, and reason for NCR) to the VPM/Designee.

3.8 VE Operator

3.8.1 Records and updates the applicable visual examination (VE) information on Attachment 1.

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3.8.2 If Attachment 1 is a paper copy, provide Attachment 1 and a copy of the completed VE data sheet to Container Manager.

3.8.3 Provides the container processing information (Container ID Number, BDR Number, NCR Number if applicable, and reason for NCR) to the VPM/Designee.

3.9 Project Manager

3.9.1 Project Manager is the CCP primary onsite interface and point of contact between CCP and Host site.

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4.0 PROCEDURE

NOTE

Steps 4.1.3 through 4.1.6 [H] and 4.3 through 4.4[D] may be performed in any order to make the inspection more efficient. Steps 4.2.1 through 4.2.1[H] must be performed as written prior to weighing of the first container. Step 4.1.3 may be performed while the drum is sitting on the scale to allow the weight to stabilize as long as the bottom of the drum has been inspected for integrity prior to placing on the scale.

4.1 Waste Container Acceptance

4.1.1 **IF** a container is entering CCP characterization through VE,
THEN skip to step 4.4.4.

Container Management Personnel

4.1.2 **IF** the container entering container management is a non CCP waste container (e.g., NDE, NDA, or FGA only),
THEN proceed to step 4.5.1 for NDE, step 4.6.1 for NDA, and step 4.7.1 for FGA.

4.1.3 Verify Container ID is on the AK Tracking Spreadsheet.

[A] **IF** Container ID is **NOT** on the AK Tracking Spreadsheet,
THEN DO **NOT** accept the container, contact the VPM/Designee, **AND** return the container to the Host site.

4.1.4 Record Container ID on Attachment 2.

4.1.5 Determine that the container is safe to handle by performing a container integrity inspection, using Attachment 3 as a guide.

[A] **IF** NO can be applied to all of the questions on Attachment 3,
THEN circle YES on Attachment 2, **AND** proceed with the inspection.

[B] **IF** YES can be applied to any question on Attachment 3,
THEN reject the container **AND** notify the VPM.

VPM/Designee

[B.1] Inspect the suspect container in coordination with appropriate Host site personnel.

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Container Management Personnel

[B.2] **IF** the VPM/Designee determines that the container can be safely handled in the characterization activities,
THEN circle YES on Attachment 2, document the VPM/Designee determination in the Comments section, **AND** proceed with the inspection.

[B.3] **IF** the VPM/Designee determines that the container CAN **NOT** be safely handled,
THEN circle NO on Attachment 2, **AND** return the container to the Host site.

4.1.6 Perform container filter inspection, **AND** document on Attachment 2. For Los Alamos National Laboratory (LANL), Savannah River Site (SRS), and Oak Ridge National Laboratory (ORNL) container filter inspections, complete steps 4.1.7[A] through 4.1.7[B.2] AND document on Attachment 2.

[A] Check container filter vent(s) are legibly marked with:

[A.1] Manufacturer **AND** date of manufacture, lot number, or serial number,
AND record all data available on Attachment 2.

[A.2] Confirm the filter is on the CBFO Approved Filter Vents list.

[B] For Drums, check filter for proper gasket seating, tightness, as follows:

[B.1] Filter gasket is slightly compressed, when visible.

[B.2] Filter is snug against container.

[C] **IF** the filter vent(s) meets the criteria listed in steps 4.1.6[A] through 4.1.6[B],
THEN circle YES on Attachment 2, **AND** proceed with the inspection.

[D] **IF** the filter vent(s) DOES **NOT** meet the criteria listed in steps 4.1.6[A] through 4.1.6[B],
THEN DO **NOT** accept the container.

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[E] Inspect each container for a completed radiological label/tag, **AND** ensure the completed radiological label/tag is legible and records a radiation dose equivalent of less than 200 mrem/hr.

[F] **IF** radiological label/tag or survey reports less than 200 mrem/hr and is legible and complete,
THEN circle SAT on Attachment 2, **AND** proceed with the inspection.

[G] **IF** NO radiological label/tag is attached to the container,
THEN SUSPEND WORK on the container, and perform the following:

[G.1] Notify the VPM/Designee

[G.2] Request a radiation survey be performed

[G.3] Verify that a new radiological label/tag is attached

[G.4] Repeat step 4.1.6[F].

[H] **IF** radiological label/tag or survey reports greater than or equal to 200 mrem/hr,
THEN SUSPEND WORK on the container, notify the VPM/Designee, return the container to the Host site, **AND** circle UNSAT on Attachment 2.

4.1.7 Perform container filter inspection:

[A] Confirm the filter is on the CBFO Approved Filter Vents list

[B] Inspect the filter for manufacturer markings.

[B.1] **IF** the model number is not clearly marked on the filter,
THEN verify the filter is a NucFil Model 013, 072, or 073, as provided in training materials.

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[B.2] Record the following information from the filter, as available, on Attachment 2:

- Manufacturer
- Date of manufacture
- Lot number
- Serial number

[C] Inspect each container for a completed radiological label/tag, **AND** ensure the completed radiological label/tag is legible and records a radiation dose equivalent of less than 200 mrem/hr.

[D] **IF** radiological label/tag or survey reports less than 200 mrem/hr and is legible and complete,
THEN circle SAT on Attachment 2, **AND** proceed with the inspection.

[E] **IF** NO radiological label/tag is attached to the container,
THEN SUSPEND WORK on the container, and perform the following:

- Notify the VPM/Designee
- Request a radiation survey be performed
- Verify that a new radiological label/tag is attached
- Repeat step 4.1.7[C]
- **IF** radiological label/tag or survey reports greater than or equal to 200 mrem/hr,
THEN SUSPEND WORK on the container, notify the VPM/Designee, return the container to the Host site, **AND** circle UNSAT on Attachment 2.

4.2 Scale Calibration Check

4.2.1 On each day the scale is used, perform the following before weighing the first container:

[A] **IF** the scale is an electronic scale,
THEN either verify the scale is turned ON, **OR** turn the power ON to the scale.

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[B] Verify the following, **AND** record on Attachment 2:

[B.1] Scale ID #

[B.2] Location

[B.3] Scale Calibration Due Date

[B.4] Scale Calibration Date Valid (YES/NO)

[C] Check that the scale reads zero when **NOT** loaded.

[C.1] **IF** the scale DOES **NOT** read zero,
THEN re-zero the scale in accordance with the manufacturer's instructions.

[D] Perform a calibration check to verify the scale response is satisfactory as follows:

[D.1] Place a known Check Weight on the scale, **AND** verify the scale reads within the accuracy of the calibration (as listed on the calibration sticker or data sheet, as applicable).

[E] **IF** the scale calibration check is satisfactory,
THEN circle SAT on Attachment 2.

[F] **IF** the scale reads outside of the calibration range,
THEN SUSPEND WORK, circle UNSAT on Attachment 2,
AND notify the VPM.

[G] Return the Check Weight to its storage location.

[H] Initial and date Attachment 2.

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NOTE
This information must be available before characterization of the container through NDA.

Container Management Personnel

4.3 Container Weighing

4.3.1 Load the container onto the scale, **AND** allow the scale reading to stabilize.

4.3.2 Record the container's Gross Weight (kilogram [kg]) on Attachment 2.

4.3.3 Initial and date Attachment 2 for obtaining the gross weight.

4.3.4 Remove the container from the scale.

4.3.5 Repeat steps 4.3.1 through 4.3.4 as required for additional containers.

4.4 Container Traveler Initiation

[A] Enter the Container ID Number on Attachment 1, **AND** initial and date.

[B] Enter Waste Stream ID on Attachment 1, **AND** initial and date Attachment 1.

[C] Record the container's Gross Weight (kg) on Attachment 1 from Attachment 2, **AND** initial and date.

[D] Affix Attachment 1 label on the container, in a protective sheet holder, as necessary.

[E] Repeat steps 4.4[A] through 4.4[D] as required for additional containers.

4.4.1 **IF** CCP is performing partial limited characterization on a non CCP waste container (e.g., FGA only),
THEN N/A block's on Attachment 1 that are not required to perform the characterization activity.

4.4.2 Print name, sign, and date the following completed form:

[A] Attachment 2

[B] Submit Attachment 2 to the VPM/Designee for review.

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VPM

4.4.3 Review, print name, sign, and date all Attachment 2s **AND** submit to CCP records in accordance with CCP-QP-008, *CCP Records Management*.

VE Operator

4.4.4 **IF** the container is characterized by VE,
THEN perform the following:

[A] Make a copy of the VE Data Sheet ensuring the weight and percent fill data is available for host site personnel labeling containers as necessary.

[B] Verify that a legible, completed radiological label/tag is attached to the waste container, **AND** that it records a radiation dose equivalent of <200 mrem/hr.

[B.1] **IF** no radiological label/tag is attached to the container,
THEN request that the Radiological Control Technician (RCT) perform the required survey, **AND** attach a completed radiological label/tag.

[B.2] **IF** the radiological label/tag or survey reports a radiation dose equivalent of >200 mrem/hr,
THEN suspend work on the container, notify VPM **AND** return the container to the Host site.

[C] Enter the Container ID, Gross Weight (kg), Waste Stream ID, from the VE data, **AND** initial and date Attachment 1.

[D] Enter N/A in the RTR section data and associated Initial/Date blanks on Attachment 1.

[E] Document the VE Completion Date on Attachment 1, **AND** initial and date.

[F] **IF** the process is not certified,
THEN apply a VPM Administrative Hold Indicator on the container AND communicate the container number to the Site Project Manager (SPM) and Project Manager (PM).

[G] **IF** the container is rejected,
THEN ensure a HOLD TAG is attached to the container.

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[H] Provide the container processing information (Container ID Number, BDR Number, NCR Number if applicable, and reason for NCR if applicable) to the VPM.

[I] Provide attachment 1 and a copy of completed VE data sheet to Container Manager.

[J] **IF** using a label,
THEN ensure that the Attachment 1 is attached to the container.

[K] If requested, place a copy of the VE Data Sheet in a protective sheet holder, and attach to the container as necessary.

SPM

4.4.5 **WHEN** notified by Characterization Personnel that VPM Administrative Hold Indicator(s) has been applied,
THEN place the container(s) on hold within Integrated Data Center (IDC) by generating a VPM HOLD Exclusion or adding the affected container(s) to an exclusion that already exists.

Characterization Personnel

4.4.6 After being notified by the VPM or Designee to remove a VPM administrative hold tag, notify SPM when VPM Administrative Hold Indicator has been removed.

SPM

4.4.7 Remove affected container(s) from VPM Hold Exclusion in the IDC.

4.5 RTR Process

NOTE
This section DOES **NOT** apply to waste that has been processed through VE.

RTR Operator

4.5.1 Verify an Attachment 1 is on the container or a paper copy is placed on the container, in a protective holder, as necessary.

[A] **IF** NO Attachment 1 is on the container,
THEN SUSPEND WORK on container, **AND** notify the VPM

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[B] **IF** an Attachment 1 is on the container,
THEN perform the following:

[B.1] RTR in accordance with approved procedures.

4.5.2 Document the RTR completion date on Attachment 1, **AND** initial and date.

4.5.3 **IF** the system is not certified,
THEN apply a VPM Administrative Hold Indicator on the container AND communicate the container number to the SPM and PM.

4.5.4 **IF** the container is rejected,
THEN ensure a HOLD TAG is attached to the container.

4.5.5 Provide the container processing information (Container ID Number, BDR Number, NCR Number if applicable, reason for NCR if applicable) to the VPM/Designee.

4.5.6 If requested, place a copy of the Radiography Data Sheet in a protective sheet holder attached to the waste container.

SPM

4.5.7 **WHEN** notified by Characterization Personnel that VPM Administrative Hold Indicator(s) has been applied,
THEN place the container(s) on hold within IDC by generating a VPM HOLD Exclusion or adding the affected container(s) to an exclusion that already exists.

Characterization Personnel

4.5.8 After being notified by the VPM or Designee to remove a VPM administrative hold tag, notify SPM when VPM Administrative Hold Indicator has been removed.

SPM

4.5.9 Remove affected container(s) from VPM Hold Exclusion in the IDC.

4.6 NDA Process

NDA Operator

4.6.1 Verify an Attachment 1 is on the container or a paper copy is placed on the container, in a protective holder, as necessary, **AND** a copy of the VE or Radiography Data Sheet is available.

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[A] **IF** NO Attachment 1 is on the container,
THEN SUSPEND WORK on container, **AND** notify the VPM/Designee.

[B] **IF** an Attachment 1 is on the container,
THEN perform NDA in accordance with approved procedures.

4.6.2 Document the NDA completion date on Attachment 1, **AND** initial and date.

4.6.3 **IF** the system is not certified,
THEN apply a VPM Administrative Hold Indicator on the container AND communicate the container number to the SPM and PM.

4.6.4 Document the Preliminary Plutonium (Pu)-239 fissile gram equivalent (FGE) value (plus 2-sigma) on Attachment 1, **AND** initial and date on Attachment 1.

[A] **IF** the preliminary Pu-239 FGE value (plus 2-sigma) is **NOT** immediately available,
THEN record N/A on Attachment 1, **AND** initial and date on Attachment 1.

4.6.5 **IF** the container is rejected,
THEN ensure a HOLD TAG is attached to the container.

4.6.6 Provide the container processing information (Container ID Number, BDR Number, NCR Number if applicable, reason for NCR if applicable) to the VPM/Designee.

SPM

4.6.7 **WHEN** notified by Characterization Personnel that VPM Administrative Hold Indicator(s) has been applied,
THEN place the container(s) on hold within IDC by generating a VPM HOLD Exclusion or adding the affected container(s) to an exclusion that already exists.

Characterization Personnel

4.6.8 After being notified by the VPM or Designee to remove a VPM administrative hold tag, notify SPM when VPM Administrative Hold Indicator has been removed.

SPM

4.6.9 Remove affected container(s) from VPM Hold Exclusion in the IDC.

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FGA Personnel

4.7 Flammable Gas Analysis (FGA)

4.7.1 **IF** a waste container is identified for FGA sampling and analysis,
THEN perform the following:

[A] Verify an Attachment 1 is on the container or a paper copy is placed on the container, in a protective holder, as necessary.

[A.1] **IF** NO Attachment 1 is on the container,
THEN SUSPEND WORK on the waste container,
AND notify the VPM/Designee.

[B] **WHEN** FGA is ready to sample the waste container,
THEN move the waste container to the FGA sampling area.

4.7.2 Perform FGA Sampling in accordance with approved procedures.

4.7.3 Document FGA Sampling completion date on Attachment 1, **AND** Initial and Date.

4.7.4 **IF** the system is not certified,
THEN apply a VPM Administrative Hold Indicator on the container AND communicate the container number to the SPM and PM.

4.7.5 **IF** the container is rejected,
THEN ensure a HOLD TAG is attached to the container.

4.7.6 Provide the container processing information (Container ID Number, BDR Number, NCR Number if applicable, reason for NCR if applicable) to the VPM/Designee.

SPM

4.7.7 **WHEN** notified by Characterization Personnel that VPM Administrative Hold Indicator(s) has been applied,
THEN place the container(s) on hold within IDC by generating a VPM HOLD Exclusion or adding the affected container(s) to an exclusion that already exists.

Characterization Personnel

4.7.8 After being notified by the VPM or Designee to remove a VPM administrative hold tag, notify SPM when VPM Administrative Hold Indicator has been removed.

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SPM

4.7.9 Remove affected container(s) from VPM Hold Exclusion in the IDC.

4.8 Gas Generation Testing (GGT)

NOTE
Waste containers are selected for GGT based on waste stream, implementation of the Long-Term Objective for the Unified Flammable Gas Test procedure, or other factors. The VPM/Designee will designate waste containers for GGT as directed by the SPM.

4.8.1 Move the waste containers identified for GGT Sampling and Analysis to the Designated Staging Area.

[A] Verify an Attachment 1 is on the container or a paper copy is placed on the container, in a protective holder, as necessary.

[A.1] **IF** NO Attachment 1 is on the container,
THEN SUSPEND WORK on container, **AND** notify the VPM/Designee.

4.8.2 **IF** the waste container has been identified for processing in GGT,
THEN circle YES, **AND** Initial and Date on Attachment 1.

4.8.3 **IF** the waste container DOES **NOT** require GGT,
THEN circle NO, record N/A in the GGT Completion Date, initial and date on Attachment 1, **AND** have the waste container moved to its designated staging area.

4.8.4 Perform GGT in accordance with approved procedures.

4.8.5 Document the GGT completion date on Attachment 1, **AND** Initial and Date.

4.8.6 **IF** the system is not certified,
THEN apply a VPM Administrative Hold Indicator on the container AND communicate the container number to the SPM and PM.

4.8.7 **IF** the container is rejected,
THEN ensure a HOLD TAG is attached to the container.

4.8.8 Provide the container processing information (Container ID Number, BDR Number, NCR Number if applicable, reason for NCR if applicable) to the VPM/Designee.

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SPM

4.8.9 **WHEN** notified by Characterization Personnel that VPM Administrative Hold Indicator(s) has been applied,
THEN place the container(s) on hold within IDC by generating a VPM HOLD Exclusion or adding the affected container(s) to an exclusion that already exists.

Characterization Personnel

4.8.10 After being notified by the VPM or Designee to remove a VPM administrative hold tag, notify SPM when VPM Administrative Hold Indicator has been removed.

SPM

4.8.11 Remove affected container(s) from VPM Hold Exclusion in the IDC.

4.9 Characterization Completion

Container Management Personnel

4.9.1 **IF** Attachment 1 is a label on the container,
THEN remove all paper copies of characterization data sheets as applicable, **AND** forward to the VPM/Designee for disposition.

4.9.2 **IF** Attachment 1 is a paper copy,
THEN remove the Attachment 1 and all copies of characterization data sheets, **AND** forward to the VPM/Designee for disposition.

VPM/Designee

4.9.3 Submit the records generated by this procedure to CCP records to be managed in accordance with CCP-QP-008.

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5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as quality assurance (QA) records in accordance with CCP-QP-008. The records are the following:

5.1.1. QA/Nonpermanent

[A] Attachment 1 – Container Traveler (paper copy only)

[B] Attachment 2 – Container Inspection/Weight Report

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Attachment 1 – Container Traveler

Container Management Personnel:

Container ID:_____ _____ / _____
Date Initials

Waste Stream ID:_____ _____ / _____
Date Initials

Gross Weight:_____kg. _____ / _____
Date Initials

RTR

RTR: _____ _____ / _____
(Completion Date) Date Initials

NDA

NDA:_____ _____ / _____
(Completion Date) Date Initials

Preliminary Pu-239 FGE: _____ _____ / _____
Value (Plus 2-sigma) Date Initials

FGA

FGA:_____ _____ / _____
(Completion Date) Date Initials

GGT

Selected for GGT (circle one)? YES NO _____ / _____
Date Initials

GGT:_____ _____ / _____
(Completion Date) Date Initials

VE

VE:_____ _____ /_____
(Completion Date) Date Initials

Attachment 2 – Container Inspection/Weight Report

Structural Integrity / Safe to Handle YES / NO		Container ID Number	Filters meet requirements YES / NO		Filter Information (Manufacturer, date of manufacture, lot number, unique serial number, as applicable)	Rad Survey Label (Circle)		Gross Container Weight (kg)	Initials	Date
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			
YES	NO		YES	NO		SAT	UNSAT			

Scale ID #	Location	Calibration Due Date	Scale Calibration Due Date Valid YES / NO	Scale Calibration Check SAT / UNSAT		Initials	Date
				SAT	UNSAT		

Comments:

Completed by: _____ _____ _____
Print Name Signature Date

VPM/Designee Verification: _____ _____ _____
Print Name Signature Date

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Attachment 3 – Structural Integrity and Distortion Inspections Criteria

CONTAINER EXAMINATION		DISCUSSION OF CRITERIA
1.	Is the payload container obviously degraded?	Obviously degraded means clearly visible and potentially significant defects in the payload container or payload container surface.
2.	Is there evidence that the payload container is, or has been, pressurized?	Pressurization can be indicated by a fairly uniform expansion of the sidewalls, bottom or top. Past pressurization can be indicated by a notable outward deflection of the bottom or top. Verify that the waste container is not warped.
3.	Is there any potentially significant rust or corrosion such that wall thinning, pin holes, or breaches are likely or the load-bearing capacity is suspect?	Rust shall be assessed in terms of its type, extent, and location. Pitting, pocking, flaking, or dark coloration characterizes potentially significant rust or corrosion. This includes the extent of the payload container surface area covered, thickness, and, if it occurs in large flakes or built-up (caked) areas. Rusted payload containers may **NOT** be accepted if: • Rust is present in caked layers or deposits. • Rust is present in the form of deep metal flaking, or built-up areas of corrosion products. In addition, the location of rust should be noted; for example on a waste container: top lid; filter region; locking chine; top one-third, above the second rolling hoop; middle one-third, between the first and second rolling hoops; bottom one-third, below the second rolling hoop; and on the bottom. Payload containers may still be considered acceptable if the signs of rust show up as: • Some discoloration on the payload container. • If rubbed would produce fine grit or dust or minor flaking (such that wall thinning does not occur).
4.	Are any of the following apparent? • wall thinning • pin holes • breaches	Wall thinning, pin holes, and breaches can be a result of rust/corrosion (see discussion for #3).
5.	Are there any split seams, tears, obvious holes, punctures (of any size), creases, broken welds, or cracks?	Payload containers with obvious leaks, holes or openings, cracks, deep crevices, creases, tears, broken welds, sharp edges or pits, are either breached or on the verge of being breached. Verify that there is no warpage that could cause the container to be unstable or prevent it from fitting properly in the applicable package.
6.	Is the load-bearing capacity suspect?	The load-bearing capacity could be reduced for excessive rust (see discussion for #3), wall thinning (see discussion for #4), breaches, cracks, creases, broken welds, etc. (see discussion for #5).

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Attachment 3 – Structural Integrity and Distortion Inspections Criteria (Continued)

CONTAINER EXAMINATION		DISCUSSION OF CRITERIA
7.	Is the payload container improperly closed?	Inspect the fastener and fastener ring (chine), if applicable, for damage or excessive corrosion. Check the alignment of the fastener to ensure that it is in firm contact around the entire lid and the payload container will not open during transportation.
8.	Are there any dents, scrapes, or scratches that make the payload container's structural integrity questionable or prevent the top and bottom surfaces from being parallel?	Deep gouges, scratches, or abrasions over wide areas are not acceptable. If top and bottom surfaces are not parallel, this would indicate that the container is warped. Dents should be less than ¼-inch deep by 3 inches long and between ½-inch to 6 inches wide. All other dents must be examined to determine impact of structural integrity.
9.	Is there discoloration which would indicate leakage or other evidence of leakage of material from the payload container?	Examine the payload container regions near vents, top lid fittings, bottom fittings, welds, seams and intersections of one or more metal sheets or plates. Payload containers must be rejected if evidence of leakage is present.
10.	Is the payload container bulged?	For the purposes of this examination, bulging is indicated by: • A fairly uniform expansion of the sidewalls, bottom, or top (e.g., in the case of a waste container, either the top or bottom surface protrudes beyond the planar surface of the top or bottom ring); • A protrusion of the side wall (e.g., in the case of a waste container, beyond a line connecting the peaks of the surrounding rolling hoops or a line between a surrounding rolling hoop and the bottom or top ring); or • Expansion of the sidewall (e.g., in the case of a waste container, such that it deforms any portion of a rolling hoop).

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CCP-TP-164

Revision 0

CCP
Real-Time Radiography #7
Operating Procedure

EFFECTIVE DATE: 11/06/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
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1.0 PURPOSE

The purpose of this procedure is to provide instructions for safe start-up, operation, and shut-down of the mobile real-time radiography (RTR) System RTR #7 at Oak Ridge National Laboratory (ORNL). This procedure is used with CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*, for performing certified scanning of waste containers. This procedure is also used with CCP-TP-066, *CCP Radiography Screening Procedure for Prohibited Items*.

1.1 Scope

This procedure applies to operation of the RTR #7 radiographic examination unit. Maintenance activities are outside the scope of this procedure.

2.0 REQUIREMENTS

2.1 References

Referenced Documents

- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-008, *CCP Records Management*
- CCP-PO-005, *CCP Conduct of Operations*
- CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*
- CCP-TP-066, *CCP Radiography Screening Procedure for Prohibited Items*

2.2 Training Requirements

2.2.1. Personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan*, prior to performing this procedure.

2.3 Equipment List

- RTR System
- Personal Protective Equipment (PPE)

2.4 Precautions and Limitations

2.4.1. **IF** during the course of performing this procedure an abnormal situation occurs that causes deviation from the normal process, and this abnormal condition CAN **NOT** be corrected as directed in this procedure,
THEN RTR Operators shall IMMEDIATELY STOP WORK and notify the Vendor Project Manager (VPM), Lead Operator (LO), or designee.

2.4.2. The PPE for normal operations consists of leather gloves (when handling containers), safety shoes, and Thermoluminescent Dosimeters (TLDs). Safety glasses must be worn in transit between the Control Point and the RTR #7 unit. PPE for abnormal conditions will be specified by the Radiological Control Technician (RCT) or in a Radiological Work Permit (RWP). The required or specified PPE will be donned prior to starting RTR operations.

2.4.3. High-energy X-rays, high voltages (kV), and pinch points are potential hazards associated with the mobile RTR System. These hazards are addressed in safety training for personnel that operate the mobile RTR System.

2.4.4. Personnel will remain clear of all moving doors and equipment.

2.4.5. The RTR System generates X-rays and high voltages (up to 450 kV). Personnel will avoid radiation exposure by observing all warning devices and personnel barriers.

2.4.6. RTR Operators will ensure the X-ray vault is clear of personnel prior to each start-up of the X-ray System. To facilitate this, a Closed-Circuit Television system (CCTV) has been installed.

2.4.7. By design, there is **NO** exposed lead. However, precautions should be taken **NOT** to damage the steel vault lining as this may cause exposure to lead.

2.4.8. RTR Operators will ensure all electrical panels and junction boxes are closed, equipment and moving parts are clear of foreign objects, and personnel are clear of the equipment prior to start-up of the RTR System.

2.4.9. Workers who will be working in RTR #7 must have read and signed that they understand the applicable Activity Hazard Analysis (AHAs) and RWPs.

2.5 Prerequisite Actions

2.5.1. Conduct Operational checks at the beginning of each shift.

2.5.2. Verify the X-ray Compliance Label or Certificate is current. Document results in Operational Logbook.

[A] **IF** the radiation leak check has expired, **OR** maintenance has been performed on designed shielding components, **THEN** DO **NOT** proceed with RTR operations until Radiation Protection Services personnel perform **AND** document a radiation leak check, **AND** certify the RTR system is operating within allowable limits.

3.0 RESPONSIBILITIES

3.1 RTR Operator

3.11 Operates the RTR System.

4.0 PROCEDURE

NOTE

The RTR Operator performs all steps within this procedure unless otherwise indicated.

Section 4.0 is divided into multiple subsections. Steps within those subsections are followed in the sequence written unless stated otherwise. Nondestructive examination (NDE) personnel may enter specific subsections as needed to start a new work activity or resume work activities (i.e., directed by other procedures, after shift turnover, returning from weekend, holiday, etc.), only after applicable safety prerequisites are verified to be satisfied or implemented.

4.1 RTR System Start-up

4.1.1 Document time of system start-up in the RTR Operational Logbook.

4.1.2 Obtain the Power key and the X-ray key from the Lock Box.

4.1.3 Insert the Power key into the Power key switch on operator Panel **AND** turn the switch to the start position to provide power to the RTR System.

[A] Verify the power light has illuminated.

4.1.4 Turn on video recording, display, and processing equipment as indicated.

[A] Verify each component power indication light illuminates.

[B] Verify the video surveillance monitor displays an image from the surveillance cameras.

4.1.5 Verify the II shutters are CLOSED.

4.1.6 Verify there are **NO** personnel in the X-ray vault.

NOTE

The X-ray key switch on the MP1 Controller has three positions:

1. OFF (O)
2. Main is ON – Stand-by Mode (~)
3. X-rays Enabled (lightning bolt symbol)

4.1.7 Insert the X-ray key into the X-ray key switch, **AND** turn the key switch to position 2.

4.1.8 Verify the operability of door interlocks, **AND** document results in the RTR Operational Logbook (in accordance with CCP-PO-005, *Conduct of Operations*).

NOTE

The X-ray system contains three Emergency Stop push buttons. These push buttons are wired in series such that any one tests the ability of the emergency deactivation. As such, the operator will rotate the testing of the Emergency Stop push buttons so that each push button is tested every third day of operations.

4.1.9 Depress and reset the Emergency Stop push button selected for testing.

4.1.10 Verify that power has been removed from the Operator and X-ray Control Panels, **AND** document the results in the RTR Operational Logbook.

4.1.11 Reset the Operator and X-ray Control Panels.

4.1.12 **IF** any abnormal condition is noted,
THEN STOP WORK, **AND** notify RTR LO.

4.1.13 Initiate warm-up cycle per MP1 controller manufacturer's recommendations.

4.1.14 Turn the X-ray key switch to Position 3.

NOTE

An audible alarm will sound for 20 seconds before X-rays are generated. The 20-second prewarning time begins immediately on pushing the green X-ray ON button.

4.1.15 Push the X-ray ON button to start the X-ray warm-up cycle.

[A] Verify the X-ray warm-up light illuminates.

CAUTION

If any of the X-ray warning lights fail to come ON, the RTR system SHALL be shut-down by pushing the X-ray OFF button, turning the X-ray key switch to the (0) OFF position and removing the X-ray key. The RTR LO and VPM will be notified and RTR operations will **NOT** be performed until the failed RTR system(s) has been repaired or replaced.

NOTE

There are three X-ray warning lights in the following locations:

- Above the control panel desk in the control room.
- Above the X-ray vault personnel door in the Equipment Room.
- Above the X-ray vault door at the rear of the RTR trailer.

4.1.16 Verify all X-ray warning lights are ON after the 20 second prewarning.

NOTE

Warm-up is complete when all X-ray warning lights turn OFF and the MP1 returns to operation status.

4.1.17 Upon completion of the warm-up cycle, record status of 20 second audible and visual signals, X-ray ON warning lights, and completion of the warm-up cycle in the RTR Operational Logbook **AND** turn the X-ray key switch to position 2.

4.1.18 Open Vault doors to accept drum from infeed conveyor.

4.1.19 Open the II shutters.

4.2 RTR System Operations

NOTE

Drums are directly loaded onto the conveyor rollers with appropriate handling equipment in accordance with governing host site procedures.

To assist the RTR Operator in determining height and volume estimations, measuring devices with graduated scales may be placed on the drum(s).

4.2.1 Drum Loading

[A] Verify that a drum is loaded onto the conveyor by Waste Operator by observing the conveyor monitor.

[B] Transport the drum into the X-ray vault.

[C] Close the Vault doors while maintaining Visual Surveillance on the video monitor.

4.2.2 Drum Scanning

[A] Turn the X-ray key switch to position 3.

[B] Push the X-RAY ON button to start the X-ray unit.

[B.1] Verify all X-ray warning lights are ON.

[C] Adjust the kV and milliamps knobs until the image on the video monitor has the desired display.

[D] Rotate the drum to the desired rotation start position using the turntable joystick to make a detailed inspection of items in the drum in accordance with the applicable procedure.

[E] **WHEN** the desired X-ray examination is completed, **THEN** terminate X-rays by pushing the X-ray OFF button.

[F] Turn the X-ray key switch to position 2.

4.2.3 Drum Unloading

[A] Open the Vault doors while maintaining Visual Surveillance on the video monitor.

[B] Move the drum to the Out Feed Conveyor.

[C] **IF** additional drum(s) are to be examined, **THEN** return to step 4.2.1[A], **ELSE** close the Vault doors while maintaining Visual Surveillance on the video monitor.

NOTE

It is recommended to leave the X-ray system in position 2 for at least 20 minutes prior to shutdown of the RTR system to allow the cooling system to remove excess heat from the X-ray tube.

4.3 RTR System Shut-down

4.3.1 Turn the X-ray key switch to position 1, AND remove the X-ray key from the key switch.

[A] Return the X-ray key to the lock box.

4.3.2 Completely close the II shutters.

4.3.3 Remove all audio/video media from the recording system.

4.3.4 Shut-down all imaging and recording equipment by pressing the appropriate switches.

4.3.5 Turn the Power key switch to the OFF position, **AND** remove the key from the key switch.

[A] Return the Power key to the lock box.

4.3.6 Document the completion of system shutdown in the Operational Log book.

NOTE

Section 4.4 is a stand-alone section and may be performed at any time in accordance to Host site procedure.

4.4 Contamination Surveys

4.4.1 Record in the RTR Operational Logbook the date, time, and results of any RCT surveys.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as quality assurance (QA) records in accordance with CCP-QP-008, *CCP Records Management*.

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CCP-TP-165

Revision 3

CCP
Real-Time Radiography #6
Operating Procedure

EFFECTIVE DATE: 11/05/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	09/20/2007	Initial issue.
1	06/19/2008	Revised to allow use of procedure in conjunction with CCP-TP-066, *CCP Radiography Screening Procedure for Prohibited Items*.
2	01/07/2011	Revised to remove Section 2.4.10 requirement for two people to be present during drum movements. Corrected references to CCP-QP-011, *CCP Laboratory Logbooks*, and CCP-PO-005, *Conduct of Operations*. Made minor changes to correct document formatting.
3	11/05/2013	Revised to reflect changes in real-time radiography (RTR) equipment and to align with other RTR procedures.

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1.0 PURPOSE

The purpose of this procedure is to provide instructions for safe start-up, operation, and shut-down of the mobile real-time radiography (RTR) System RTR #6 at Oak Ridge National Laboratory (ORNL). This procedure is used with CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*, for performing certified scanning of waste containers. This procedure is also used with CCP-TP-066, *CCP Radiography Screening Procedure for Prohibited Items*.

1.1 Scope

This procedure applies to operation of the RTR #6 radiographic examination unit. Maintenance activities are outside the scope of this procedure.

2.0 REQUIREMENTS

2.1 References

Referenced Documents

- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-008, *CCP Records Management*
- CCP-PO-005, *CCP Conduct of Operations*
- CCP-TP-053, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*
- CCP-TP-066, *CCP Radiography Screening Procedure for Prohibited Items*

2.2 Training Requirements

2.2.1 Personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan*, prior to performing this procedure.

2.3 Equipment List

- RTR System
- Personal Protective Equipment (PPE)

2.4 Precautions and Limitations

2.4.1 If during the course of performing this procedure an abnormal situation occurs that causes deviation from the normal process, and this abnormal condition CAN **NOT** be corrected as directed in this procedure, RTR Operators shall IMMEDIATELY STOP WORK and notify the Vendor Project Manager (VPM), Lead Operator (LO), or designee.

2.4.2 The PPE for normal operations consists of leather gloves (when handling containers), safety shoes, and Thermoluminescent Dosimeters (TLDs). Safety glasses must be worn in transit between the Control Point and the RTR #6 unit. PPE for abnormal conditions will be specified by the Radiological Control Technician (RCT) or in a Radiological Work Permit (RWP). The required or specified PPE will be donned prior to starting RTR operations.

2.4.3 High-energy X-rays, high voltages (kV), and pinch points are potential hazards associated with the mobile RTR System. These hazards are addressed in safety training for personnel that operate the mobile RTR System.

2.4.4 Personnel will remain clear of all moving doors and equipment.

2.4.5 The RTR System generates X-rays and high voltages (up to 320 kV). Personnel will avoid radiation exposure by observing all warning devices and personnel barriers.

2.4.6 RTR Operators will ensure the X-ray vault is clear of personnel prior to each start-up of the X-ray System. To facilitate this, a Closed-Circuit Television system (CCTV) has been installed.

2.4.7 By design, there is **NO** exposed lead. However, precautions should be taken **NOT** to damage the steel vault lining as this may cause exposure to lead.

2.4.8 RTR Operators will ensure all electrical panels and junction boxes are closed, equipment and moving parts are clear of foreign objects, and personnel are clear of the equipment prior to start-up of the RTR System.

2.4.9 Workers who will be working in RTR #6 must have read and signed that they understand the applicable Activity Hazard Analysis (AHAs) and RWPs.

2.5 Prerequisite Actions

2.5.1 Conduct Operational checks at the beginning of each shift.

2.5.2 Verify the X-ray Compliance Certificate is current. Document results in operational log book.

[A] **IF** the radiation leak check has expired, **OR** maintenance has been performed on designed shielding components, **THEN** DO **NOT** proceed with RTR operations until Radiation Protection Services personnel perform **AND** document a radiation leak check, **AND** certify the RTR system is operating within allowable limits.

3.0 RESPONSIBILITIES

3.1 RTR Operator

3.1.1 Operates the RTR System.

4.0 PROCEDURE

NOTE
The RTR Operator performs all steps within this procedure unless otherwise indicated.

4.1 RTR System Start-up

4.1.1 Obtain the Power key and the X-ray key from the lock box.

4.1.2 Insert the Power key into the Power key switch on the left side of the center Control Panel desk, **AND** turn the switch to the ON position to provide power to the RTR System.

[A] Verify the white light adjacent to the key switch has illuminated.

4.1.3 Turn on video recording, display, and processing equipment as indicated.

[A] Verify each component power indication light illuminates.

[B] Verify the video surveillance monitor displays an image from all four surveillance cameras.

4.1.4 Verify the X-ray Tube shutters are CLOSED.

4.1.5 Verify there are **NO** personnel in the X-ray vault.

NOTE
The X-ray key switch on the MP1 Controller has three positions:

1. OFF
2. Main is ON – Stand-by Mode
3. X-rays Enabled

4.1.6 Insert the X-ray key into the X-ray key switch, **AND** turn the key switch to position 2.

4.1.7 Verify the operability of door interlocks, **AND** document results in the RTR Operational Logbook (in accordance with CCP-PO-005, *Conduct of Operations*).

NOTE

The X-ray system contains three Emergency Stop push buttons. These push buttons are wired in series such that any one tests the ability of the emergency deactivation. As such, the operator will rotate the testing of the Emergency Stop push buttons so that each push button is tested every third day of operations.

4.1.8 Verify the X-ray key switch is in position 2.

4.1.9 Depress and reset the Emergency Stop push button selected for testing.

4.1.10 Verify that power has been removed from the Operator and X-ray Control Panels, **AND** document the results in the RTR Operational Logbook.

4.1.11 Reset the Operator and X-ray Control Panels.

4.1.12 **IF** any abnormal condition is noted,
THEN STOP WORK, **AND** notify RTR LO and VPM.

4.1.13 Turn the X-ray key switch to Position 3.

NOTE

Initiate warm-up cycle per MP1 controller manufacturer's recommendations. An audible alarm will sound for 20 seconds before X-rays are generated. The 20-second prewarning time begins immediately on pushing the green X-ray On button.

4.1.14 Push the green X-ray On button to start the X-ray warm-up cycle.

[A] Verify the X-ray warm-up light illuminates.

CAUTION

If any of the X-ray warning lights fail to come ON, the RTR system SHALL be shut-down by pushing the X-ray Off button, turning the X-ray key switch to the (0) Off position and removing the X-ray key. The RTR LO and VPM will be notified and RTR operations will **NOT** be performed until the failed RTR system(s) has been repaired or replaced.

NOTE

There are two X-ray warning lights in the following locations:

- Above the X-ray vault personnel door in the Equipment Room.
- Above the loading door on the in-feed conveyor of the RTR trailer.

4.1.15 Verify all X-ray warning lights are ON.

NOTE

Warm-up is complete when all X-ray warning lights turn OFF and the MP1 returns to operation status.

4.1.16 Upon completion of the warm-up cycle, record status of 20 second audible and visual signals, X-ray On warning signals, and completion of the warm-up cycle in the RTR Operational Logbook **AND** turn the X-ray key switch to position 2.

4.1.17 Using the image intensifier (II) and X-ray tube manipulator joystick, ensure the horizontal movement of the II and X-ray tube is operating properly.

4.1.18 Push the Doors Open/Close green button located on the Operator Panel to open door to accept drum from conveyor.

[A] Verify the conveyor rollers move freely.

4.1.19 Hold the shutter X-ray in the OPEN position for 20 to 35 seconds.

4.1.20 Verify the shutters are OPEN by viewing the red indicator lights on the right-hand side of the control panel.

4.2 RTR System Operations

NOTE

Drums are directly loaded onto the conveyor rollers with appropriate handling equipment in accordance with governing host site procedures.

To assist the RTR Operator in determining height and volume estimations, measuring devices with graduated scales may be placed on the drum(s).

4.2.1 Drum Loading

[A] Verify that a drum is loaded onto the conveyor by Waste Operator by observing the conveyor monitor.

[B] Transport the drum into the X-ray vault, utilizing the Conveyor In and Out joystick at the Operator's Control Console.

[C] Close the infeed/outfeed door using the Door Open/Close button on the Operator's Control Console while maintaining a visual on the video monitor.

[D] Center drum on the turntable using the drum centering device.

4.2.2 Drum Scanning

[A] Turn the X-ray key switch to position 3.

[B] Push the green X-RAY ON button to start the X-ray unit.

[C] Adjust the kV and milliamps knobs until the image on the video monitor has the desired display.

[D] Rotate the drum to the desired rotation start position using the turntable joystick on the Operator's Control Console to make a detailed inspection of items in the drum in accordance with the applicable procedure.

[E] **WHEN** the desired X-ray examination is completed, **THEN** terminate X-rays by pushing the red X-ray Off button on the controller.

[F] Turn the X-ray key switch to position 2.

4.2.3 Drum Unloading

[A] Open the infeed/outfeed door using the Doors Open/Close button on the Operator's Control Console while maintaining visual on the X-ray vault video monitor.

[B] Move the drum to the unload position with the Conveyor In and Out joystick on the Operator's Control Console.

[C] **IF** additional drum(s) are to be examined, **THEN** return to step 4.2.1[A], **ELSE** close the infeed/outfeed door using the Doors Open/Close button at the Operator's Control Console while maintaining visual on the X-ray vault video monitor.

NOTE

It is recommended to leave the X-ray system in position 2 for at least 20 minutes prior to shutdown of the RTR system to allow the cooling system to remove excess heat from the X-ray tube.

4.3 RTR System Shut-down

4.3.1 Turn the X-ray key switch to position 1, AND remove the X-ray key from the key switch.

[A] Return the X-ray key to the lock box.

4.3.2 Completely close the X-ray shutters.

4.3.3 Remove all audio/video media from the recording system.

4.3.4 Shut-down all imaging and recording equipment by pressing the appropriate switches.

4.3.5 Turn the Power key switch to the OFF position, **AND** remove the key from the key switch.

[A] Return the Power key to the lock box.

NOTE

Section 4.4 is a stand-alone section and may be performed at any time in accordance to Host site procedure.

4.4 Contamination Surveys

4.4.1 Record in the RTR Operational Logbook the date, time, and results of any RCT surveys.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as quality assurance (QA) records in accordance with CCP-QP-008, *CCP Records Management*.

5.1.1 QA/Nonpermanent

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CCP-TP-500

Revision 13

CCP
Remote-Handled Waste
Visual Examination

EFFECTIVE DATE: 09/23/2013

Irene Joo

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	02/15/2006	Initial issue.
1	04/27/2006	Revised in response to CBFO comments.
2	06/19/2006	Revised to address concerns raised during the Idaho National Laboratory (INL) Remote-Handled (RH) Audit A-06-21.
3	10/12/2006	Revised to resolve issue identified in EPA Concern ANL-CCP-RH-VE-06-001CR.
4	11/16/2006	Revised to incorporate Visual Examination Expert (VEE) decisions and signature.
5	06/01/2007	Revised to incorporate February 27, 2007, modification of the Waste Isolation Pilot Plant Hazardous Waste Facility Permit (HWFP), Attachment B-B6, Waste Analysis Plan (WAP).
6	10/25/2007	Revised in response to Central Characterization Project (CCP) Corrective Action Report (CAR) CAR-RHBCL-00002-07, to clarify questions 11 and 12 on Attachment 2, Visual Examination Independent Technical Review Checklist.
7	02/27/2008	Revised to address Carlsbad Field Office (CBFO) Corrective Action Report (CAR) 08-005.
8	07/24/2008	Clarification changes for ease of operations.
9	06/30/2010	Revised to make changes for a two shift operation and two different sets of qualified operators to be able to work on the same Remote-Handled (RH)-Visual Examination (VE). Added Table 1, Prohibited Items List, and updated language to reflect the permit modification.
10	12/29/2010	Revised to incorporate Permit Modification Independent Technical Review (ITR) language.
11	04/21/2011	Implement Revision 2 of Remote-Handled Transuranic (TRU) Waste Characterization Program Implementation Plan DOE/WIPP-02-3214.
12	07/18/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes.
13	09/23/2013	Revised to include the allowable closure methods Table 2.5-1 from the remote-handled (RH) transuranic (TRU) Payload Appendices.

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1.0 PURPOSE

This procedure establishes how to perform the visual examination (VE) for remote-handled (RH) transuranic (TRU) waste. This procedure also describes how to prepare and review batch data reports (BDRs) generated by VE.

This procedure provides the actions for collection of VE data and information required by CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan;* CCP-PO-002, *CCP Transuranic Waste Certification Plan;* and DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan* (WCPIP).

1.1 Scope

VE verifies the physical waste form, confirms the Waste Stream Description and Waste Matrix Codes provided by Acceptable Knowledge (AK), and confirms that no prohibited items are present. VE is performed by two qualified operators, which is documented on the attachments to this procedure.

VE cannot identify prohibited items imbedded in forms, such as soils and solids, when the material is not removed from the characterized container.

VE may be performed on S3000 or S4000 when the material is not removed from the characterized container if Carlsbad Field Office (CBFO) approves the method for the specific waste form, typically from a surveillance.

VE may be performed in two phases. In the first phase, VE is performed by two qualified operators at the point of generation where the waste is visually inspected, identified, and placed into small containers. At this point (after waste has been placed in small containers), the waste may no longer be visible in its packaging. The packaging could be the small containers that will eventually be packaged into a larger container or a final container. In the second phase, VE is performed when small packages are placed in a larger container or the final container, documented, and then closed rendering VE of the waste no longer possible.

In addition to being used to perform VE at the time waste is actually being placed into the waste container, this procedure may also be used to perform VE of video media of waste being placed into waste containers. In the case of VE being performed for video tapes of waste contents, the VE operators are not in direct control of the waste examination and packaging process. Consequently, the video recordings must be

adequate and complete to identify waste materials and verify the absence of prohibited items as required in the execution of this procedure. Attachment 1, Visual Examination Data Form, for the individual containers, is completed based on the review of the video media.

All site-specific requirements for health, safety, and operations in the work place will be addressed in a site-specific operating procedure.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- *Safety Analysis Report for the RH-TRU 72-B Waste Shipping Package,* U.S. Department of Energy Carlsbad Field Office
- CCP-PO-505, CCP *Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
- DOE/WIPP 90-045, *Remote-Handled-Transuranic Waste Content Codes (RH-TRUCON)*

Referenced Documents

- DOE/WIPP-02-3214*, Remote-Handled TRU Waste Characterization Program Implementation Plan*
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*

2.2 Training Requirements

2.2.1 Personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan,* prior to performing this procedure.

2.3 Equipment List

2.3.1 None.

2.4 Precautions and Limitations

2.4.1 Facility Requirements

[A] This procedure augments, but DOES **NOT** supersede, applicable requirements of the facilities in which the activities are conducted.

[B] This procedure DOES **NOT** address radiological protection requirements. All activities described SHALL be conducted in accordance with work plans, procedures, or other process controls generated by the facility where the work is performed.

[C] Prior to performing work, personnel will comply with all facility requirements for visitors, as established by each Host site.

2.4.2 Conditions Adverse to Quality

[A] If a condition adverse to quality is identified, the individual(s) identifying the condition SHALL initiate a nonconformance report (NCR) in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

3.0 RESPONSIBILITIES

3.1 Visual Examination Operator (VEO)

3.1.1 Performs the VE.

3.1.2 Assembles the BDR.

3.1.3 Completes Attachment 1(s).

3.1.4 Paginates the BDR.

3.1.5 Completes Attachment 4, Visual Examination Batch Data Report Cover Sheet.

3.1.6 Completes Attachment 5, Visual Examination Batch Data Report Table of Contents.

NOTE

The Independent Technical Reviewer (ITR) will be someone, other than the visual examination operator (VEO), who is qualified to have performed the work. ITRs shall not be involved in the generation or recording of the data.

3.2 Independent Technical Reviewer (ITR)

3.2.1 Reviews the BDR.

3.2.2 Completes Attachment 2(s), Visual Examination Independent Technical Reviewer Checklist.

3.3 Visual Examination Expert (VEE)

3.3.1 Responsible for overall direction and implementation of the VE at that facility.

3.4 Site Project Manager (SPM)

3.4.1 Reviews and approves the BDR.

3.4.2 Completes Attachment 3, Visual Examination Site Project Manager Checklist.

4.0 PROCEDURE

NOTE

A separate Attachment 1 will be used for each small container or package used to contain waste, **AND** an Attachment 1 will be used when combining several smaller packages into a larger container.

A Testing Batch includes all data pertaining to VE for up to 20 containers without regard to waste matrix.

A separate Attachment 1 will be used if the original operators that started the VE could not complete the container (e.g., end of the shift), **AND** two different qualified operators had to resume or finish VE of the container.

Two VEOs, who are equally trained in accordance with CCP-QP-002, will confirm the contents of the waste whether video recording is used or not used.

VEO

4.1 VE for Single Packages (small packages or final containers)

4.1.1 Preparations

[A] Record the following information on Attachment 1:

[A.1] Site Identification (ID) (e.g., RHANL)

[A.2] Examination Date

[A.3] Batch Number if known, otherwise mark as N/A

[A.4] Procedure and Revision Number

[B] Prepare the recording equipment as follows (optional):

[B.1] **IF** recording equipment is to be used,
THEN operate the recording equipment in accordance with site procedures.

[B.2] Verify the recording media is labeled with the container number and date, **AND** annotate the video number on Attachment 1.

[B.3] To verify the recording equipment is operating satisfactorily, record a short segment, **AND** review segment for clarity of image and audio, if applicable.

[B.4] Check SAT (Satisfactory), UNSAT (Unsatisfactory), or N/A on Attachment 1 to record the result of the Recording Equipment Check.

NOTE

If using video/audio media, record the waste packaging event for the container such that the waste placed into the containers are recorded in sufficient detail that a trained VEO can determine what the waste is and its associated waste material parameter.

[B.5] **IF** recording the VE,
THEN enter the Recording Start time on Attachment 1, **AND** begin recording.

4.1.2 Visual Examination (VE)

[A] **IF** a single container will be used for all of the waste to be packaged,
THEN check the Initial Container field N/A, **AND** use the Final Container fields to record steps 4.1.2[B.1] through 4.1.2[J.2].

[B] **IF** the waste will be packaged in small containers and later combined in a final container,
THEN check the Final Container field N/A, **AND** record the following in the Initial Container fields on a separate Attachment 1 for each small container:

NOTE

The Container or Package ID Number is user defined (must be unique to the package or container) but shall be such that the small containers in a final container can be distinguished from each other.

[B.1] Container or Package ID Number

[B.2] Container Type (e.g., less than 4-liter plastic bottle, plastic bag, filtered plastic bag, unsealed 5-gallon pail, 55-gallon drum)

[B.3] Waste Matrix Code as identified from AK

[B.4] Waste Stream as listed in the AK Summary Report

[C] **IF** combining smaller containers into a larger container,
THEN GO TO Section 4.2.

NOTE

The description of the material to be placed in the package shall be sufficiently detailed to allow a reviewer to evaluate the Waste Material Parameters (e.g., crescent wrench Iron-based Metals/Alloys [IM]). The material parameters are listed in Table 2, Waste Material Parameters.

[D] Examine the waste, **AND** record the description of the material to be placed in the package in the Waste Description field on Attachment 1.

[E] Ensure the waste is placed into the package.

[F] **IF** VE of the container can **NOT** be completed by the original qualified operators that started the waste container for any reason,
THEN STOP and notify the VE Expert.

[G] Complete comment section of on Attachment 1, initial and date comments. New qualified operators SHALL initial and date comments for acceptance of waste previously placed into the waste container.

[H] **IF** different qualified operators resume or complete the VE
THEN the operators will start a separate Attachment 1 at step 4.1.2[D], complete Attachment 1 per CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*.

[I] **WHEN** the waste package is full,
OR the bag has met the packaging limit,
THEN perform the following and document on Attachment 1:

[I.1] **IF** recording,
THEN STOP the recording device, **AND** enter the Recording Stop time.

[I.2] **IF** packaging waste in smaller containers that will be combined into a larger container,
THEN GO TO step 4.1.2[I.6].

[I.3] Check Y (Yes) or N (No) to record use of Rigid Liner and enter type (i.e., rigid liner thickness).

[I.4] Check Y or N to record use of Rigid Liner Lid.

[I.5] **IF** liner lid is used,
THEN record hole size in Rigid Liner Lid.

NOTE

The fill percent of the container is based on the highest level of the bulk of the waste. Items (e.g., pipe, plastic bags) that protrude above the bulk of the waste are **NOT** to be included in the fill percent determination. The fill percent is to be recorded in five percent increments (e.g., 35%, 40%, and 45%).

[I.6] Estimate, **AND** record the fill percent.

[I.7] Determine and record the amount of organic waste in 10 percent increments by volume.

[I.8] Ensure the bag liner is closed by either VE or AK record, if applicable.

[I.9] Enter the number of Layers of Confinement for the package.

[I.10] Enter the Closure Method(s) for the individual Layers of Confinement (use the Comments field on Attachment 1 if additional room is needed). N/A if there are no Layers of Confinement.

[I.11] Ensure the lid of the waste container is installed in accordance with Host site procedures, if applicable.

[I.12] **IF** the waste stream is S3000 **OR** S4000 waste that also contains debris,
THEN visually estimate the total weight of debris in the container of waste, **AND** record the debris weight in the Comments field of Attachment 1.

[I.13] Answer the Prohibited Item/RH 72B Criteria questions on Attachment 1.

NOTE

Packaging material applies to the final container only.

[J] Certify the contents of the package by performing the following:

VEO 1

[J.1] Print name, sign, **AND** date Attachment 1 to annotate that the VE has been completed.

VEO 2

[J.2] Print name, sign, **AND** date Attachment 1 to annotate that the VE has been completed.

VEO

[K] Ensure the waste package is stored with reasonable protection from tampering.

4.2 VE for Final Packaging

NOTE

VE for Final Packaging applies when waste package(s) are to be placed into a larger container. For packages VE'd by tape review, the applicable steps in Section 4.2 are completed using AK information.

VEO

4.2.1 Prepare packages for loading as follows:

[A] Identify the packages to be placed in the larger container, **AND** obtain the Attachment 1 for those containers.

[B] Ensure all of the Attachment 1s show that the waste belongs to the same waste stream, there are NO prohibited items present, **AND** there are NO NCRs open that would require additional handling of the waste.

4.2.2 Verify each Package ID Number against the Attachment 1 prior to loading into the larger container.

4.2.3 For each package to be loaded into the larger container, perform the following:

[A] Record the Package ID Number(s) in the Waste Description field on Attachment 1.

[B] Ensure the package is placed into the larger container.

[C] Repeat steps 4.2.3[A] and 4.2.3[B] for each package to be loaded.

[D] **IF** waste container can NOT be completed by the original qualified Operators that started the waste container for any reason,
THEN STOP AND Notify the VE Expert.

[E] Complete comment section of Attachment 1, initial and date comments. New qualified operators SHALL initial and date comments for acceptance of waste previously placed into the waste container.

[F] **IF** different qualified operators resume or complete the VE,
THEN the operators will start with a separate Attachment 1 at step 4.1.2[D] and complete Attachment 1 per CCP-TP-500.

4.2.4 **WHEN** the waste container is FULL,
OR the waste container has met the packaging limit as defined in the AK Summary Report,
THEN perform the following:

[A] **IF** recording,
THEN STOP the recording device,
AND enter the Recording Stop time on Attachment 1.

[B] Check Y or N to record use of Rigid Liner, **AND** enter type.

[C] Check Y or N to record use of Rigid Liner Lid.

[D] **IF** liner lid is used,
THEN record hole size in Rigid Liner Lid.

NOTE

The fill percent of the container is based on the highest level of the bulk of the waste. Items (e.g., pipe, plastic bags) that protrude above the bulk of the waste are **NOT** to be included in the fill percent determination. The fill percent is to be recorded in five percent increments (e.g., 35%, 40%, and 45%).

[E] Estimate, **AND** record the fill percent.

[F] Determine and record the amount of organic waste in 10 percent increments by volume.

[G] Ensure the bag liner is closed by either VE or AK record, if applicable.

[H] Enter the number of Layers of Confinement for the package.

[I] Record the Closure Methods(s) for the individual Layers of Confinement. Use the Comments field on Attachment 1 if additional room is needed. N/A if there are no Layers of Confinement.

[J] Ensure the lid of the waste container is installed in accordance with Host site procedures, if applicable.

[K] **IF** the waste stream is S3000 OR S4000 waste that also contains debris,
THEN visually estimate the total weight of debris in the container of waste and record the debris weight in the comment field of Attachment 1.

[L] Answer the Prohibited Item/RH 72B questions on Attachment 1.

NOTE

Potential hazardous wastes identified by visual examination include:

- Batteries
- Circuit Boards (may be contained in electrical equipment)
- Cathode Ray Tube (CRT)-based computer monitors or televisions
- Lead
- Mercury, mercury containing equipment (e.g., barometers, switches, thermometers, thermostats)
- Light Bulbs (both incandescent and fluorescent)

4.2.5 Certify the contents of the package by performing the following:

VEO 1

[A] Print name, sign, **AND** date Attachment 1 to annotate that the VE has been completed.

VEO 2

[B] Print name, sign, **AND** date Attachment 1 to annotate that the VE has been completed.

VEO

[C] Ensure the waste package is stored with reasonable protection from tampering.

4.3 Batch Data Report Preparation

NOTE

The Testing BDR will contain Attachment 1s for no more than 20 containers. Each container may hold several smaller packages, and each of those may potentially also hold smaller packages, resulting in a number of Attachment 1s for each container.

BDR numbering will be as follows: Site ID, process, year, next sequential number to start back at one at the beginning of the new year (e.g., ANLRHVE05001).

VEO

NOTE

For packages VE'd by tape review, the original packaging data sheet, if available (obtained from AK), is included in the BDR and placed behind the corresponding Attachment 1 (See Attachment 6, Waste Package Data Sheet, for an example).

4.3.1 Complete Attachment 4.

4.3.2 Assemble the following data for the BDR:

[A] Attachment 5, Visual Examination Batch Data Report Table of Contents.

[B] Attachment 1 for each container, original packaging data sheet (if applicable), and the associated Attachment 1s for the internal containers.

[C] Attachment 2, Visual Examination Independent Technical Reviewer Checklist.

[D] Copy of NCRs, if applicable.

4.3.3 Prepare the BDR as follows:

[A] Assemble and organize the BDR.

[B] Place the Internal Container Attachment 1s and original packaging data sheet if applicable, behind the Final Container Attachment 1 in which it resides.

[C] Paginate the BDR.

[D] Complete Attachment 5.

4.3.4 Submit the in process BDR to the VE Expert. The VE Expert will designate ITR.

NOTE

The independent technical review is conducted by an individual who is qualified to have performed the initial work, but who is **NOT** directly responsible for performing the work. The ITR shall not be involved in the generation or recording of the data.

ITR

4.3.5 Enter the BDR Number on Attachment 2.

4.3.6 Review the BDR to the criteria in Attachment 2, **AND** document on Attachment 2.

4.3.7 Print name, sign, and date Attachment 2.

4.3.8 Submit the completed BDR and audio/video media, when applicable, in accordance with CCP-QP-008, *CCP Records Management*.

NOTE

The historical audio/media records from generation sites may be pre-submitted to CCP Records.

4.4 Site Project Manager (SPM) Review

SPM

4.4.1 Obtain copy of BDR.

4.4.2 Enter the BDR Number on Attachment 3.

4.4.3 Review the BDR to the criteria in Attachment 3, **AND** document on Attachment 3.

4.4.4 Print name, sign, and date Attachment 3.

4.4.5 Submit the completed Attachment 3 to CCP Records in accordance with CCP-QP-008.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as Quality Assurance (QA) records in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Lifetime

[A] Batch Data Report (BDR):

[A.1] Attachment 1, Visual Examination Data Form(s) (There will be multiple Attachment 1s to each BDR package.)

[A.2] Attachment 2, Visual Examination Independent Technical Reviewer Checklist

[A.3] Attachment 3, Visual Examination Site Project Manager Checklist

[A.4] Attachment 4, Visual Examination Batch Data Report Cover Sheet

[A.5] Attachment 5, Visual Examination Batch Data Report Table of Contents

[A.6] Copy of NCRs, if applicable

5.1.2 QA/Nonpermanent

[A] VHS Tape or DVD, as applicable (primary and backup)

Table 1. Prohibited Items List

LIST OF PROHIBITED ITEMS
Liquid Wastes Observable liquid shall be less than 1 percent by volume of the outermost container at the time of RTR or VE. Observable liquid shall be no more than 60 milliliters or 3 percent by volume, whichever is greater, in an internal container. Observable liquid shall not be present in a container with EPA HWN U134 assigned.
Non-Radionuclide Pyrophorics
Non-mixed hazardous waste
Incompatible wastes (Wastes that are incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, and/or other wastes).
Explosives
Compressed Gases/Pressurized containers (e.g., aerosol cans)
Observable liquid containing Polychlorinated Biphenyls
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat-sealed bags not defined in the applicable RH-TRU Payload Appendices, Table 2.5.1
Sharp or heavy objects not adequately blocked, braced, or packaged
Waste that has ever been managed as high-level waste and waste from tanks specified in Table C-8 of CCP-PO-001.

Table 2. Waste Material Parameters

Waste Material Parameter	Description
Iron-based Metals/Alloys (IM)	Iron and steel alloys in the waste; does not include the waste container materials
Aluminum-based Metals/Alloys (AM)	Aluminum or aluminum-based alloys in the waste materials
Other Metals (OM)	All other metals found in the waste materials
Other Inorganic Materials (OIM)	Nonmetallic inorganic waste including concrete, glass, firebrick, ceramics, sand, and inorganic sorbents
Cellulosics (C)	Materials generally derived from high-polymer plant carbohydrates; (e.g., paper, cardboard, wood, and cloth)
Rubber (R)	Natural or man-made elastic rubber gloves, latex materials; (e.g., surgeons' gloves, and leaded rubber gloves)
Plastics (waste materials) (P)	Generally man-made materials, often derived from petroleum feedstock; (e.g., polyethylene and polyvinylchloride)
Organic Matrix (OGM)	Cemented organic resins, solidified organic liquids and sludges
Inorganic Matrix (IGM)	Any homogeneous materials consisting of sludge or aqueous-based liquids that are solidified with cement, calcium silicate, or other solidification agents; (e.g., wastewater treatment sludge, cemented aqueous liquids, and inorganic particulates)
Soils/gravel (S)	Generally consists of naturally occurring soils that have been contaminated with inorganic waste materials

Table 3. Allowable Closure Methods

Confinement Layer	Release Rate (mole/sec/mol fraction) at 298 K (25°C)
Breather vent on can	5.18E-6
Filtered bag	1.075E-5
Fold-and-tape or twist-and-tape liner bag	4.67E-6[Φ]
Heat-sealed bag	$RR = \frac{\rho A_p P_g}{x_p} \frac{mole}{22{,}400\,cm^3\,(STP)}$ where, RR = Release rate of hydrogen, mole/sec/mol fraction H_2 ρ = Hydrogen permeability, cm^3 (STP) cm^{-1} $(cm\ Hg)^{-1}$ s^{-1} [3.6E-10 for polyvinylchloride and 8.6E-10 for polyethylene] A_p = Permeable surface area, cm^2 P_g = Gas pressure, 76 cm Hg x_p = Bag thickness, cm
Inner drum liner filter	3.70E-6
Drum filter	3.70E-6
Fixed lid canister filter (high diffusivity)[Φ]	9.34E-5
Fixed lid canister filter[Φ]	1.48E-5
Removable lid canister filter[Φ]	1.48E-5
NS15 neutron shielded canister open-cell urethane foam gaskets (2 ea. – combined)	7.38E-4[③]
NS30 neutron shielded canister open-cell urethane foam gaskets (2 ea. – combined)	7.96E-4[③]
NS15 neutron shielded canister filter[Φ]	1.48E-5
NS30 neutron shielded canister filter[Φ]	1.48E-5

[Φ] Release rate meets the minimum filter specifications of Section 2.4 of the RH-TRAMPAC.

[Φ] Release rate is valid for all temperatures.

[③] Shaw Environmental, Inc., "Diffusivity and Flow Rates of PORON® Gaskets in RH-TRU Neutron Shielded Canisters," Shaw Environmental, Inc., December 2009.

Attachment 1 – Visual Examination Data Form

	Site ID:				
	Examination Date:		Batch Number:		
	Procedure #:		Revision #:		Video Number:
	Recording Equipment Check: ☐SAT ☐UNSAT ☐N/A		Recording Start:		Recording Stop:
Initial Container ☐ N/A			Final Container ☐ N/A		
	Container or Package ID Number:			Container or Package ID Number:	
	Container Type:			Container Type:	
	Waste Matrix Code:			Waste Matrix Code:	
	Waste Stream:			Waste Stream:	
				Rigid Liner: ☐Y ☐N Type:	Rigid Liner Lid: ☐ Y ☐N
				Rigid Liner Vented or Hole Size:	
	Percent Fill:	Percent Organic Waste:		Percent Fill:	Percent Organic Waste:
	Layers of Confinement:	Closure Method:		Layers of Confinement:	Closure Method:
	Comments (e.g., filter information, NCRs):				
Waste Description:					

Attachment 1 – Visual Examination Data Form (continued)

Container or Package ID Number _____

Prohibited Item(s) Summary			
	YES	NO	N/A
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or VE?	☐	☐	
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	☐	☐	
Does the container have observable liquid with an EPA hazardous waste number (HWN) U134 assigned?	☐	☐	
Does the container have observable liquid containing PCBs?	☐	☐	
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☐	
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☐	
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does **NOT** match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	☐	☐	
Is there an indication of wastes containing explosives or compressed gases?	☐	☐	
Is there an indication of polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization?	☐	☐	
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☐	
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☐	
RH 72B Criteria			
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☐	
Are there sealed containers GREATER than 4 liters or heat sealed bags **NOT** defined in the applicable TRUCON Code?	☐	☐	
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☐	
Is the waste consistent with the TRUCON Code?	☐	☐	
Comments:			
Visual Examination Operator 1: _____ Print Name _____ Signature _____ Date			
Visual Examination Operator 2: _____ Print Name _____ Signature _____ Date			

Attachment 2 – Visual Examination Independent Technical Reviewer Checklist

Batch Data Report No.: _____

1. Were data generation and reduction conducted in a technically correct manner in accordance with the methods (procedure) used?	☐ NO	☐ YES	☐ N/A
2. Was the correct revision of the operating procedure used?	☐ NO	☐ YES	☐ N/A
3. Were all the transcription errors corrected?	☐ NO	☐ YES	☐ N/A
4. Are BDR contents complete and match the Visual Examination Batch Data report Table of Contents?	☐ NO	☐ YES	☐ N/A
5. Does the BDR include VE for no more than 20 containers?	☐ NO	☐ YES	☐ N/A
6. Is all data recorded signed and dated in reproducible ink?	☐ NO	☐ YES	☐ N/A
7. Is all raw data recorded clearly, legibly, and accurately?	☐ NO	☐ YES	☐ N/A
8. Are all changes to original data lined out, initialed and dated by the individual making the changes or an individual authorized to make the change?	☐ NO	☐ YES	☐ N/A
9. Is there an adequate written description of the contents?	☐ NO	☐ YES	☐ N/A
10. Were the recording equipment checks satisfactory?	☐ NO	☐ YES	☐ N/A
11. Has each container in this BDR been evaluated for the presence of prohibited wastes?	☐ NO	☐ YES	☐ N/A
12. Has the physical waste form in each container in this BDR been evaluated against the Waste Stream Description and the Waste Matrix Code?	☐ NO	☐ YES	☐ N/A
13. Have the RH Quality Assurance Objectives (QAOs) for VE been met?	☐ NO	☐ YES	☐ N/A
Precision – reconciled discrepancies between operators or between the operator and ITR.	☐	☐	☐
Accuracy – trained operators	☐	☐	☐
Representativeness – description of container contents	☐	☐	☐
Completeness – completed data form and/or recording	☐	☐	☐
Comparability – proper training and adequate AK source documents are available for unopened containers.	☐	☐	☐
14. Were NCRs generated included in the BDR?	☐ NO	☐ YES	☐ N/A
Comments:			

Independent Technical Reviewer:

_____ _____ _____

Printed Name Signature Date

Attachment 3 – Visual Examination Site Project Manager Checklist

Batch Data Report No.: _____

1.	Has all the data received an independent technical review as evidenced by a completed checklist (Attachment 2) and the appropriate ITR signature?		☐ NO	☐ YES
2.	Are BDR contents complete and match the Visual Examination Batch Data Report Table of Contents?		☐ NO	☐ YES
3.	Is the BDR complete (appropriately filled in forms for each container)?		☐ NO	☐ YES
4.	Have the RH Quality Assurance Objectives (QAOs) for VE been met? Precision – reconciled discrepancies between operators Accuracy – trained operators Representativeness – description of container contents Completeness – completed data form and/or recording Comparability – proper training and adequate AK for unopened containers		☐ NO ☐ NO ☐ NO ☐ NO ☐ NO ☐ NO	☐ YES ☐ YES ☐ YES ☐ YES ☐ YES ☐ YES
5.	Were NCRs generated included in the BDR?	☐ NO	☐ YES	☐ N/A
Comments:				

SPM:

_____ _____ _____

Printed Name Signature Date

Attachment 4 – Visual Examination Batch Data Report Cover Sheet

Batch Data Report No.: _____ Date: _____

	Waste Container ID Number:
1	
2	
3	
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17	
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20	

Attachment 5 – Visual Examination Batch Data Report Table of Contents

Batch Data Report No.: _____ Date: _____

Item	Description	Page No.
1	Visual Examination Batch Data Report Cover Sheet (Attachment 4)	
2	Visual Examination Batch Data Report Table of Contents (Attachment 5)	
3	Visual Examination Data Forms (Attachment 1)	
4	Visual Examination Independent Technical Reviewer Checklist (Attachment 2)	
5	Copy of NCRs (N/A [if not applicable])	

Attachment 6 – Waste Package Data Sheet (Example)

RH-TRU (30 Gallon Drum)
Waste Package Data Sheet

RW 81798
AGHCF Drum #: 849

Date Loaded: 6/4/02
Seal No.: 008499
Drum Vent No.: ANL-176

Combustible: (check)
Noncombustible: ✓ (check)
Loaded By: DPM

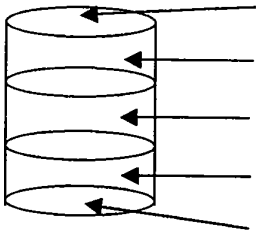
Top Waste Can No.: 324
Bottom Waste Can No.: 323
Drum packaging materials inspected by: JP
Total Weight of Loaded Drum: 115 lbs

Inner Pouch Vent No.: A-31-94
Outer Pouch Vent No.: A-56-94

Acceptable Smearable Levels: <20 dpm/100cm^2 alpha and 1000 dpm/100 cm^2 beta-gamma:

Inner Pouch Primary Seal (dpm/100 cm^2)	NCD	alpha	NCD	beta-gamma
Outer Pouch Secondary Seal (dpm/100 cm^2)	NCD	alpha	NCD	beta-gamma
Exterior of 30-gal Drum (dpm/900 cm^2) (large area smear)	NCD	alpha	NCD	beta-gamma

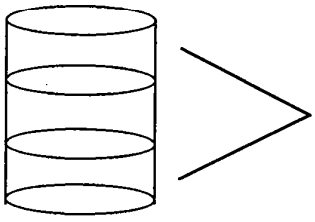
Radiation Levels from 30-gal Drum at 6 cm, R/hr, gamma:



top	~~0.785~~ 1.5
top third	4.4
middle third	4.4
bottom third	5.3
bottom	12

Survey meter used: RMS 3
Serial Number: 263
Last Calibration: 3/02

Radiation Levels at Various Distances from Drum:



Distance from Drum:	1 m (3 ft)	.78 m (6 ft)
Gamma Rad. Level (mR/hr)	600	300
Survey Meter Used:	RMS 3	RMS 3
Serial No.:	263	263
Last Calibration:	3/02	3/02

Surveyed at the AGHCF by: S Yan Location: AGHCF Date: 6.4.02

Controlled
Copy

CCP-TP-506

Revision 4

CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report

EFFECTIVE DATE: 11/21/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	04/28/2006	Initial issue.
1	05/05/2006	Revised to address Carlsbad Field Office (CBFO) Document Review Record (DRR) comments.
2	06/08/2006	Revised to reference the correct line numbers for completing the attachments.
3	08/05/2013	Revised to incorporate the Nuclear Waste Partnership (NWP) transition changes.
4	11/21/2013	Revised to include administrative control limits prompting further evaluation of the container for shipping acceptability based on Cs-137 and Co-60 curie content and contact dose rate of 100 R/hr.

Controlled
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1.0 PURPOSE

Prior to shipment of Remote-Handled (RH) Transuranic (TRU) waste, the Central Characterization Program (CCP) will reconcile the data in accordance with the requirements of DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan* (WCPIP). Data reconciliation is required in order for the Site Project Manager (SPM) to complete the Acceptable Knowledge (AK) Characterization Reconciliation Report (CRR).

1.1 Scope

This procedure provides the methodology for data reconciliation with the Data Quality Objectives (DQOs) provided in the WCPIP, following data validation and verification by the SPM. This reconciliation is performed at the waste stream or waste stream lot level. This procedure provides instructions for the completion of the CRR. The CRR for an RH TRU waste stream shall be submitted to the U.S. Department of Energy (DOE)/Carlsbad Field Office (CBFO) for approval prior to shipment of that RH TRU waste stream to the Waste Isolation Pilot Plant (WIPP).

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- *Waste Isolation Pilot Plant Land Withdrawal Act* (Public Law 102-579)

Referenced Documents

- DOE/WIPP 02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
- DOE/WIPP 94-1012, *Quality Assurance Program Document*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*
- CCP-TP-005, *CCP Acceptable Knowledge Documentation*

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2.2 Training Requirements

2.2.1 Personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan*, prior to performing this procedure.

2.3 Equipment List

2.3.1 None.

2.4 Precautions and Limitations

2.4.1 None.

2.5 Prerequisite Actions

2.5.1 Ensure the AK Summary Report for the subject waste stream of the CRR is approved.

2.6 Definitions

2.6.1 None.

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3.0 RESPONSIBILITIES

NOTE

Implementation of this procedure requires four positions as follows: Acceptable Knowledge Expert (AKE), CCP Records Custodian, Quality Assurance (QA), and SPM.

3.1 Quality Assurance (QA)

3.1.1 Reviews the AK Summary Report, confirmatory test data, and identified AK discrepancies.

3.2 Site Project Manager (SPM)

3.2.1 Ensures that all data generated and used in decision making meet the DQOs provided in the WCPIP.

[A] Assesses whether data of sufficient type, quality, and quantity have been collected.

[B] Determines that all DQOs and Quality Assurance Objectives (QAOs) have been met.

[C] Documents DQO and QAO compliance in the CRR and provides the CRR to DOE/CBFO prior to shipment of the waste to the WIPP.

[D] Prepares AK accuracy report.

3.3 Acceptable Knowledge Expert (AKE)

3.3.1 Compiles the AK information for the waste stream being characterized.

3.3.2 As the waste stream is characterized, confirms the AK information with the characterization data collected.

3.3.3 For the completion of the CRR (conducted in accordance with this procedure), provides assistance to the SPM.

3.3.4 Reviews the CRR.

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3.3.5 Provides a signature release on Attachment 5, Remote-Handled Characterization Reconciliation Report Cover Sheet EXAMPLE, verifying that the AK information contained in the CRR is correct.

3.4 CCP Records Custodian

3.4.1 Provides records requested by the SPM and AKE during the generation of the CRR in accordance with CCP-QP-008, *CCP Records Management*.

3.4.2 Receives and processes all records generated by this procedure in accordance with CCP-QP-008.

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4.0 PROCEDURE

4.1 Establishing CRR Scope

SPM

NOTE

The CRR scope is an objective determination based on the size of the waste stream and the number of containers for which characterization has been completed and which are available to be included in the CRR.

4.1.1 Determine which containers will be included in the CRR.

4.1.2 Identify the data necessary to complete the CRR (e.g., AK Summary Report, Confirmatory Test Plan applicable to the waste stream, Batch Data Reports [BDRs], source documents), **AND** request any necessary documents from the CCP Records Custodian in accordance with CCP-QP-008.

CCP Records Custodian

4.1.3 Provide SPM with copies of any documents requested.

SPM

NOTE

The CRR number is a unique sequential number (e.g., CRR-ANLE-AERHDM-0001) that will identify the CRR, site, and waste stream.

4.2 RH CRR Container Data Work Sheet 1 (Attachment 1)

4.2.1 General Information

[A] Record information for container on Lines 1 through 19, **AND** reference the source.

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4.3 RH CRR Container Data Work Sheet 2 (VE/RTR) (Attachment 2)

4.3.1 Correlation Between Attachments

NOTE
Lines 20 through 24 are automatically populated by the link from Attachment 1.

[A] Record information for container on Lines 25 through 29, **AND** reference source.

4.4 RH CRR Data Quality Objectives (DQOs) (Attachment 3)

4.4.1 Correlation Between Attachments

NOTE
Lines 30 through 32 are automatically populated by the link from Attachment 1.

[A] Record information (qualification method [e.g., data record, peer review]) for waste stream on Lines 33 through 58, **AND** list the supporting documentation and resolution for DQOs.

[B] **IF** the DQO for any category has **NOT** been met, **THEN** generate a nonconformance report (NCR) in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

4.5 RH CRR Quality Assurance Objectives (QAOs) (Attachment 4)

4.5.1 Correlation Between Attachments

NOTE
Lines 59 through 61 are automatically populated by the link from Attachment 1.

NOTE
The sources requested to complete Attachment 4 include, but are not limited to, citing the AK section, citing the AK source documents, citing the BDR Number, sampling plan or any other data or information used to determine that the QAO has been met.

4.5.2 AK Evaluation of QAO

[A] Quality Assurance Objectives (QAOs) by Method for definition of Precision, Accuracy, Representativeness,

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Completeness, Comparability, determine if the QAOs for AK have been met, **AND** indicate the answers on Lines 62 through 66 (CCP-PO-002, *CCP Transuranic Waste Certification Plan*).

4.5.3 VE Method Evaluation of QAOs

[A] Determine if the QAOs for AK have been met, **AND** indicate the answers on Lines 67 through 71 (CCP-PO-002).

4.5.4 Dose-to-Curie Conversion Evaluation of QAOs

[A] Determine if the QAOs for AK have been met, **AND** indicate the answers on Lines 72 through 76 (CCP-PO-002).

4.5.5 Radiography Evaluation of QAOs

[A] Determine if the QAOs for AK have been met, **AND** indicate the answers on Lines 77 through 81 (CCP-PO-002).

4.5.6 NDA Evaluation of QAOs

[A] Determine if the QAOs for AK have been met, **AND** indicate the answers on Lines 82 through 86 (CCP-PO-002).

4.5.7 Destructive Assay Evaluation of QAOs

[A] Determine if the QAOs for AK have been met, **AND** indicate the answers on Lines 87 through 91 (CCP-PO-002).

4.5.8 Surface Dose Rate Evaluation of QAOs

[A] Determine if the QAOs for AK have been met, **AND** indicate the answers on Lines 92 through 96 (CCP-PO-002).

4.5.9 Sampling Methodologies Evaluation of QAOs

[A] Determine if the QAOs for AK have been met, **AND** indicate the answers on Lines 97 through 101 (CCP-PO-002).

4.5.10 **IF** the QAOs have **NOT** been met,
THEN generate an NCR in accordance with CCP-QP-005.

4.5.11 Provide an explanation for answers that contain N/A [not applicable] in the source field.

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4.6 RH CRR Cover Sheet (Attachment 5)

4.6.1 Correlation between Attachments.

NOTE
Lines 102 through 106 are automatically populated by the link from Attachment 1.

[A] Record information for the waste stream on Lines 107 through 131.

[B] Discuss any remediation activity or other relevant information in the Visual Examination/Real-Time Radiography (VE/RTR) Summary Results.

4.7 RH CRR Container Continuation Sheet (Attachment 6)

4.7.1 Use Attachment 6 for additional information needed for any line item from Attachments 1 through 5.

4.8 RH CRR SPM/AKE Comments Sheet (Attachment 7)

NOTE
Attachment 7 need **NOT** be completed if NO comments are desired.

4.8.1 Indicate any comments, clarifications, additional information necessary on Attachment 7.

4.9 Summary of Radiological Results by Container Number (Attachment 8)

NOTE
The TRU Container Activity field in Attachment 8 is a logical field populated based on the values entered in the attachment.

4.9.1 Complete Attachment 8 for each payload container by identifying the container number, associated BDR number, method used to confirm radiological data, TRU activity and associated Total Measurement Uncertainty (TMU).

4.9.2 Verify each container Co-60 Ci content does not exceed 8 Ci; Cs-137 content does not exceed 120 Ci; contact dose rate does not exceed 100 R/hr.

[A] If 4.9.2 values are exceeded, forward the contact dose rate and conversion record to the radiological engineer to request an evaluation of the container's eligibility for shipment.

4.9.3 Record any additional information for radiological data in the Comments section.

4.10 RH CRR Completion

NOTE
Attachments 1 and 2 are supplemental information for each container. Include Atachments 1 and 2 will be submitted to the Records Custodian only.

4.10.1 Complete the CRR, which consists of (in this order):

- Attachment 5
- Table of Contents
- Attachment 7 (if applicable)
- Attachment 8
- Attachment 3
- Attachment 4
- Attachment 6 (where applicable)
- A complete copy of the AK Summary Report for the waste stream
- Listing of AK discrepancies generated by an AK Qualification process and the corresponding resolutions

4.10.2 Paginate the CRR.

4.10.3 Submit the CRR to the AKE for review.

AKE

4.10.4 Review the CRR.

4.10.5 Identify any errors or omissions in references or other AK-related entries.

4.10.6 Notify the SPM of identified errors and omissions.

4.10.7 Provide any comments on Attachment 7.

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[A] Print name, sign, and date Attachment 7.

SPM/AKE

4.10.8 Resolve any questions identified during AKE review.

AKE

4.10.9 List any discrepancies during resolution in the SPM/AKE/QA Comments section on Attachment 7.

NOTE

The AKE's signature on Attachment 5 (Cover Sheet) indicates that the AKE has reviewed the CRR and concurs with the findings and the references related to AK. All issues identified by the AKE during review have been resolved.

4.10.10 Print name, sign, and date Attachment 5 (Cover Sheet).

4.10.11 Submit the CRR to the QA.

NOTE

The QA signature indicates that QA has reviewed the AK Summary Report, confirmatory test data, notes, any AK discrepancies, and that any issues identified have been resolved.

QA

4.10.12 Identify any errors or omissions in references or other AK related entries.

4.10.13 Notify the SPM of identified errors and omissions.

4.10.14 Provide any comments on Attachment 7.

[A] Print name, sign, and date Attachment 7.

4.10.15 Review the AK Summary Report, confirmatory test data, notes and identified AK discrepancies.

4.10.16 Resolve comments with SPM.

4.10.17 Print name, sign, and date Attachment 5.

4.10.18 Submit the CRR to the SPM.

SPM

4.10.19 Resolve any questions identified during QA review.

NOTE

The SPM's signature indicates that the SPM has either prepared the document personally or had responsible charge of the preparation and verifies that the information is correct. All issues identified by the AKE/QA have been resolved.

SPM

4.10.20 Print name, sign, and date Attachment 5.

4.10.21 Prepare an AK Accuracy Report in accordance with CCP-TP-005, CCP *Acceptable Knowledge Documentation*

4.10.22 Prepare transmittal letter to DOE/CBFO.

4.10.23 Provide a copy of CRR, DOE/CBFO transmittal letter, and Attachments 1 and 2 to the CCP Records Custodian.

4.10.24 Transmit the CRR to DOE/CBFO.

CCP Records Custodian

4.10.25 Receive and process records generated by this procedure in accordance with CCP-QP-008 once CBFO has provided approval.

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5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as quality assurance (QA) records in accordance with CCP-QP-008, The records are the following:

5.1.1 QA/Lifetime

[A] CRR:

[A.1] Attachment 1, Remote-Handled Characterization Reconciliation Report Container Data Work Sheet 1

[A.2] Attachment 2, Remote-Handled Characterization Reconciliation Report Container Data Work Sheet 2 (VE/RTR)

[A.3] Attachment 3, Remote-Handled Characterization Reconciliation Report Data Quality Objectives (DQOs)

[A.4] Attachment 4, Remote-Handled Characterization Reconciliation Report Quality Assurance Objectives (QAOs)

[A.5] Attachment 5, Remote-Handled Characterization Reconciliation Report Cover Sheet

[A.6] Attachment 6, Remote-Handled Characterization Reconciliation Report Container Continuation Sheet

[A.7] Attachment 7, Remote-Handled Characterization Reconciliation Report SPM/AKE Comment Sheet

[A.8] Attachment 8, Summary of Radiological Results by Container Number

Table 4.2. Upper Limits for %RSD vs. Number of Replicates

Number of Replicates	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Max %RSD	1.8	6.6	10.0	12.3	14.0	15.2	16.2	17.1	17.7	18.3	18.8	19.3	19.7	20.0

Table 4.3. Quality Control Requirements for Radiochemistry

QC Sample	Minimum Frequency	Acceptance Criteria	Corrective Action
Laboratory control samples (LCS)	One per analytical batch	75% to 125%R	See Laboratory Control Sample[a]
Method blank	One per analytical batch	Site-specific statistical control limits	See Method Blanks[b]
Laboratory duplicate	One per analytical batch	RPD 40	See Laboratory Duplicate[c]
Matrix spike (MS)	One per analytical batch for ICP-MS, as required by the test performed	50 to 150%R	See Matrix Spike and Matrix Spike Duplicate[d]
Matrix spike duplicate (MSD)	One per analytical batch, as required by the test performed	50 to 150%R RPD 40	See Matrix Spike and Matrix Spike Duplicate[d]
Radioisotopic tracers	Every sample	Site-specific statistical control limits	See Radioisotopic Tracer[e]

[a]**Laboratory Control Sample (LCS)**: An LCS is analyzed at least once per analytical batch. If a solid matrix with established control limits is used as the LCS, the established limits may be used for the acceptance criteria. The control limits will meet the criteria in Table 4-4.
[b]**Method Blanks**: A method blank is analyzed at least once per analytical batch. It contains all reagents in proportions equal to those in the samples and is carried through the analytical procedure to identify if contamination is present. Each site establishes the acceptance criteria for method blanks; if they are expressed as statistical control limits they shall meet the requirements in Table 4-4. Criteria may be absolute values, multiples of background variation, fractions of activity concentrations observed in samples, or other appropriate units.
[c]**Laboratory Duplicates**: A laboratory duplicate is analyzed at least once per analytical batch. A laboratory duplicate is a separate aliquot from the same field sample carried through the entire analytical procedure. The RPD between duplicate results is compared with the criteria.
[d]**Matrix Spike and Matrix Spike Duplicate**: Duplicate MSs on individual field samples are performed for inductively couple plasma-mass spectrometry (ICP-MS) analysis at a minimum frequency of one pair (MS plus MSD) per analytical batch. The MSDs are preferred for any analytical procedure not using radioactive tracers. The MS and MSD results are acceptable if the criteria given above for percent recovery and RPD are met.
[e]**Radioisotopic Tracer**: Some methods require that all samples, blanks, LCSs, and laboratory duplicates be spiked with radioisotopic tracers to determine chemical recoveries, counting efficiencies, or a combination thereof. Each site establishes the acceptance criteria for method blanks; if they are expressed as statistical control limits they shall meet the requirements in Table 4-4.

Table 4.4. Statistical Control Limits

	Acceptability Range	**Required Response**
Acceptable Range	Data[b] $2\sigma^a$	No action required.
Warning Range	$2\sigma^a$ < Data $3\sigma^a$	The QC measurement shall be run no more than twice. If the rerun QC measurement results in data within $\pm$ 2σ, then the QC measurements shall be documented and work may continue. If the system does not fall within $\pm$ 2σ after two QC measurements, then the required response for the Action Range shall be followed.
Action Range	Data > $3\sigma^a$	Work shall stop and the occurrence shall be documented and appropriately dispositioned (e.g., initiating an NCR). The measurement system shall be removed from service pending successful resolution of all necessary actions, and all assays performed since the last acceptable QC measurement are suspect, pending satisfactory resolution.

[a]σ – The standard deviation is only based on the reproducibility of the data check measurements themselves. This is not TMU.
[b] – Absolute Value

Attachment 1 – Remote-Handled Characterization Reconciliation Report Container Data Work Sheet 1 EXAMPLE

line #			Source
1	CRR Number	CRR-ANLE-AGHCF-S5000-001	AGHCF (Alpha Gamma Hot Cell Facility)
2	**Container Number**	743	
3	Site	INL	Waste generated at ANLE
4	Waste Stream	ID-ANLE-S5000	CCP-AK-INL-500 Rev. 1
5	Waste Matrix Code	not assigned as of 5/2/06	not available
6	Summary Category Group	**S5000 - Debris Waste**	CCP-AK-INL-500 Rev. 1
7	Radiological BDR number(s)	Dose to Curie INL060314	
8	VE BDR Number	RHINLVE060001	
9	NDE BDR Number	N/A	PRINT
10	Waste Stream Profile Number	not assigned as of 5/2/06	

		Identify Confirmatory Testing Methods	List Confirmatory Test Plan Document Number			
11		Radiological Characterization Technical Report	CCP-AK-INL-501			LANL ICP-MS Dose-to-Curie Methodology
12						
13						
14						
15						
16						
17						
18						
19	Were alternative methods of confirmatory testing not listed above used to qualify AK?		☑ yes	☐ no	☐ NA	VE using video tape

Attachment 2 – Remote-Handled Characterization Reconciliation Report Container Data Work Sheet 2 (VE/RTR) EXAMPLE

line #					
20	CRR Number	CRR-ANLE-AGHCF-S5000-001			
21	**Container Number**	743			
22	Site	INL			
23	Waste Stream	ID-ANLE-S5000			
24	Summary Category Group	S5000 - Debris Waste			
	Waste Stream VE/RTR Information		**SOURCE**		
25	How many containers are identified in the waste stream/lot which includes this container?	**549**	**CCP-AK-INL-500 Rev. 1**		
	Container Specific VE/RTR Information	**SOURCE**			
26	Was this container packaged or re-packaged as a result of prohotibed item?		☐ yes	☑ no	☐ NA
27	Did the contents of the container match the waste stream description?	RHINLVE060001	☑ yes	☐ no	☐ NA
	Prohibited Items				
	Liquids				
28	Did this container include any liquids?		☐ yes	☑ no	☐ NA
29	If the container included liquids, did these liquids exceed 1% of the volume of the waste container?		☐ yes	☐ no	☑ NA

Attachment 3 – Remote-Handled Characterization Reconciliation Report Data Quality Objectives (DQOs) EXAMPLE

line #								
30	CRR Number	CRR-ID-EBR-S5000-0001						
31	Site	INL						
32	Waste Stream	ID-EBR-S5000						
	DQO						**List the Characterization Method and Supporting Sources of DQO**	**AK discrepancy/ resolutions relevent to DQO**
33	**Defense Waste, High Level, and Spent Nuclear Fuel Determination**	Is the waste stream identified in AK?	☑ yes	☐ no			CCP-AK-INL-600, Rev. 0 Section 2	None
34		According to AK, was the Waste generated by defense activities, is not high level waste, and is not spent nuclear fuel?	☑ yes	☐ no			CCP-AK-INL-600, Rev. 0, Sections 4.1.4 and 5.3	None
35		What is the source of the information regarding the Defense Waste, High Level Waste and Spent Nuclear Fuel Determination?					Source documents C002, C004, C214, P001, P036, P049, P055, P071, P777, P778, P881, P4078, P4081, P4082, P4084, P4090, U552, for defense waste and for determining the waste does not include spent nuclear fuel or high-level waste, as defined by the NWPA	None
36		Has the DQO been met? RH Tru Waste Characterization Program Implementation Plan .	☑ yes	☐ no			CCP-AK-INL-600, Rev. 0, Sections 4.1.4 and 5.4.5	None
37	**TRU Waste Determination**	Is the TAAC greater than 100nCi/g for all containers?	☑ yes	☐ no			Dose-to-Curie CCP-RC-INL-601, waste container dose-to-curie conversion record	None
38		How was TRU Alpha Activity Concentration (TAAC) determined?					Formulas detailed in source document U4052 and U4047	None
39		Is the Lower Limit of detection of the instument and method used to determine the TAAC 100nCi/g or less?	☑ yes	☐ no	☐ NA		CCP-RC-INL-601, Rev. 0, "At a concentraion of 100 nCi/g the one meter dose rate would be approximately .5 mR/hr which would require a background dose rate of 0.15 mR/hr."	None
40		Is the waste in this waste stream TRU Waste?	☑ yes	☐ no			Dose-to-Curie CCP-RC-INL-601, waste container dose-to-curie conversion record	None
41		What is the source of the information regarding the TAAC?					Dose-to-Curie CCP-RC-INL-601, waste container dose-to-curie conversion record	None
42		Has the DQO been met? RH Tru Waste Characterization Program Implementation Plan.	☑ yes	☐ no			CCP-RC-INL-601, Rev. 0, source document U4052 and U4047, Dose-to-Curie, waste container dose-to-curie conversion record	None

Attachment 3 – Remote-Handled Characterization Reconciliation Report Data Quality Objectives (DQOs) EXAMPLE (Continued)

	DQO				List the Characterization Method and Supporting Sources of DQO	AK discrepancy/ resolutions relevent to DQO
43	**RH Waste Determination**	Is the surface dose rate greater than 200 mrem/hr for all containers in this waste stream?	☑ yes	☐ no	Radiological survey report provided by INL	None
44		Is the surface dose rate less than or equal to 1000 rem/hr for all containers in this waste stream?	☑ yes	☐ no	Radiological survey report provided by INL	None
45		Does the calibration of the instrument used to measure the surface dose meet the requirements of the QAPD?	☑ yes	☐ no	Host site instrument calibration certificates	None
46		What is the source of the information regarding the surface dose rate?			Host site radiological survey report	None
47		Has the DQO been met? RH Tru Waste Characterization Program Implementation Plan .	☑ yes	☐ no	Radiological survey report provided by INL	None
48	**Total Activity Determination**	Is the activity plus two times the TMU less than or equal to 23 CI/L for each payload container in this waste stream?	☑ yes	☐ no	Dose-to-Curie CCP-RC-INL-601 waste container dose-to-curie conversion record	None
49		What is the source of the information regarding the activity?			Dose-to-Curie CCP-RC-INL-601 waste container dose-to-curie conversion record	None
50		Has the DQO been met? RH Tru Waste Characterization Program Implementation Plan.	☑ yes	☐ no	Dose-to-Curie CCP-RC-INL-601 waste container dose-to-curie conversion record	None

Attachment 3 – Remote-Handled Characterization Reconciliation Report Data Quality Objectives (DQOs) EXAMPLE (Continued)

51	**Liquids**	Are there liquids in the waste?	☐ yes	☑ no		INLRHVE110001, INLRHVE11002, INLRHVE11003, INLRHVE12001, INLRHRTR12019 Real Time Radiography and/or Visual Examination data sheets	None
52		What is the approximate volume of the liquid? If none indicate none.	None		units	INLRHVE110001, INLRHVE11002, INLRHVE11003, INLRHVE12001, INLRHRTR12019 Real Time Radiography and/or Visual Examination data sheets	None
53		Do any liquids exceed 1% of the volume of the container? If no liquids indicate NA.	☐ yes	☐ no	☑ NA	INLRHVE110001, INLRHVE11002, INLRHVE11003, INLRHVE12001, INLRHRTR12019 Real Time Radiography and/or Visual Examination data sheets	None
54		What is the source of the information regarding liquids (i.e. AK, RTR, VE)?				INLRHVE110001, INLRHVE11002, INLRHVE11003, INLRHVE12001, INLRHRTR12019 Real Time Radiography and/or Visual Examination data sheets	None
55		Has the DQO been met? RH Tru Waste Characterization Program Implementation Plan.	☑ yes	☐ no		INLRHVE110001, INLRHVE11002, INLRHVE11003, INLRHVE12001, INLRHRTR12019 Real Time Radiography data sheets and training records for personnel performing Real Time Radiography or Visual Examination	None
56	**Physical Form**	Has the Cellulose, Plastic, and Rubber (CPR) been submitted for determining the physical form of the waste?	☑ yes	☐ no		INLRHVE110001, INLRHVE11002, INLRHVE11003, INLRHVE12001, INLRHRTR12019 Real Time Radiography and/or Visual Examination data sheets	None
57		Has the information on the type and number of containers, waste forms, processes and materials that produced the waste been submitted?	☑ yes	☐ no		INLRHVE110001, INLRHVE11002, INLRHVE11003, INLRHVE12001, INLRHRTR12019 Real Time Radiography and/or Visual Examination data sheets	None
58		Has the DQO been met? RH Tru Waste Characterization Program Implementation Plan.	☑ yes	☐ no		INLRHVE110001, INLRHVE11002, INLRHVE11003, INLRHVE12001, INLRHRTR12019 Real Time Radiography and/or Visual Examination data sheets	None

Attachment 4 – Remote-Handled Characterization Reconciliation Report Quality Assurance Objectives (QAOs) EXAMPLE

line #								
59	CRR Number	CRR-ID-EBR-S5000-0001						
60	Site	INL						
61	Waste Stream	ID-EBR-S5000						
	Method	**QAO**	**QAO met?**			**Procedure Section**	**Source**	**WCPIP Section**
62	AK	Precision	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.2	QAO not established for AK Precision	4.1
63		Accuracy	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.2	Containers did not require reassignment to a new Summary Category Group or new waste stream based on reevaluation of AK.	4.1
64		Representativeness	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.2	CCP-AK-INL-600, Rev. 0, Section 1	4.1
65		Completeness	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.2	CCP-AK-INL-600, Rev. 0, Section 1	4.1
66		Comparability	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.2	LOQI and CCP-QP-002, Rev 35	4.1
67	VE	Precision	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.3	INLRHVE110001, INLRHVE11002, INLRHVE11003, INLRHVE12001 Attachment 1	4.2.1
68	Method	Accuracy	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.3	Training Records	4.2.1
69	Does method apply? ☑ yes ☐ no	Representativeness	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.3	INLRHVE110001, INLRHVE11002, INLRHVE11003, INLRHVE12001 Attachment 1	4.2.1
70		Completeness	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.3	INLRHVE110001, INLRHVE11002, INLRHVE11003, INLRHVE12001 Attachment 1	4.2.1
71		Comparability	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.3	Training Records	4.2.1
72	Dose to Curie	Precision	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.4	CCP-RC-INL-601	4.3.2
73	Conversion	Accuracy	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.4	CCP-RC-INL-601	4.3.2
74	Does method apply?	Representativeness	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.4	QAO not applicable dose rate measurement	4.3.2
75	☑ yes ☐ no	Completeness	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.4	QAO not applicable dose rate measurement	4.3.2
76		Comparability	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.4	QAO not applicable dose rate measurement	4.3.2
77	Radiography	Precision	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.5	INLRHRTR12019 Attachment 1 signature lines	4.2.2
78	Does method apply?	Accuracy	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.5	Training records (LOQI)	4.2.2
79	☑ yes ☐ no	Representativeness	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.5	INLRHRTR12019 Attachment 1	4.2.2
80		Completeness	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.5	INLRHRTR12019 data sheets	4.2.2
81		Comparability	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.5	Training	4.2.2

Attachment 4 – Remote-Handled Characterization Reconciliation Report Quality Assurance Objectives (QAOs) EXAMPLE (Continued)

	Method	QAO	QAO met?			Procedure Section	Source	WCPIP Section
82	**Nondestructive**	Precision	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.6		4.3.3.2
83	**Assay**	Accuracy	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.6		4.3.3.2
84	Does method apply?	Representativeness	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.6		4.3.3.2
85	☐ yes ☑ no	Completeness	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.6		4.3.3.2
86		Comparability	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.6		4.3.3.2
87	**Destructive**	Precision	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.7		4.3.4.3
88	**Assay**	Accuracy	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.7		4.3.4.3
89	Does method apply?	Representativeness	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.7		4.3.4.3
90	☐ yes ☑ no	Completeness	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.7		4.3.4.3
91		Comparability	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.7		4.3.4.3
92	**Surface Dose**	Precision	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.8	INL Survey	4.3.7
93	**Rate**	Accuracy	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.8	INL Survey	4.3.7
94	Does method apply? ☑ yes ☐ no	Representativeness	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.8	INL Survey	4.3.7
95		Completeness	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.8	21 containers measured; 21 acceptable data reported	4.3.7
96		Comparability	☑ yes	☐ no	☐ NA	CCP-TP-506 Section 4.5.8	INL Survey	4.3.7
97	**Sampling**	Precision	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.9		4.3.4.2
98	**Methodologies**	Accuracy	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.9		4.3.4.2
99	Does method apply?	Representativeness	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.9		4.3.4.2
100	☐ yes ☑ no	Completeness	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.9		4.3.4.2
101		Comparability	☐ yes	☐ no	☑ NA	CCP-TP-506 Section 4.5.9		4.3.4.2

Attachment 5 – Remote-Handled Characterization Reconciliation Report Cover Sheet EXAMPLE

line #				
102	CRR Number	CRR-INL-AGHCF-S5000-001		
103	Waste Stream	ID-ANLE-S5000		
104	Site	INL		
105	Waste Matrix Code	not assigned as of 5/31/06		
106	Summary Category Group	S5000 - Debris Waste		
107	Have all DQOs been met?	☑ yes	☐ no	
108	Are any prohibited items present?	☐ yes	☑ no	
109	Are any liquids present at greater than 1% of the volume of the container?	☐ yes	☑ no	
110	Was AK qualified in accordance with the requirements of the WCPIP?	☑ yes	☐ no	
111	Are all containers Remote-handled TRU waste?	☑ yes	☐ no	
	List all container numbers used to generate the CRR	**VE BDR #**	**RTR BDR #**	**Radiological BDR #**
112	00738	RHINLVE060001	NA	INLRHDTC06001
113	00739	RHINLVE060001	NA	INLRHDTC06001
114	00740	RHINLVE060001	NA	INLRHDTC06001
115	00741	RHINLVE060001	NA	INLRHDTC06001
116	00742	RHINLVE060001	NA	INLRHDTC06001
117				
118				
119				
120				
121				
122				
123				
124				
125				
126				
127				
128				
129				
130				
131				

RTR/VE Summary Results
Visual Examination confirmed that liquids greater than 1 percent are absent from the waste and that the physical properties of the waste are consistent with ID-ANLE-S5000.

	SPQAO Signature	SPQAO Printed Name	Date
	AKE Signature	AKE Printed Name	Date
	SPM Signature	SPM Printed Name	Date

Attachment 6 – Remote-Handled Characterization Reconciliation Report Container Continuation Sheet EXAMPLE

	CRR Number	CRR-ANLE-AGHCF-S5000-001
	Site	INL
	Waste Stream	ID-ANLE-S5000
continuation from line #	**INFORMATION**	**SOURCE**

Attachment 7 – Remote-Handled Characterization Reconciliation Report SPM/AKE Comments Sheet EXAMPLE

CRR Number	CRR-ANLE-AGHCF-S5000-001
Site	INL
Waste Stream	ID-ANLE-S5000
SPM/AKE/SPQAO COMMENTS	
Commenter shall Print their name, Sign and date comments.	

Attachment 8 – Summary of Radiological Results by Container Number EXAMPLE

Summary Radiological Results by Container Number

CRR Number	CRR-ANLE-AGHCF-S5000-001
Site	INL
Waste Stream	ID-ANLE-S5000

		Radiological Characterization Method				TRU Waste Determination			Total Activity Determination			RH Waste Determination		
Container number	BDR number	AK	DTC	DA	NDA	TRU Alpha Activity Concentration (TAAC)	Uncertainty at 1 simga	TRU waste (100 nCi/g or greater)	Activity	TMU (2 simga)	Is Activity + 2*TMU < 23 Ci/L?	Surface Dose Rate	Unit	Surface Dose Rate > 200 mrem/hr and ≤ 1,000 rem/hr?
738	INL060314	☐	☑	☐	☐	6.86E+03	5.19E+03	Yes	3.40E-02	2.65E-02	Yes	4	rem/hr	Yes
739	INL060314	☐	☑	☐	☐	1.24E-04	9.41E+03	No	5.98E-02	4.66E-02	Yes	6	rem/hr	Yes
740	INL060314	☐	☑	☐	☐	1.90E+04	1.44E+04	Yes	1.02E-01	7.94E-03	Yes	9	rem/hr	Yes
741	INL060314	☐	☑	☐	☐	1.27E+04	9623.6	Yes	7.14E-02	5.57E-02	Yes	4	rem/hr	Yes
742	INL060314	☐	☑	☐	☐	4.09E+03	1.58E+03	Yes	2.36E-02	1.84E-02	Yes	2.5	rem/hr	Yes
743	INL060314	☐	☑	☐	☐	1.39E+03	5.35E+02	Yes	7.98E-03	6.23E-03	Yes	0.5	rem/hr	Yes
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
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		☐	☐	☐	☐			No			Yes			
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		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
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		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			
		☐	☐	☐	☐			No			Yes			

Comments: N/A

Controlled
Copy

CCP-TP-507

Revision 8

CCP
Shipping of
Remote-Handled
Transuranic Waste

EFFECTIVE DATE: 06/27/2013

Irene Joo

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	11/14/2006	Initial issue.
1	05/03/2007	Revised to include 40 CFR part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in commerce, and use prohibitions: Marking of PCB's and PCB Items § 761.40 and 40 CFR 761.40, Marking as references.
2	12/04/2007	Revised to incorporate CNS 10-160B requirements and to implement new Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC) requirements.
3	12/12/2007	Minor editorial change to correct error in section cross references.
4	09/02/2009	Revised to incorporate corrective actions from Waste Isolation Pilot Plant (WIPP) Form 09-120 (Controlled Shipment Notifications), Corrective Action Report (CAR)-RHLANL-0001-09, Land Disposal Restrictions (LDR) Form code updates, and peer verifications steps.
5	12/11/09	Revised to incorporate Waste Data System (WDS) operations, remove 10-160B steps, and various editorial changes.
6	04/20/2010	Alignment of the procedure with modifications made to the Waste Data Systems (WDS), and editorial corrections.
7	12/29/2010	Minor revision to update references to the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*.
8	06/27/2013	Revised to incorporate the Nuclear Waste Partnership (NWP) transition changes.

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1.0 PURPOSE

This procedure establishes requirements for certifying and assembling Transuranic (TRU) waste payloads and performance of shipments in the Remote-Handled (RH) TRU 72-B shipping container and ensures that the requirements of CCP-PO-505, *CCP Remote-Handled Transuranic Authorized Methods for Payload Control (CCP RH-TRAMPAC),* are met.

1.1 Scope

This procedure applies to the personnel who conduct the following transportation functions:

- The Waste Data System (WDS) data entry for transportation certification of RH TRU waste in the RH TRU 72-B.
- RH TRU 72-B payload canister verification.
- Verification of the assembled payload to be loaded into the RH TRU 72-B shipping cask.
- Preparing and certifying shipping paper, marking, labeling, and placarding associated with each shipment of RH TRU waste transported in the RH TRU 72-B shipping cask by the Central Characterization Program (CCP).
- Radiological Control Technician (RCT) or equivalent position functions associated with RH TRU 72-B packaging and transportation operations.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-TP-530*, CCP RH TRU Waste Certification and WWIS/WDS Data Entry*
- DOE/WIPP 90-045*, Remote-Handled Transuranic Waste Content Codes, RH TRUCON*
- DOE/WIPP 02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*

- DOE/WIPP 02-3283, *RH Packaging Program Guidance*
- DOE/WIPP 02-3285, *RH Packaging Maintenance Manual*
- 40 CFR Part 761, *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distibution in commerce, and use prohibitions: Marking of PCB's and PCB Items* § 761.40
- 49 CFR, *Transportation,* Part 172, *Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans* § 172.200, *Applicability*
- 49 CFR Part 173, *Shippers—General Requirements for Shipments and Packagings,* Subpart I, *Class 7 Radioactive Materials* § 173.401 through 173.476
- *Safety Analysis Report for the RH-TRU 72B Waste Shipping Package* (SARP) (Docket 9212, Washington, D.C., U.S. Nuclear Regulatory Commission [NRC], 2002)

Referenced Documents

- 40 CFR 262, Subpart B*, The Manifest,* and Subpart C*, Pre-Transport Requirements.*
- 40 CFR 262.31*, Labeling*
- 40 CFR 262.32*, Marking*
- 40 CFR 761.40, *Marking requirements*
- 40 CFR 268*,* Subpart A*, Land Disposal Restrictions*
- 49 CFR 172.200 through 172.205 *(Subpart C, Shipping Papers)*
- 49 CFR 172.300 through 172.338 *(Subpart D, Marking)*
- 49 CFR 172.400 through 172.450 *(Subpart E, Labeling)*
- 49 CFR 172.500 through 172.560 *(Subpart F, Placarding)*
- CCP-PO-505*, CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
- CCP-QP-002*, CCP Training and Qualification Plan*

- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008*, CCP Records Management*
- DOE/WIPP 02-3284*, RH Packaging Operations Manual*
- *TRANSCOM 2000 Designated User Handbook*
- DOE/WIPP-09-3427, *Waste Data System User's Manual*
- *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*, Attachments C-C6, *Waste Analysis Plan*

2.2 Training Requirements

2.2.1 CCP personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan,* prior to performing this procedure.

2.3 Equipment List

2.3.1 None.

2.4 Precautions and Limitations

2.4.1 Nonconformances related to defects or failure to comply with requirements applicable to Nuclear Regulatory Commission (NRC)-licensed packaging (e.g., RH TRU 72-B cask) shall be reported to the Carlsbad Field Office (CBFO) Office of the National TRU Program. The Waste Isolation Pilot Plant (WIPP) maintenance and operating (M&O) contractor will evaluate issues and nonconformances for reporting to the NRC under 10 CFR Part 21 or Part 71 and provide the results of this evaluation to CBFO.

[A] CCP personnel writing nonconformance reports (NCRs) identified as Transportation-related will provide a copy of these NCRs to the NWP Manager of Transportation in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

2.4.2 Filter vents, as specified in Section 2.4 of the CCP RH-TRAMPAC must be installed in payload containers and canisters (as applicable).

2.4.3 Radiation Dose Rates and Removable Surface Contamination

[A] The external radiation dose rate of a loaded RH TRU 72-B shipping cask to be shipped, shall be less than or equal to 200 millirem per hour (mrem/hr) at the surface, and less than or equal to 10 mrem/hr at two meters for beta/gamma and neutron.

[B] Removable surface contamination of individual payload canisters and a loaded RH TRU 72-B shipping cask to be shipped to WIPP shall **NOT** be greater than 20 disintegrations per minute (dpm)/100 centimeters square (cm^2) for alpha emitting radionuclides and 200 dpm/100 cm^2 for beta/gamma emitting radionuclides.

2.4.4 Controlled Shipments

NOTE

Receipt sites may use CBFO-approved site-specific Controlled Shipment Receipt Forms in place of Attachment 6, CCP Control Checklist for Receipt of RH Controlled Shipments, provided that the same information is recorded and a completed copy is returned to the applicable Transportation Certification Official (TCO).

[A] CCP RH Controlled Shipments, (Attachment 5, CCP Control Checklist for RH Controlled Shipments, and Attachment 6), will be used to control and document loading and shipping times.

2.5 Prerequisite Actions

2.5.1 Ensure that workers who will be working in a radiation area have read the applicable Radiation Work Permit (RWP) or equivalent site-specific document.

2.6 Definitions

2.6.1 **Generator** - The organization/individual that generated the waste and/or are offering the waste for transport.

2.6.2 **Land Disposal Restrictions (LDR) Notification** - Notification to a receiving facility that the waste is subject to LDR (from 40 *Code of Federal Regulations* [CFR] 268, Subpart A, *Land Disposal Restrictions*).

2.6.3 **Shipper** - Authorized personnel who declare by signing the shipping paper that the contents of the package are fully and accurately described, packaged, labeled/placarded, and proper for conditions of transport per appropriate regulations.

2.6.4 **Shipping Paper** – Uniform Hazardous Waste Manifest (UHWM) or Straight Bill of Lading-Short Form. The shipping paper accompanies the waste during transportation.

2.6.5 **Straight Bill of Lading-Short Form** - Shipping paper used to transport non-mixed radioactive TRU waste.

2.6.6 **Uniform Hazardous Waste Manifest (UHWM)** - The U.S. Environmental Protection Agency (EPA) form 8700-22 prepared by a generator who transports, or offers for transportation, hazardous waste for off-site treatment, storage, or disposal (from 40 CFR 262, Subpart B, *The Manifest*.)

2.6.7 **Payload Canister/Container** – A fixed lid or removable lid canister (RLC) that contains waste drums or direct loaded waste that is used to ship waste in the RH TRU 72-B or a 55-gallon drum that is used to ship waste in the CNS 10-160B. These packages have Type A certifications.

2.6.8 **RH TRU 72-B Cask** – The cask used to ship the payload canister to the WIPP or other remote sites. This package has Type B certifications.

2.6.9 **Controlled Shipment** – Shipments that are controlled to a 10 day shipping period in accordance with conditions specified in Appendix 2.4 of the *RH-TRU Payload Appendices* and Section 6.2.3 of the CCP *RH-TRAMPAC*.

NOTE

More detailed, specific interface responsibilities between CCP and the Host site are contained in site-specific interface documents, Statements of Work, etc.

3.0 RESPONSIBILITIES

3.1 CCP Transportation Certification Official (TCO)

3.1.1 Interfaces and coordinates with the generator, shipper, Site Project Manager (SPM), Waste Certification Official (WCO), and CCP Operations Leaders to plan payloads and shipments.

3.1.2 Documents and certifies that containers prepared for shipments in RH packaging meet specified shipping criteria using the Payload Transportation Certification Document (PTCD), and the WDS, as appropriate.

3.1.3 Reviews payload certification documentation to ensure compliance with applicable governing documents (associated Safety Analysis Reports, Certificates of Compliance, WIPP WAC, TRAMPAC's etc.).

3.1.4 Requests and obtains approval/authority from the WIPP to effect WIPP shipments.

NOTE

TRU waste shipping documentation includes a number of data sheets required by DOE/WIPP 02-3284, *RH Packaging Operations Manual*. CCP treats these data sheets as Quality Assurance (QA) nonpermanent records, and they form part of the overall Transportation and Shipping Packages for TRU waste. However, because the format and content of these data sheets are controlled by DOE/WIPP 02-3284, they are not included as attachments to this procedure.

3.1.5 Provides the necessary TRU waste shipping data to the Host site Shipping Coordinator.

3.1.6 Ensures all manifests and shipping papers are correct, as required.

3.1.7 Ensures all labeling, marking, and placarding is correct, as required.

3.2 Radiological Control Technician (RCT) or Equivalent Position

3.2.1 Provides contamination and radiation surveys to the TCO for shipment certification purposes.

3.3 CCP RH Packaging and Transportation Team

3.3.1 Ensures the payload canister and the RH TRU 72-B shipping cask are prepared in accordance with the associated approved procedures.

3.3.2 Ensures visible canister/container ID labels, within a payload assembly, are an exact match to the ID numbers listed on the applicable PTCD.

3.4 Host Site Shipping Coordinator

3.4.1 Interfaces with TCO and acts as the Host site point-of-contact (POC) for operations, manifesting, and release of shipments.

3.4.2 Assists TCO in scheduling and facilitating TRU waste shipments.

3.4.3 Provides data received from TCO to the Host site transportation and material control/accountability groups (as applicable).

4.0 PROCEDURE

NOTE
The WDS utilizes edit and limit checks when data is entered and selected. The WDS steps in Section 4.1 may be repeated until payloads and shipping compliance is satisfied.

NOTE
Steps in this procedure may be performed in parallel as applicable.

NOTE
Steps in this procedure are performed by the TCO, unless another group/discipline is mentioned in the step or a note preceding the step.

NOTE
Trained and qualified TCO's perform the WDS operation per the guidance found in DOE/WIPP-09-3427, *Waste Data System User's Manual*. The WDS manual is **NOT** required to be opened when performing the task listed below, but shall be available for reference if questions arise.

NOTE
Contact Information of organizations called out in this procedure are listed as follows. Specific email addresses can be obtained by contacting the numbers below:

WIPP Shipment Scheduler 575-234-8993 or 575-234-8230
WIPP Transportation group 575-234-8993 or 575-234-8230
WIPP RCT group 575-234-8657
WIPP Central Monitoring Room (CMR) 575-234-8863 or 575-234-8640

FAX notifications can be made in lieu of emails if needed. FAX numbers can be obtained by contacting the specific group.

4.1 WDS Data Entry/RH Shipment Certification

4.1.1 Creating Payloads Using the WDS

[A] Select the new button to create/generate a Payload Plan ID

[B] For each payload enter the following information into the WDS:

- Payload Number
- Payload Container Type
- Current Location (Site ID)

- Destination Site (Site ID)
- Shipping Program (Site ID)

[C] Select canister until a CCP-PO-505 compliant payload is obtained.

[D] **ONCE** the virtual CCP-PO-505 compliant payload is built, **THEN** select the accept button.

[E] Select the submit button.

[F] Generate PTCD.

NOTE
Canisters designated for Controlled Shipment must be marked accordingly on PTCD. Attachment 5 will be initiated for the applicable RH TRU 72-B.

[G] Print report.

NOTE
The PTCD is signed after the RH TRU 72-B is loaded so that the final information is entered into the WDS.

[H] Review PTCD report, **AND** confirm that all payload certification parameters have been met.

4.1.2 Creating Shipments Using the WDS

[A] Enter the following information into the WDS:

- Shipment Number (From WIPP 8-week Rolling Schedule)
- Shipping Program (Site ID)
- Current Location (Site ID)
- Destination Site (Site ID)

[B] Select payload until a CCP-PO-505 compliant shipment is obtained.

NOTE
Once the submit button is selected, the confirmation process for the shipment is activated.

[C] **ONCE** the virtual CCP-PO-505 compliant shipment is built, **THEN** select save **AND** the submit button.

NOTE
Transporter, Tractor, Trailer, and CH Package numbers are obtained from the WIPP Equipment Assignment email, generated by the WIPP Transportation Group. Default values contained in the WDS system are used for Handling Material Weights and Uncertainty. Handling Material weights uncertainty is left blank in the WDS system.

[D] **WHEN** the following becomes available, **THEN** enter the information into the WDS:

- Transporter Name
- Tractor Number
- Trailer Number
- RH Package Number(s)
- Handling Material Weights

[E] For controlled shipments, email the WIPP Shipment Scheduler of impending shipment.

4.1.3 Finalizing Shipments Using the WDS

[A] Enter the following information into the WDS:

- Manifest Number
- Outer Containment (OC) Lid Number (from DOE/WIPP 02-3284, Attachment 2, Packaging Loading Data Sheet)
- Inner Vessel (IV) closure date and time (from DOE/WIPP 02-3284, Attachment 2, Packaging Loading Data Sheet)
- Dose Rate Surface (mrem/hr) from Radiological Survey Report
- Dose Rate 1-meter (mrem/hr) from Radiological Survey Report

- Dose Rate 2-meter (mrem/hr) from Radiological Survey Report
- Alpha contamination survey results in dpm from Radiological Survey Report
- Beta/gamma contamination survey results in dpm from Radiological Survey Report
- U.S. Department of Transportation (DOT) Description from Bill of Lading or UHWM.
- RQ or HRCQ flag(s) (as applicable) from Bill of Lading or UHWM.

[B] Select SAVE.

[C] Print final PTCD.

[D] Review PTCD, **AND** sign report if all parameters are in compliance with CCP-PO-505.

[E] Enter the send date and time in WDS.

[F] Select the Finalize Button to complete the WDS process.

4.2 Shipping Preparations

NOTE
Email notifications may be performed by Host site Shipping Coordinator.

4.2.1 Transmit the draft PTCDs (if applicable), WDS Shipment Summary Report, and WDS Shipment Data report to the Host site Shipping Coordinator for preparation of shipping papers.

4.2.2 Host site Transportation Personnel, develop shipping papers.

4.2.3 Host site Shipping Coordinator, provide TCO with draft copy of shipping paper and RadCalc work sheets (or equivalent).

4.2.4 Review the shipping documentation (Bill of Lading or UHWM) in accordance with 49 CFR Part 172, Subpart C, *Shipping Papers*.

NOTE

Completion of an LDR is necessary only for each initial shipment of a mixed waste stream. The LDR is completed in accordance with 40 CFR Part 268.

4.2.5 Complete Attachment 3, Land Disposal Restriction Exemption Notification.

4.2.6 Print name, sign, date, and initial Attachment 3.

4.2.7 Provide copy of Attachment 3 to Host site Shipping Coordinator.

4.2.8 Host site Shipping Coordinator, attach copy of Attachment 3 to the shipping papers.

4.2.9 As soon as available, prior to releasing the shipment, email a copy of the Draft Manifest and LDR (if applicable), to the WIPP Transportation Group.

NOTE

If the Transportation Tracking and Communications (TRANSCOM) system is out of service, secondary shipment protocol is followed as directed by the WIPP Transportation group. Step 4.2.10 can be omitted.

4.2.10 Prior to releasing the shipment to the carrier, prepare the TRANSCOM system by entering a Draft Bill of Lading or UHWM in TRANSCOM per the guidance found in the TRANSCOM 2000 Designated User Handbook.

4.2.11 Email Draft Bill of Lading or UHWM to TRANSCOM. TRANSCOM email transcom@transcom.energy.gov.

4.2.12 Host site Shipping Coordinator, notify the applicable State Motor Vehicle Department (SMVD) at least 24-hours prior to releasing a shipment.

[A] Request the performance of a Commercial Vehicle Safety Alliance (CVSA) inspection at the Host site of the trailer, tractor, and loaded RH Packaging Containers.

4.3 Inspections and Loading Operations

4.3.1 Verify that payload canisters or containers are DOT Type 7A or equivalent by reviewing the procurement record, specific certification report, or actual canister markings.

NOTE

Evidence of specific filter information is listed on the applicable site Canister Loading Record.

NOTE

Canister Integrity inspections, Marking/Labeling and/or Filter verification, may be performed by reviewing remote camera inspections or by reviewing recent recorded video.

4.3.2 Verify filter vents, as specified in Section 2.4 of the CCP RH-TRAMPAC, are installed in payload containers.

4.3.3 Perform Integrity Inspection on the payload canister identified for shipment per Attachment 4, CCP RH Canister Integrity Checklist.

4.3.4 Print name, sign, and date Attachment 4.

NOTE

Each canister shall be labeled with a unique payload canister identification (ID) number that includes a site identifier as a prefix. The characters composing the canister ID number shall be approximately 2 inches high and of a color contrasting with their background. Canister ID numbers shall be placed at approximately equal intervals around the circumference of the canister and within 18-inches of the top of the canister.

NOTE

Variances from the marking and labeling requirements listed in step 4.3.5, require CBFO approval. CCP will develop and transmit a formal letter requesting the variance to CBFO. CBFO will respond in writing of approval on specific deviation from these requirements.

4.3.5 Ensure the following Marking and Labeling is clearly legible on the payload canister:

[A] Minimum of three canister ID number labels spaced equally around canister

[B] Minimum of one “Caution Radioactive Material" label

[C] Minimum of one, when applicable, “Hazardous Waste” label

[D] Minimum of one, when applicable, PCB label

4.3.6 Ensure that each payload canister is checked to see that there are NO HOLD TAGS attached.

[A] **IF** a HOLD TAG is found,
THEN determine the disposition to ensure that the canister is acceptable for shipment.

4.3.7 Host site RCT or equivalent position, provide Canister Contamination Survey Report to the TCO.

4.3.8 Host site RCT or equivalent position, provide a Dose Rate Survey Report of the payload canister to the TCO (dose rate readings: on contact, including Neutron contribution).

NOTE

Host site personnel will provide payload canister/containers to loading area under the direction of the TCO.

4.3.9 Perform the following:

[A] Verify from the applicable PTCD that the selected payload canister is correct for the designated RH TRU 72-B to be loaded.

[B] Verify that all of the visible container ID labels are an exact match to the ID numbers listed on the PTCD.

[C] **IF** not already performed,
THEN provide PTCD CCP RH Packaging and Transportation Team.

4.3.10 CCP RH Packaging and Transportation Team, perform the following:

[A] Verify from the applicable PTCD that the selected canister is correct for the designated RH TRU 72-B to be loaded.

[B] Verify that all of the visible container ID labels are an exact match to the ID numbers listed on the PTCD.

[C] Load the payload canister/containers into the RH TRU 72-B in accordance with DOE/WIPP-02-3284.

[D] Provide TCO with completed loading documentation.

4.3.11 Host site RCT or equivalent position, provide the dose rate and contamination surveys of the RH TRU 72-B exterior to the TCO (dose rate readings: on contact, 1-meter, and 2-meter, including Neutron contribution).

4.3.12 Review the Radiological Survey Report of the loaded RH TRU 72-B, **AND** verify that the survey data meets applicable radiation/contamination requirements in step 2.4.3.

4.3.13 Controlled Shipment Processing

[A] **IF** Controlled Shipment Payload,
THEN record applicable dates and times of IV lid installation on Attachment 5, **AND** ensure 24-hour Loading Time will not be exceeded.

[B] **IF** total loading time is calculated to be $\geq$ 24-hours,
THEN vent the package, **AND** repeat the lid installation process.

[C] Provide a copy of completed Attachment 5, to the Host Site Shipping Coordinator.

4.4 Shipping Completion

4.4.1 Host site Transportation personnel, perform marking, labeling, and placarding (if applicable) of the RH Package and Transport Trailer.

4.4.2 Ensure correct marking, labeling, and placarding (if applicable) per the following:

[A] Marking of RH Packaging Container shipments of RH TRU waste is conducted in accordance with 49 CFR Part 172, Subpart D, *Marking*, § 172.300 through 172.338; 40 CFR Part 262, Subpart C, § 262.32, *Marking*; and 40 CFR 761.40, Subpart C, *Marking of PCBs and PCB Items*.

[B] Labeling of RH Packaging Container shipments of RH TRU waste is conducted in accordance with 49 CFR Part 172,Subpart E, *Labeling*, § 172.400 through 172.450; and 40 CFR Part 262, Subpart C, § 262.31, *Labeling*.

[C] Placarding of RH Packaging Container transport vehicles of RH TRU waste is conducted in accordance with 49 CFR Part 172, Subpart F, *Placarding*, § 172.500 through 172.560; and 40 CFR Part 262, Subpart C, § 262.33, *Placarding.*

4.4.3 Trucking company, attach tractor and trailer.

4.4.4 Host site Transportation personnel, sign the shipping documentation (Bill of Lading or UHWM) in accordance with 49 CFR Subpart C.

4.4.5 Host site Transportation personnel, provide carrier with appropriate shipping documentation package, including LDR (if applicable), and controlled shipment package Attachment 5 (if applicable).

4.4.6 SMVD, perform CVSA inspection of the tractor, trailer, and RH package.

4.4.7 Host site Transportation personnel, provide TCO with a signed copy of the shipping documentation (Bill of Lading or UHWM).

4.4.8 Ensure Shipment Radiological Information is emailed to WIPP RCT group.

4.4.9 **IF** the shipment contains a Controlled Shipment Package, **THEN** ensure Attachment 5, is emailed to WIPP Transportation.

4.4.10 Ensure the PTCD is signed to certify that the payload in the RH Packaging Container meets the requirements of CCP-PO-505.

4.4.11 TCO **OR** Host Site Shipping Coordinator, contact WIPP Central Monitoring Room **AND** request to release shipment.

4.4.12 **ONCE** approval is granted, **THEN** TCO or Host Site Shipping Coordinator, release shipment.

4.4.13 Change WDS status to “In Transit.”

4.5 Shipment Receipt

NOTE

Receipt sites may use CBFO-approved site-specific Controlled Shipment forms in place of CCP-TP-507, Attachment 6, provided that the same information is recorded **AND** a completed copy is returned to the applicable TCO.

4.5.1 **IF** the shipment contains a Controlled Shipment Package, **THEN** request the Receipt Site to fax/email the completed Attachment 6, or a site equivalent form, once the payloads are unloaded.

4.5.2 **ONCE** the shipment status in WDS is “Shipment Received,” **THEN** send a fax/email to the Host site Shipping Coordinator, stating shipment received with the date of receipt.

4.5.3 **ONCE** the shipping data entry is complete, **THEN** compile and submit items listed in Section 5.1.1, to CCP Records.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as QA records in accordance with CCP-QP-008, *CCP Records Management.* The records are the following:

NOTE

Records generated by DOE/WIPP 02-3284 (see Section 3.1.4) as applicable, are included in the Shipping Documentation Package.

QA/Nonpermanent

5.1.1 Shipping Documentation Package:

- PTCD Spreadsheet(s), as applicable
- WDS Shipment Summary Report
- Copy of Attachment 1 - Uniform Hazardous Waste Manifest (mixed waste only), if applicable
- Copy of Attachment 2 - Straight Bill of Lading - Short Form (non-mixed waste only), if applicable
- Attachment 3 - Land Disposal Restriction Exemption Notification (initial shipment of a waste stream only)
- Attachment 4 - CCP RH Canister Integrity Checklist
- Attachment 5 - CCP Control Checklist for RH Controlled Shipments
- Attachment 6 - CCP Control Checklist for Receipt of RH Controlled Shipments
- Fax or e-mail correspondence, if applicable

5.1.2 Radiological Surveys

[A] Dose Rate Survey Report

[B] Contamination Survey

Attachment 1 – Uniform Hazardous Waste Manifest (EXAMPLE)

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number

GENERATOR

5. Generator's Name and Mailing Address — Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name — U.S. EPA ID Number

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

Facility's Phone:

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1.					
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name — Signature — Month Day Year

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name — Signature — Month Day Year

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

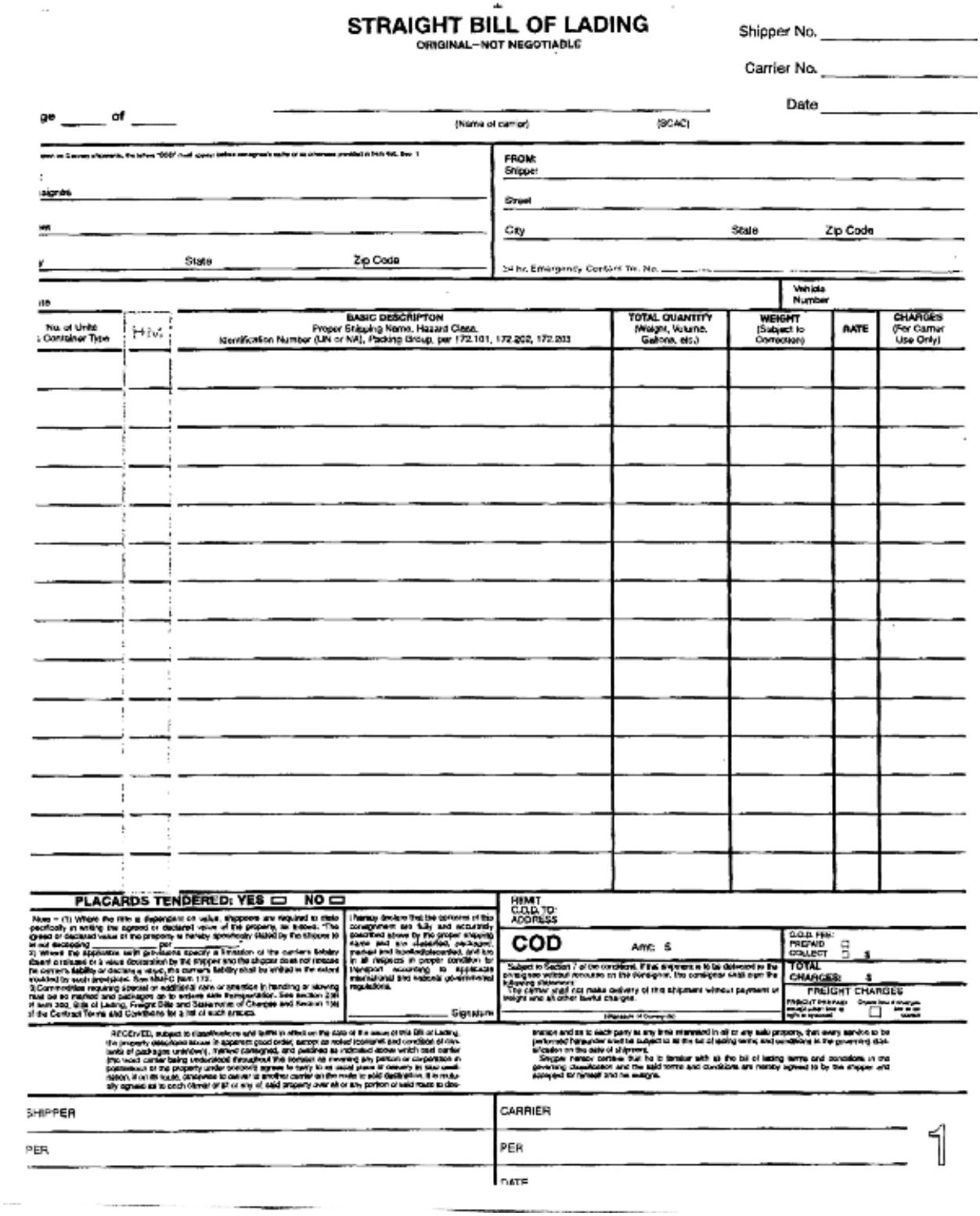
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name — Signature — Month Day Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Attachment 2 – Straight Bill of Lading – Short Forms (EXAMPLE)



STRAIGHT BILL OF LADING
ORIGINAL—NOT NEGOTIABLE

Shipper No. _____
Carrier No. _____
Date _____

ge _____ of _____ (Name of carrier) (SCAC)

FROM:
Shipper
Street
City State Zip Code
24 hr. Emergency Contact Tel. No.

Vehicle Number

No. of Units & Container Type	HM?	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)

PLACARDS TENDERED: YES ☐ NO ☐

Note – (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
2) Where the Applicable tariff publishes specific limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
3) Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See Section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 7(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

_____ Signature

HMIT
C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. Fee: PREPAID ☐ COLLECT ☐ $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____ Signature of Consignor

TOTAL CHARGES: $

FREIGHT CHARGES
FREIGHT CHARGES are ☐ Prepaid ☐ Collect ☐ Charges to be prepaid unless marked otherwise

RECEIVED, subject to classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under contract) agrees to carry to its usual place of delivery at said destination, if on its own route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER
PER
DATE

CARRIER
PER
DATE

1

Attachment 3 – Land Disposal Restriction Exemption Notification

The non-waste water identified in this shipment, Manifest Number_____, and bearing the EPA hazardous waste number(s) listed below are exempted from the land disposal prohibitions of 20 NMAC 4.1, 268 because the waste is exempted by the WIPP Land Withdrawal Act. The Land Withdrawal Act also exempts this waste from the treatment standards in 20 NMAC 4.1, 268. This waste is **NOT** prohibited from land disposal.

EPA Hazardous Waste Number (No additional codes to those listed below can be accepted at the WIPP, Check only those that are included in this shipment.):

Waste Stream Profile Number: _____

☐	D004	Arsenic	05/08/92	☐	D038	Pyridine	09/19/96
☐	D005	Barium	08/08/90	☐	D039	Tetrachloroethylene	09/19/96
☐	D006	Cadmium	08/08/90	☐	D040	Trichloroethylene	09/19/96
☐	D007	Chromium	08/08/90	☐	D043	Vinyl Chloride	09/19/96
☐	D008	Lead	08/08/90	☐	F001	Spent Solvents	11/08/86
☐	D009	Mercury	05/08/92	☐	F002	Spent Solvents	11/08/86
☐	D010	Selenium	08/08/90	☐	F003	Spent Solvents	11/08/86
☐	D011	Silver	08/08/90	☐	F004	Spent Solvents	11/08/86
☐	D018	Benzene	09/19/96	☐	F005	Spent Solvents	11/08/86
☐	D019	Carbon Tetrachloride	09/19/96	☐	F006	Sludges	09/08/88
☐	D021	Chlorobenzene	09/19/96	☐	F007	cyanide salts	07/08/89
☐	D022	Chloroform	09/19/96	☐	F009	cyanide salts	07/08/89
☐	D026	Cresol	09/19/96	☐	P015	Beryllium Powder	08/08/90
☐	D027	1,4-Dichlorobenzene	09/19/96	☐	P030	Cyanides (soluble cyanide salts), not otherwise specified (H)	06/08/89
☐	D028	1,2-Dichloroethane	09/19/96	☐	P098	Potassium Cyanide (H)	06/08/89
☐	D029	1,1-Dichloroethylene	09/19/96	☐	P099	Potassium Silver Cyanide (H)	08/08/90
☐	D030	2,4-Dinitrotolune	09/19/96	☐	P106	Sodium Cyanide (H)	06/08/89
☐	D032	Hexachlorobenzene	09/19/96	☐	P120	Vanadium Pentoxide	08/08/90
☐	D033	Hexachlorobutadiene	09/19/96	☐	U002	Acetone	08/08/90
☐	D034	Hexachloroethane	09/19/96	☐	U003	Acetonitrile (I,T)	08/08/90
☐	D035	Methyl ethyl ketone	09/19/96	☐	U019	Benzene	08/08/90
☐	D036	Nitrobenzene	09/19/96	☐	U037	Chlorobenzene	08/08/90
☐	D037	Pentachlorophenol	09/19/96	☐	U043	Vinyl Chloride	08/08/90

Attachment 3 – Land Disposal Restriction Exemption Notification (Continued)

Waste Stream Profile Number: _____

☐	U044	Chloroform	08/08/90	☐	U226	1,1,1-Trichloroethane	08/08/90
☐	U052	Cresol	08/08/90	☐	U228	Trichloroethylene	08/08/90
☐	U070	1,2-Dichlorobenzene	08/08/90	☐	U239	Xylene	08/08/90
☐	U072	1,4-Dichlorobenzene	08/08/90	☐	N/A	N/A	N/A
☐	U078	1,1-Dichloroethylene	08/08/90	☐	N/A	N/A	N/A
☐	U079	1,2-Dichloroethylene (T) 156-60-5	08/08/90	☐	N/A	N/A	N/A
☐	U103	Dimethyl Sulfate (T)	08/08/90	☐	N/A	N/A	N/A
☐	U105	2,4-Dinitrotoluene (T) 121-14-2	08/08/90	☐	N/A	N/A	N/A
☐	U108	1,4-Dioxane (T)		☐	N/A	N/A	N/A
☐	U122	Formaldehyde	08/08/90	☐	N/A	N/A	N/A
☐	U133	Hydrazine	08/08/90	☐	N/A	N/A	N/A
☐	U134	Hydrofluoric Acid	08/08/90	☐	N/A	N/A	N/A
☐	U151	Mercury	08/08/90	☐	N/A	N/A	N/A
☐	U154	Methanol	08/08/90	☐	N/A	N/A	N/A
☐	U159	Methyl Ethyl Ketone	08/08/90	☐	N/A	N/A	N/A
☐	U196	Pyridine	08/08/90	☐	N/A	N/A	N/A
☐	U209	1,1,2,2-Tetrachloroethane	08/08/90	☐	N/A	N/A	N/A
☐	U210	Tetrachloroethylene	08/08/90	☐	N/A	N/A	N/A
☐	U220	Toluene	08/08/90	☐	N/A	N/A	N/A

_____/_____/_____/_____
TCO Printed Name Signature Date Initials

REFERENCE:

20 NMAC 4.1, 268.7(a) (3)
OCT. 30, 1992–PUBLIC LAW 102-579 as amended Sept. 23, 1996–PUBLIC LAW 104-201, Subtitle F
WIPP Hazardous Waste Facility Permit, Attachment C-5b(2)
WIPP Hazardous Waste Facility Permit, Table 2.3.4

Attachment 4 – CCP RH Canister Integrity Checklist

Record Canister ID number_____

RH TRU 72-B Cask Number (if applicable) _____

Any YES answer on the inspection checklist will result in the TCO immediately contacting the facility supervisor. The facility supervisor will have the canister/container segregated **AND** the appropriate site-specific corrective actions invoked. The TCO will select a new waste canister/container for shipment. The new waste canister/container will require the same inspection per the checklist.

Visually examine 100% of each canister/container for selected payload assembly per the checklist below.

CANISTER/CONTAINER EXAMINATION		**DISCUSSION OF CRITERIA**	**CHECK ONE**	
1.	Is the canister/container obviously degraded?	Obviously degraded means clearly visible and potentially significant defects in the canister/container or canister/container surface.	YES ☐	NO ☐
2.	Is there evidence that the canister/container is, or has been, pressurized?	Pressurization can be indicated by a fairly uniform expansion of the sidewalls, bottom or top. Past pressurization can be indicated by a notable outward deflection of the bottom or top. Verify that the canister/container is not warped.	YES ☐	NO ☐
3.	Is there any potentially significant rust or corrosion such that wall thinning, pin holes, or breaches are likely or the load bearing capacity is suspect?	Rust shall be assessed in terms of its type, extent, and location. Pitting, pocking, flaking, or dark coloration characterizes potentially significant rust or corrosion. This includes the extent of the canister/container surface area covered, thickness, and, if it occurs in large flakes or built-up (caked) areas. Rusted canisters/containers may not be accepted if: • Rust is present in caked layers or deposits • Rust is present in the form of deep metal flaking, or built-up areas of corrosion products In addition, the location of rust should be noted; for example on a drum: top lid; filter region; locking chine; top one-third, above the second rolling hoop; middle one-third, between the first and second rolling hoops; bottom one-third, below the second rolling hoop; and on the bottom. Canisters/containers may still be considered acceptable if the signs of rust show up as: • Some discoloration on the canister/container • If rubbed would produce fine grit or dust or minor flaking (such that wall thinning does not occur)	YES ☐	NO ☐

Attachment 4 – CCP RH Canister Integrity Checklist (Continued)

CANISTER/**CONTAINER EXAMINATION**		**DISCUSSION OF CRITERIA**	**CHECK ONE**	
4.	Are any of the following apparent? • wall thinning • pin holes • breaches	Wall thinning, pin holes, and breaches can be a result of rust/corrosion (see discussion for #3).	YES ☐	NO ☐
5.	Are there any split seams, tears, obvious holes, punctures (of any size), creases, broken welds, or cracks?	Canisters/containers with obvious leaks, holes or openings, cracks, deep crevices, creases, tears, broken welds, sharp edges or pits, are either breached or on the verge of being breached. Verify that there is no warpage that could cause the canister/container to be unstable or prevent it from fitting properly in the applicable package.	YES ☐	NO ☐
6.	Is the load-bearing capacity suspect?	The load-bearing capacity could be reduced for excessive rust (see discussion for #3), wall thinning (see discussion for #4), breaches, cracks, creases, broken welds, etc. (see discussion for #5).	YES ☐	NO ☐
7.	Is the canister/container improperly closed?	Inspect the fastener and fastener ring (chine) if applicable for damage or excessive corrosion. Check the alignment of the fastener to ensure that it is in firm contact around the entire lid and the canister/container will not open during transportation.	YES ☐	NO ☐
8.	Are there any dents, scrapes, or scratches that make the canister's/container's structural integrity questionable or prevent the top and bottom surfaces from being parallel?	Deep gouges, scratches, or abrasions over wide areas are not acceptable. If top and bottom surfaces are not parallel, this would indicate that the container is warped. Dents should be less than ¼ inch deep by 3 inches long and between ½ inch to 6 inches wide. All other dents must be examined to determine impact of structural integrity.	YES ☐	NO ☐
9.	Is there discoloration which would indicate leakage or other evidence of leakage of material from the canister/container?	Examine the canister/container regions near vents, top lid fittings, bottom fittings, welds, seams and intersections of one or more metal sheets or plates. Canisters/containers must be rejected if evidence of leakage is present.	YES ☐	NO ☐
10.	Is the canister/container bulged?	For the purposes of this examination, bulging is indicated by: • A fairly uniform expansion of the sidewalls, bottom, or top (e.g., in the case of a drum, either the top or bottom surface protrudes beyond the planar surface of the top or bottom ring, • A protrusion of the side wall (e.g., in the case of a drum, beyond a line connecting the peaks of the surrounding rolling hoops or a line between a surrounding rolling hoop and the bottom or top ring), or Expansion of the sidewall (e.g., in the case of a drum, such that it deforms any portion of a rolling hoop).	YES ☐	NO ☐

Note: Remote Camera Inspections can be performed by reviewing recent recorded video.

Attachment 4 – CCP RH Canister Integrity Checklist (Continued)

Comments: _____
_____
_____
_____

Inspected by: _____/_____/_____
TCO Printed Name Signature Date

Attachment 5 – CCP Control Checklist for RH Controlled Shipments*

Shipment No. _____ Packaging No. _____

To be completed by CCP Transportation Certification Official, or designee, for package designated as a controlled shipment.

Activity	Recorded Date	Recorded Time	Completion of Activity (√)
Record date and time of IV closure and installation of IV vent port plug, DOE/WIPP 02-3284, *RH Packaging Operations Manual.*			
Record date and time the shipment containing the loaded package is ready to depart from site to destination			
Calculate and record total Loading Time (Limit = 24 hours)			
Total Loading time ≤ 1day, proceed to certification signature block *Total Loading time > 1, STOP. Vent package and repeat closure process*			
I certify the above data is accurate and compliant with the Loading Time limit of 24 hours, as specified in Section 6.2.3 of the RH-TRAMPAC.			
Transportation Certification Official (or designee)		Date	

*Controlled shipments (10 days) shall be made in accordance with the conditions specified in RH-TRAMPAC Section 6.2.3

_____/_____/_____/_____

TCO Printed Name Signature Date Initials

Attachment 6 – CCP Control Checklist for Receipt of RH Controlled Shipments*

Shipment No. _____ Packaging No. _____

To be completed by Site Operations personnel for package designated as a controlled shipment:

Activity	Recorded Date	Recorded Time	Completion of Activity (√)
Record date and time of package receipt			
Vent package within 24 hours of date and time recorded above and record vent date and time			
I certify the above data is accurate and compliant with the Unloading Time limit of 24 hours, as specified in Section 6.2.3 of the RH-TRAMPAC.			
Designated Site Personnel	Site	Date	

*Controlled shipments (10 days) shall be made in accordance with the conditions specified in RH-TRAMPAC Section 6.2.3. This attachment may be reformatted for Receipt Site use provided that the same information is recorded.

Contact TCO _____, at Ph# _____, upon completion of attachment for notification of completion of 24 hour unloading time, completion of 10 day controlled shipment and to arrange return email/FAX of “Attachment 6” copy, for Shipping Documentation Package.

Controlled
Copy

CCP-TP-530

Revision 11

CCP
RH TRU Waste Certification and WWIS/WDS Data Entry

EFFECTIVE DATE: 06/19/2013

Irene Joo

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	04/25/2006	Initial issue.
1	05/05/2006	Revised to address CBFO comments.
2	06/15/2006	Revised to address concerns raised during the Idaho National Laboratory (INL) Remote-Handled (RH) Audit A-06-21.
3	11/16/2006	Revised to implement the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/Remote-Handled (RH) Permit Modification Request (PMR) and to remove Transportation Certification Official (TCO) activities.
4	04/20/2007	Revised to incorporate guidance for assignment of packaging material weight for RH canister assembly and to perform miscellaneous editing.
5	07/23/2007	Revised to include the CNS 10-160B information.
6	06/25/2008	Revised to include the process for submitting transportation data only for the Battelle Columbus Laboratory (BCL) waste at Savannah River Site (SRS) using the CNS 10-160B.
7	07/11/2008	Revised to address comments from the Remote-Handled (RH)-Oak Ridge National Laboratory (ORNL) Audit as well as remove any reference to the Characterization Data System (CDS) Waste Certification Official (WCO) Review Form.
8	09/09/2009	Revised to remove Section 4.4.24 in response to CAR-RHLANL-0001-09 as well as minor editorial changes.
9	12/11/2009	Revised to allow use of the Waste Data System (WDS) as well as include steps for canisters measuring <200 millirem (mRem) per Central Characterization Project (CCP)-Standing Order (SO)-042.
10	04/25/2011	Revised Table 1, Data Sources for the RH WDS Master Template, to include a new source for Gross Weight and a new field label and source for remote-handled (RH) nondestructive assay (NDA).
11	06/19/2013	Revised to implement new Permit Modification Request Class 2 approved by New Mexico Environment Department (NMED) dated March 13, 2013 and *Contact-Handled Transuranic Waste Authorized Methods for Payload Control* (CH-TRAMPAC) changes.

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1.0 PURPOSE

The purpose of this procedure is to describe the steps the Central Characterization Program (CCP) uses for certifying remote-handled (RH) transuranic (TRU) waste for disposal at the Waste Isolation Pilot Plant (WIPP). This procedure also describes the process for entering data into the WIPP Waste Information System (WWIS)/ Waste Data System (WDS) and reporting data on containers and payload assemblies in the RH TRU 72-B and the 10-160B transportation casks that are intended for disposal at the WIPP.

In addition, this procedure may be used to enter data into the WWIS/WDS for site-to-site waste shipments using the RH TRU 72-B and/or the 10-160B transportation casks. Site-to-site waste shipments are defined as shipments with destinations to sites other than the WIPP for storage, characterization, or treatment and are distinct from site-to-WIPP waste shipments for disposal.

1.1 Scope

This procedure defines the parameters necessary for certification of RH TRU waste for disposal at the WIPP. This procedure includes the records that are generated to document that the CCP Waste Certification Official (WCO) has performed the necessary verifications and has certified the waste for disposal.

This procedure also describes how to obtain access and enter data into the WWIS/WDS for containers to be certified.

This procedure also describes the steps for entering data into the WWIS/WDS for site-to-site waste shipments.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-QP-022, *CCP Software Quality Assurance Plan*

Referenced Documents

- DOE/WIPP-09-3427, *Waste Data System User's Manual*
- DOE/WIPP 90-045, *RH-TRU Waste Content Codes* (*RH-TRUCON*)
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control* (CCP RH-TRAMPAC)
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*
- CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*
- CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*
- CCP-TP-506, *CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report*
- Safety Analysis Report for Model 10-160B Type B Radwaste Shipping Cask, Appendix 4.10.2.1, *Compliance Methodology for TRU Waste from Battelle Columbus Laboratories.* Duratek, Inc.

2.2 Training Requirements

2.2.1 Personnel who use this procedure to certify waste will be trained and qualified to the requirements for the WCO in accordance with CCP-QP-002, *CCP Training and Qualification Plan*.

2.2.2 Personnel who use this procedure to enter data will be trained and qualified to the requirements for the Waste Certification Assistant (WCA) in accordance with CCP-QP-002.

2.2.3 Personnel who use this procedure to enter data into the WWIS/WDS will refer to DOE/WIPP-09-3427, *Waste Data System User's Manual*.

2.3 Equipment List

2.3.1 None.

2.4 Software

NOTE
An "*" is a wild card used to indicate the version number included in a software name.

2.4.1 RH WDS Master Template*.xls

2.4.2 concat_WDS_files.bat

2.4.3 clean_container_files.bat

2.5 Precautions and Limitations

2.5.1 None.

2.6 Prerequisite Actions

2.6.1 None.

2.7 Definitions

2.7.1 None.

NOTE

The Data Administrator (DA) in this document refers to the WWIS/WDS Data Administrator.

3.0 RESPONSIBILITIES

3.1 Site Project Manager (SPM) or Designee

3.1.1 Confirms that personnel performing this procedure are trained and qualified in accordance with applicable requirements in CCP-QP-002.

3.1.2 Prepares a list of candidate containers for certification and transportation, as applicable, and submits to the WCO and WCA.

3.1.3 Provides the DA with a list of Waste Stream Profile Form (WSPF) Numbers.

3.1.4 Submits the WSPF to the DA for review and approval in accordance with CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data,* and CCP-TP-506, *CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report*.

3.1.5 Notifies the WCO and/or WCA of approved WSPF.

3.1.6 Notifies the WCO and/or WCA of completed Characterization Information Summary (CIS).

3.1.7 Serves as focal point for resolution of data issues.

3.2 Quality Assurance (QA)

3.2.1 Provides assistance in verifying data, completing documentation, and reviewing requirements and provides status of applicable Nonconformance Reports (NCRs) and Corrective Action Requests (CARs).

3.2.2 Confirms that there are no unresolved NCRs or CARs for containers to be certified when requested by the WCA or WCO.

3.3 Waste Certification Official (WCO) or Designee

3.3.1 Confirms that the WCOs and WCAs are granted access to the WWIS/WDS.

3.3.2 Obtains a copy of the approved WSPF for applicable containers to be certified.

3.3.3 Certifies the data for the container to be certified as identified on the CCP RH WDS Master Template.

3.3.4 Reviews the data for the container as identified on the RH WDS Master Template to be submitted for transportation purposes only.

3.3.5 Notifies Transportation Certification Official (TCO) of the WWIS/WDS Certification Module approval, if necessary.

3.3.6 Notifies the TCO of containers that are approved for Controlled Shipment, if necessary.

3.4 Acceptable Knowledge (AK) Expert

3.4.1 Extracts the necessary information for site-to-site waste shipments.

3.4.2 Works with the WCA, WCO, and DA for WWIS/WDS data input for site-to-site waste shipments.

3.5 Waste Certification Assistant (WCA)

3.5.1 Works with the WCO to obtain access to the WWIS/WDS.

3.5.2 Obtains copies of data for the RH WDS Master Template for each container from CCP Records or the Site Project Manager (SPM).

3.5.3 Generates the RH WDS Master Template and has a second WCA confirm the data is transferred correctly to the RH WDS Master Template. The second data entry person verifies the information prior to certification by the WCO.

3.5.4 Forwards the RH WDS Master Template to the WCO for certification.

3.5.5 Requests that quality assurance (QA) confirm that NCRs and CARs associated with containers to be certified have been resolved as appropriate, via electronic mail (e-mail).

3.5.6 Submits the container data from the RH WDS Master Template to the WWIS/WDS Characterization and/or Certification Modules, as applicable.

3.5.7 Submits data package to CCP Records Custodian in accordance with CCP-QP-008, *CCP Records Management*.

3.6 CCP Records Custodian

3.6.1 When applicable, receives and processes all records generated by this procedure in accordance with CCP-QP-008.

4.0 PROCEDURE

4.1 Obtaining and Changing Access to the WWIS/WDS

WCO

4.1.1 Determine which personnel need access to the WWIS/WDS (see Section 4.0 of DOE/WIPP-09-3427).

4.1.2 Request WWIS/WDS access for each person by requesting the WDS access form from the Data Administrator with a copy provided to the SPM.

4.1.3 Notify the DA when personnel who have received WWIS/WDS access:

[A] Leave the project;

[B] No longer need WWIS/WDS access; **OR**

[C] Need to change the type of WWIS/WDS access.

CCP Personnel

4.1.4 Once the DA has been notified by the WCO that personnel are to be granted access, those personnel will contact the DA to receive WWIS/WDS training and a WWIS/WDS username in accordance with the DOE/WIPP-09-3427.

NOTE
Section 4.2 is **NOT** required for site-to-site waste shipments.

4.2 Submitting the WSPF Number to the DA

SPM

4.2.1 Obtain the WSPF Number in accordance with CCP-TP-002.

4.2.2 Request the DA to establish the WSPF Number in the WWIS/WDS.

4.2.3 Confirm that the WSPF Number is correct in the WWIS/WDS Reference Table upon notification that the DA has added the WSPF Number to the WWIS/WDS.

4.2.4 Notify the WCO and WCA of the WSPF.

4.2.5 Develop a list of containers for Characterization, **AND** submit the list to the WCO and WCA for WSPF approval.

4.2.6 Develop a list of containers from an approved WSPF for certification, **AND** submit the list to the WCO and WCA when the CIS is complete.

NOTE

For site-to-site waste shipments, the required information may be obtained from the acceptable knowledge (AK) Expert. This Data will come from the process knowledge documentation. For site-to-site shipments not qualified under CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control* (CCP RH-TRAMPAC), the data will be recorded from the approved shipping plan. The source data column in Table 1, Data Sources for the RH WDS Master Template, DOES **NOT** apply to site-to-site waste shipments. CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, and CCP-PO-002, *CCP Transuranic Waste Certification Plan*, information is **NOT** required to be entered.

4.3 Entering and Verifying Characterization Data Using the RH WDS Master Template

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NOTE

For site-to-site waste shipments, verification may be from data received from the AK Expert.

WCA

4.3.1 Obtain from CCP Records or the SPM, a copy of the appropriate WSPF, Batch Data Reports (BDRs), Packaging Records, AK Summary Report, AK Tracking Spreadsheet, and radiological survey data for the list of candidate containers for certification, as applicable.

4.3.2 Request via email that QA confirm that each container being certified and entered into the RH WDS Master Template has NO unresolved NCRs and CARs.

4.3.3 Use the copies of the appropriate BDR or other data source, from CCP Records or the SPM, as listed in Table 1, to enter characterization data into the appropriate site-specific RH WDS Master Template, for each container record used to support the WSPF.

NOTE

The designator "H" must be added to the end of the Container Identification (ID) Number for all waste containers overpacked into a 55-gallon drum as identified on the applicable AK Tracking Spread Sheet if applicable. This will be the new Container ID Number.

4.3.4 Enter RH TRU Waste Content Codes (Content Codes) as described in Attachment 1, Entering of Content Codes into WWIS/WDS, as required.

4.3.5 **IF** a 30-gallon container is packaged into a 55-gallon container, **AND** the Dose-to-Curie (DTC) was performed on the 30-gallon container,
THEN add the tare weight of the 55-gallon container to the gross weight of the 30-gallon container to obtain the new gross weight.

4.3.6 Forward the completed RH WDS Master Template to a second WCA for verification.

WCA (Verifier)

NOTE

Step 4.3.7 is for a direct load canister only when a rollup of the DTC is required.

4.3.7 **IF** rollup of DTC data is required,
THEN the weight of the plastic will be the total of the gross weights of the inner containers.

4.3.8 Confirm the data entered into the RH WDS Master Template for each container record by checking the data to confirm the accuracy and completeness of the data.

4.3.9 **IF** data is accurate **AND** complete,
THEN enter initials and the date verified on the RH WDS Master Template.

4.3.10 **IF** there are any discrepancies,
THEN resolve the discrepancies with original WCA, if applicable,
AND return to step 4.3.9.

NOTE
For site-to-site shipments, contact the WCO/AK Expert if discrepancies CAN **NOT** be resolved.

4.3.11 **IF** the discrepancies CAN **NOT** be resolved,
THEN provide the RH WDS Master Template to the WCO or SPM for resolution.

NOTE
For site-to-site waste shipments, the WCO or the AK Expert will review the data prior to submittal to the WWIS/WDS.

.

4.3.12 **WHEN** the RH WDS Master Template is complete **AND** verified,
THEN forward to the WCO.

Table 1. Data Sources for the RH WDS Master Template

Field Label	Source
Characterization, Certification and Shipping Data	
Shipper Site ID or Site ID	AK Summary Report
Location ID Destination Program ID Shipping Purpose	AK Summary Report
Waste Stream Profile	AK Summary Report; WSPF
Container ID Number or Container Number	Completed CIS (Ensure payload container has a unique site-identifier prefix). For all waste containers overpacked into a 55-gallon drum as identified on the applicable AK Tracking Spread Sheet, include an "H" at the end of the drum number.
Container Type	Packaging records; visual inspection; AK Summary Report; Associated BDRs
WAC Rev #	DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
WAC Ex #	Executive Order Letter from the U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) in CCP Records
Cert Site or Certified Site	WSPF or AK Summary Report
Cert Date or Certification Date	Date WCO certifies payload container
Waste Handling Code or Handling Code	RH from Dose to Curie BDR; Radiological Characterization Report; WSPF; AK Summary Report
Waste Type Number or Waste Type	WSPF or AK Summary Report (If no hazardous waste numbers, enter TRU) If hazardous number(s) apply, enter "MTRU."
Waste Stream Baseline Inventory Report (BIR) ID Waste Stream Mixed Waste Inventory Report (MWIR) ID	WSPF or AK Summary Report (If not applicable, enter NONE)
Generator Site ID or Generator Site Item Description Code (IDC) Code or IDC Waste Matrix (parameter) Code or Matrix Code	WSPF or AK Summary Report (NONE if no IDC available)

Table 1. Data Sources for the RH WDS Master Template (Continued)

Field Label	Source
Content Code or TRUCON Code	Remote-Handled Transuranic Content Codes, AK Summary Report, WSPF, Characterization Info. Summary. See Attachment 1.
TRU Alpha Act TRU Alpha Act Uncertainty TRU Alpha Act Concentration (conc.) TRU Alpha Act Conc. Uncertainty Pu239 fissile Gram Equivalent Pu-239 Fissile Gram Equivalent Uncertainty Pu-239 eq. act. Decay Heat Decay Heat Uncertainty	Waste Container Dose-to-Curie Conversion Record (DTC BDR), Radiological Characterization Report, Waste Container Radiological Characterization Record AK record for BCL waste
Layers of Packaging	Visual Examination (VE) BDR; Radiography BDR; AK Summary Report; WSPF
Fill Factor	Dose-to-Curie BDR, Radiological Characterization Report, VE BDR
Liner Type or Liner Exists	VE BDR. Radiography BDR; AK Summary Report; RH Content Code Document
Field Label	Source
Liner Punctured or Liner Hole Size Liner Lid Present	VE BDR. Radiography BDR or AK Summary Report. No liner lid indicates liner is vented with default hole size of 457.2 mm for 30-gallon drum and 478 mm for 55-gallon drum.
Polychlorinated Biphenyl (PCB) Waste, PCB Concentration, PCB Mass PCB Out-Of-Service Date	WSPF or AK Summary Report. If yes, then PCB mass = net weight and PCB out-of-service = Closure date unless otherwise stated in other documentation.
Aqueous Material Beryllium Present Beryllium less than or equal to 100 kg Beryllium less than or equal to 1% Machine Compacted Beryllium chemically/mechanically bound	AK Tracking Spreadsheet or AK Summary Report
Closure Date	AK Tracking Spreadsheet, Remediated Drum Spreadsheet, or AK Summary Report, Canister Loading Data Sheet
Vent Date	AK Tracking Spreadsheet, Remediated Drum Spreadsheet, or AK Summary Report, Canister Loading Data Sheet
Filter Install Date Filter Model Number of filters installed	Flammable Gas Analysis BDR, VE BDR, RTR BDR, AK Tracking Spreadsheet or Remediated Drum Sheet, Canister Loading Data Sheet, AK Summary Report
Aspiration Method ID	AK Tracking Spreadsheet, Remediated Drum Spreadsheet, AK Summary Report, Flammable Gas Analysis BDR, Project AK Summary Report
Gross Weight	Waste Container Dose-to-Curie Conversion Record (DTC BDR) or Scale Certification Data, Canister Loading Data Sheet, Radiological Characterization Report, Waste Container Radiological Characterization Record
Gross Weight Uncertainty	VE BDR, Radiography BDR, or Scale Certification Data, Canister Loading Data Sheet, Bounding Case for drums loaded in canisters (2.3 kg)
Alpha Surf Cont Beta/Gamma Surf Cont Neutron Dose Rate Beta/Gamma Dose Rate	RCT Report RCT Report RCT Report RCT Report

Table 1. Data Sources for the RH WDS Master Template (Continued)

Field Label	Source
Radionuclide Data	
Radionuclide Activity (Ci) Activity Uncertainty (Ci)	Waste Container Dose-to-Curie Conversion Record(DTC BDR), Canister loading data sheet, Radioassay BDR, Radiological Characterization BDR/Radiological Characterization Report, Waste Container Radiological Characterization Record
Assay Method Data	
Radioassay Method	WWIS/WDS Reference Tables/Library; Certification Letters
Data Package Number	Dose-to-Curie BDR, Radiological Characterization Report, Waste Container Radiological Characterization Record, Radioassay BDR
Assay Date (actual assay date)	Dose-to-Curie BDR, Radiological Characterization Report, Waste Container Radiological Characterization Record, Radioassay BDR
Material Parameter Data	
Waste Material Parameter	VE BDR or Real-Time Radiography (RTR) BDR
Waste Weight	Waste Container Dose-to-Curie Conversion Record (DTC BDR), Radiological Characterization Report, Waste Container Radiological Characterization Record
Characterization Method Data	
Charz Method ID	WWIS/WDS Reference Table/Library; Certification Letters
Data Package Number	VE or RTR BDR
Charz Method Date	VE or RTR BDR
Hazardous Waste Numbers Data	
Hazardous Waste Numbers	WSPF or AK Summary Report
Date Sampled	Flammable Gas Analysis BDR, N/A for canister, AK Sufficiency
Method ID Data Package # Analyte Sample ID Sample Type Layer Sampled	WWIS/WDS Reference Table/Library; Certification Letters Flammable Gas Analysis BDR, AK Sufficiency
Units (% vol., mg/kg, ppm) Concentration Date Analyzed	Flammable Gas Analysis BDR, AK Sufficiency
Cas # Reporting Flag D Reporting Flag U Reporting Flag N/A	Flammable Gas Analysis BDR
Flammable VOCs < 500 ppm	AK Summary Report, Content Code, Process Knowledge Summary Report

NOTE

Section 4.4 is **NOT** required for site-to-site waste shipments.

4.4 Waste Certification (By Container of Waste)

WCO

4.4.1 Verify the appropriate WWIS/WDS Data Entry RH WDS Master Template is being used.

4.4.2 Confirm that the TRU alpha activity concentration is greater than 100 nanocuries per gram (nCi/g) for each container.

4.4.3 Confirm that the RH WDS Master Template contains accurate, and complete information for the container by checking that the WCA has completed their input and review.

4.4.4 **IF** there are any open NCRs/CARs,
THEN confirm that, for the container you are certifying, all issues associated with the open NCRs/CARs have been resolved.

4.4.5 Review the waste stream information against the applicable Content Code and data sources to confirm the waste is **NOT** an incompatible waste.

4.4.6 Verify that the RH WDS Master Template contains the correct WSPF Number for that container as listed in the AK Tracking Spreadsheet.

4.4.7 Verify at least one TRU isotope is greater than lower limit of detection (LLD).

4.4.8 Ensure that each payload container has a site-specific identifier as a prefix to the Container ID Number.

NOTE

For debris waste (S5000), the WCO will assess the data for the container to assign the material parameter weights. In steps 4.4.9 and 4.4.10, the WCO will compare the material parameter data (waste weights in kg) to the number obtained by multiplying the volume of the waste container by the maximum loading density of plastic (620 kg/m^3).

4.4.9 **IF** the calculated weight of the plastic is greater than or equal to the waste weight (kg) of the container,
THEN enter the waste weight of the container as “Plastic” in the RH WDS Master Template.

4.4.10 **IF** the calculated weight of the plastic is less than the waste weight (kg) of the container,
THEN enter the calculated weight as "Plastic" in the RH WDS Master Template, **AND** assign in the RH WDS Master Template the remaining waste weight to the waste material per the percentages as identified in the applicable waste stream AK Summary Report.

NOTE

For soil/gravel waste (S4000), the WCO will assess the data for the container to determine the estimated weight of cellulose, plastics, and rubber (CPR) for any reported debris material. In steps 4.4.11 and 4.4.12, the WCO will review the data and confirm that the derived weight entered into RH WDS Master Template for any debris material reported will have a waste material parameter type of "Plastic."

4.4.11 **IF** the container (S4000) DOES **NOT** contain any debris material,
THEN assign the net weight of the container as waste material parameters of "Soil" in the RH WDS Master Template.

4.4.12 **IF** the container (S4000) does contain any debris material,
THEN enter the estimated weight of the debris as "Plastic" and the remaining net weight of the container as "Soil" in the RH WDS Master Template.

NOTE

For homogeneous solid waste (S3000), the WCO will assess the data for the container to determine the estimated weight of CPR for any reported debris material. In steps 4.4.13 and 4.4.14, the WCO will review the data and confirm that the derived weight entered into RH WDS Master Template for any debris material reported will have a waste material parameter type of "Plastic."

4.4.13 **IF** the container (S3000) DOES **NOT** contain any debris material,
THEN assign the net weight of the container as waste material parameter type appropriate to the waste (e.g., solidified inorganic material, solidified organic material, cement) in the RH WDS Master Template.

4.4.14 **IF** the container (S3000) does contain debris material,
THEN enter the estimated weight of the debris as "Plastic" and the remaining net weight of the container as the waste material parameter type appropriate to the waste (e.g., solidified inorganic material, solidified organic material, and cement) in the RH WDS Master Template.

4.4.15 **IF** the container is certifiable,
THEN sign and date the RH WDS Master Template **AND** forward to WCA for submittal to WWIS/WDS.

4.4.16 **IF** container is **NOT** certifiable,
THEN proceed to step 4.4.20.

WCA

4.4.17 Request, via e-mail, that QA confirm that each container being certified and entered into the WWIS/WDS has NO unresolved NCRs and CARs, if applicable.

QA

4.4.18 Prepare report verifying that each container being certified has NO unresolved NCRs and CARs.

4.4.19 Forward report to WCA.

WCO

NOTE
To remove the HOLD on a Container Data Folder, a WCO must confirm deficiencies NO longer exist.

NOTE
Prior to submittal to the WWIS/WDS, WCO/WCA and QA must perform step 4.4.17 through 4.4.19, as applicable.

4.4.20 **IF** there is an issue with data,
THEN attempt to resolve issue with SPM.

[A] **IF** resolved,
THEN proceed to Step 4.5.

4.4.21 **IF** a deficiency in data is identified after a Container Data Folder is created and before submittal to the WWIS/WDS and CAN **NOT** be resolved with SPM,
THEN perform the following:

[A] Initiate an NCR in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*, as directed by the SPM.

[B] Place the Container Data Folder in the WCO Hold Drawer until disposition is met.

NOTE

Data entry for site-to-site waste shipments shall be submitted into the Intersite Shipping Module within the WWIS/WDS.

NOTE

The WCO or WCA uses a macro (CreateTmpTables) and ancillary worksheets that are part of the RH WDS Master Template.

NOTE

If required, for filtered waste containers or containers requiring inner can data, the data required by WWIS/WDS for the inner cans will be entered as applicable based on an individual container basis (inner can ID, decay heat, decay heat uncertainty, closure date, vent date, filter diffusivity, flammable gas generation rate or hydrogen concentration, and sample date) after the waste containers are entered into the WWIS/WDS.

4.5 Waste Certification WWIS/WDS Submittal

WCO or WCA

4.5.1 Generate tab-delimited files from the electronic WWIS/WDS DATA RH WDS Master Template corresponding to the WWIS/WDS Temporary Database Tables by selecting the CREATE TMP TABLES.

4.5.2 OPEN TempTables Folder to run batch programs, **AND** OPEN concat_WDS_files.bat to copy all containers into upload files readable by WWIS/WDS.

4.5.3 Log on to WWIS/WDS.

[A] Select DATA UPLOAD FUNCTION.

[B] Select BROWSE to open the Temptables folder.

[C] Select the text file to be uploaded.

[D] Select CERTIFICATION or CHARACTERIZATION based on whether or not the waste stream is approved.

[E] Select PERFORM EVALUATIONS if applicable.

[F] Select UPLOAD CONTAINERS.

[G] **IF** container upload is successful,
THEN GO TO step 4.5.4 if inner can data is required or GO TO step 4.5.5 if complete.

[H] **IF** container upload fails,
THEN select VIEW EXIT CODES **OR** print error messages on screen as applicable.

[I] **IF** container upload error(s) can be fixed,
THEN fix errors, **AND** repeat steps 4.5.1 through 4.5.3[H] until successful **OR** container CAN **NOT** be fixed.

[J] **IF** container transfer CAN **NOT** be fixed,
RETURN Container Data Folder to WCO.

NOTE

For containers with inner can data and/or data for a 30-gallon container overpacked into a 55-gallon container, follow steps 4.5.4 through 4.5.5. Once complete proceed to step 4.5.7.

NOTE

A unique Inner Container ID must be entered using the 55-gallon number with an H suffix when a 30-gallon container is overpacked into a 55-gallon container in the Inner Can Data in WWIS/WDS.

4.5.4 Select CONTAINER CERTIFICATION DATA SUBMITTAL/CONTAINER CHARACTERIZATION DATA SUBMITTAL based on whether or not the waste stream is approved.

[A] Select SEARCH and enter the container number and select SEARCH.

[B] Select applicable container.

[C] Select INNER LAYER and enter the applicable data.

[D] Select SUBMIT for approval.

4.5.5 **WHEN** complete,
THEN exit the system AND open the temptables folder and RUN clean_container_files.bat to clear the temptables folder of all upload file data.

4.5.6 **IF** a deficiency is identified after the container data is submitted to the WWIS/WDS,
THEN:

[A] Request in writing (e.g., e-mail), with CCP Management approval, that the Data Administrator reject the container from the WWIS/WDS, if applicable, **AND**

[B] Obtain confirmation (e.g., email) from the Data Administrator that the container is rejected, if applicable.

[C] Initiate an NCR in accordance with CCP-QP-005, as necessary.

4.5.7 Compile the following items used in the submission of data to the WWIS/WDS, **AND** submit to the CCP Records Custodian:

[A] The completed RH WDS Master Template for each container submitted to and approved by the WWIS/WDS

[B] The completed WWIS/WDS Transportation Only RH WDS Master Template for each Packaging Container submitted to and approved by the WWIS/WDS

[C] NCR/CAR check from QA e-mail (not applicable for BCL transportation data)

[D] Any correspondence (e.g., memorandum/e-mail notifications) associated.

CCP Records Custodian

4.5.8 When applicable, receives and processes all records generated by this procedure in accordance with CCP-QP-008.

NOTE

The WWIS/WDS Canister Planning and Completion Module utilizes edit and limit checks when data is entered and selected. The WWIS/WDS steps in the following section may be repeated until overpack compliance is satisfied. Default data may be used to generate the build list for the TCOs.

NOTE

The recommended container selection for the canister can either be provided by the Host site, based on As Low As Reasonably Achievable (ALARA) needs for movement of the drums and container retrievability, or determined by the WCO.

WCO

4.6 Container Selection and certification for RH TRU 72-B waste canister using the WWIS/WDS.

4.6.1 LOGON to the WWIS/WDS.

4.6.2 Select CANISTER PLANNING and COMPLETION.

4.6.3 Select NEW.

4.6.4 Enter applicable data in the Canister Information Section as follows, then select SEARCH.

[A] Canister Configuration Type
[B] Certification Program ID
[C] Current Location
[D] Destination Site ID
[E] Shipping Program ID
[F] Waste Stream Profile Code

4.6.5 Select the appropriate containers from the Candidate Containers Section.

4.6.6 Select ACCEPT.

4.6.7 Enter the Canister number in the Enter Container Number field and select ACCEPT.

4.6.8 **ONCE** the Canister Plan is accepted,
THEN enter the remaining applicable canister information for Certification.

4.6.9 Generate the Build List and provide to TCO as applicable.

4.6.10 **IF** the canister requires a controlled shipping period,
THEN the WCO will indicate on the Build List.

NOTE

Some 55-gallon containers loaded into the Removable Lid Canister use an RH TRU Drum Handling Bag (lift bag). The lift bag weighs 1.42 kg and is made of polyester fabric. The lift bag can not be retrieved from the canister after loading.

4.6.11 Receive the Loading Form from the TCO and enter the required certification data including the lift bag data if applicable.

4.6.12 **IF** the canister dose rate from the TCOs is < 200 mRem **AND** all inner containers are > 200 mRem,
THEN use the highest dose rate from the inner containers.

4.6.13 SUBMIT the canister for approval.

4.6.14 After successful submittal for approval, print the Canister Data Report, date and sign with title.

4.6.15 Compile the following items used in the submission of data to the WWIS/WDS, **AND** submit to the CCP Records Custodian:

[A] Copies of the data containing the RH TRU waste canister, radiological survey, and filter information used to enter data above

[B] The completed Canister Data Report for the data submitted

[C] Correspondence (e.g., memorandum/e-mail notifications).

CCP Records Custodian

4.6.16 When applicable, receives and processes all records generated by this procedure in accordance with CCP-QP-008.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as QA records in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Lifetime Records

[A] Container Certification:

[A.1] RH WDS Master Template

[A.2] Correspondence (memorandum/e-mail notifications)

[A.3] Radiological Survey Information, if applicable

[B] Canister Certification:

[B.1] RH WDS Master Template

[B.2] Waste Canister Data Report

[B.3] Waste Canister Loading Sheet, if applicable

[B.4] Radiological Survey Information, if applicable

Attachment 1 – Entering of Content Codes into WWIS/WDS

NOTE
The Content Code may be assigned by the WWIS/WDS based on the information submitted on the RH WDS Master Template.

1. INTRODUCTION

This appendix describes the steps used to enter assigned RH Content Codes into the RH WDS Master Template using various sources of characterization data. Entering the Content Code is performed by the waste certification staff based on the waste material contents and the layers of packaging used for each container. Content Code assignment is reviewed and approved by the WCO during container certification unless the Content Code is assigned by the WWIS/WDS.

2. ASSIGNING THE NUMERIC VALUE

Assign the Content Code based on the container waste stream assignment. The Content Code identified in AK may be confirmed by RTR or VE. Enter the Content Code in RH WDS Master Template.

3. ASSIGNING A LETTER DESIGNATOR

The letter designator of the Content Code is assigned using packaging information from the following sources, which are listed in order of priority of usage:

- VE BDRs, if available
- If RTR information is undetermined, use the default assignment given in (or determined from) the AK Summary Report for the applicable waste stream.

4. OTHER

For waste packaged under a U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) audited and approved certification program (newly generated waste exempted from RTR), use the Content Code assigned in the packaging documents.

Effective Date: 05/22/13

WP 13-QA.03
Revision 22

Quality Assurance Independent Assessment Program

Cognizant Department: Quality Assurance

Approved by: Val Cannon

Nuclear Waste Partnership LLC

A URS-led partnership with B&W and AREVA

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CHANGE HISTORY SUMMARY

REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
18	06/20/11	Added allowance for the Assurance Programs manager to extend the time limit for issuance of an audit report. (6.0)
19	02/28/12	Added discussion of effectiveness reviews (Introduction). Added clarification for developing criteria for (4.3) and performing (5.0) effectiveness reviews. Deleted reference to EFCOG Contractor Guide For Performance of Effectiveness Reviews (4.3, 5.0).
20	01/25/13	• Deleted requirements to enter external assessment findings in CTS throughout the document. • Updated organization names in accordance with MD 1.1.
21	03/04/13	• Removed from section 2.0 last bullet of lead assessor responsibilities and last bullet of surveillor responsibilities. • Added to sections 5.0 and 6.0 provisions to document findings corrected during assessment on the WIPP Form in accordance with WP 04-IM1000 (Corrective action for CBFO CAR 12-020). • Deleted attachment 9, and added reference to WP 09-CN3025 in section 4.3. • Deleted Attachment 10, Concerns Form and its mention from section 5.0.

22	05/22/13	• Added statement to Introduction that commercial grade surveys are performed in accordance with this procedure and WP 09-CN3040, *Commercial Grade Item Dedication*. • Added bullets in section 2.0 to delegate the responsibility for identifying the need for technical assistance when performing assessments to the lead assessor and surveillor. • Reworded lead auditor/surveillor actions to be consistent with QAPD language in section 4.3. • Added additional methods for performing effectiveness reviews in section 5.0. • Deleted requirement in section 5.0 to notify CBFO of deficiencies in DOE requirements (Original requirement was deleted in DOE O 226.1B). • Deleted note in section 6.0 about issuing WIPP Forms for assessment findings (this information is discussed elsewhere). • Changed P-A Coordinator to Compliance Coordinator throughout. • Added discussion item “Potential hazards” to attachment 10.

ABBREVIATIONS and ACRONYMS

ALARA	as low as reasonably achievable
CAM	continuous air monitor
CAQ	condition adverse to quality
CBFO	Carlsbad Field Office
CDA	corrected during assessment
CFR	Code of Federal Regulations
CH	contact-handled
CMS	Central Monitoring System
CTS	commitment tracking system
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
HEPA	high-efficiency particulate air (filter)
HVAC	Heating, Ventilation, and Air Conditioning
ISM	Integrated Safety Management
NRC	U.S. Nuclear Regulatory Commission
NWP	Nuclear Waste Partnership LLC
P-A	Price-Anderson
PPE	personal protective equipment
QA	Quality Assurance
QAPD	Quality Assurance Program Description
QSL	Qualified Suppliers List
RH	remote-handled
SDD	System Design Description
VSS	Vital Safety System
WHB	Waste Handling Building
WIPP	Waste Isolation Pilot Plant

1.0 INTRODUCTION[1]

The purpose of this document is to define and prescribe quality assurance (QA) methods and techniques used to identify, schedule, plan, perform, report, and close independent assessments, and to identify the resulting records.

This document applies to Nuclear Waste Partnership LLC (NWP) QA personnel qualified to lead and/or perform independent assessments. It also applies to cognizant managers of organizations being assessed.

Independent assessments may be performed as audits or surveillances. Audits are generally larger, more formal assessments of quality program elements or supplier programs. Surveillances are generally smaller assessments of specific activities, but may also be expanded and performed on quality program elements. Where the term "assessment" is used in this document, it applies to both audits and surveillances. Where actions apply only to an audit or surveillance, it will be so stated.

Commercial grade surveys are performed in accordance with this procedure and WP 09-CN3040, *Commercial Grade Item Dedication*.

Effectiveness reviews are conducted as surveillances to verify the effectiveness of corrective actions implemented to prevent the recurrence of significant issues, problems, or events.

Assessments may contain elements of inspections, testing, monitoring work in progress, and checking to support the reviews that comprise assessment activities.

Assessments evaluate the adequacy of program documents and implementation, including effectiveness of established programs, and processes for compliance with WP 13-1, *Nuclear Waste Partnership LLC Quality Assurance Program Description* (NWP QAPD), other QA program documents, and purchase order requirements, as applicable. Assessments focus on improving items, services, and processes by emphasizing the achievement of quality by line organizations. Regularly scheduled program assessments may be supplemented by or integrated with additional technical assessments (e.g., surveillances and limited scope audits).

Assessments are performed using reviews, interviews, observation and monitoring, and checks. Actual and/or potential deficiencies are noted. Timeliness of corrective actions is evaluated. Supplier assessments verify conformance to applicable purchase orders and the QA requirements imposed by contract, or evaluate potential for providing products or services in compliance with NWP QA requirements. Scheduling is based on frequency required by regulation, ongoing project activities (e.g., previous audit results, adverse trends, or requests from other line organizations), and capabilities. Internal assessment findings and associated corrective actions are entered and tracked in the Issues Management (WIPP Form) System in accordance with WP 04-IM1000, *Issues Management Processing of WIPP Forms*.

Implementation of the program generates the following record(s), as applicable. Any records generated are handled in accordance with departmental Records Inventory and Disposition Schedules.

- NWP QA Independent Assessment Subject Master Table
- Approved Audit Schedule
- Audit Plan
- Assessment Checklist
- Audit Report
- Audit follow-up documentation
- Surveillance Report
- Surveillance follow-up documentation
- Independent Assessment Record File Completion Checklist
- Technical Specialist/Auditor Participation Indoctrination for Quality Assurance Audits

2.0 RESPONSIBILITIES

The Assurance Programs manager is responsible for:

- Implementation of this document.
- Ensuring that assessment personnel have sufficient authority and organizational freedom to carry out their assigned responsibilities.
- Approval of the assessment schedules.
- Qualification of lead auditors and QA Surveillors (surveillors) in accordance with WP 13-QA.04, *Quality Assurance Department Administrative Program*.
- Assignment of assessment team leaders.
- Concurrence with assessment team selection.
- Assignment of surveillors.

The lead assessor is responsible for:

- Selecting the assessment team.
- Identifying the need for technical assistance when performing assessments.
- Approving assessment checklists.
- Organizing and directing the assessment.
- Reporting the assessment results.

The surveillor is responsible for:

- Performing surveillances.
- Identifying the need for technical assistance when performing assessments.
- Organizing and directing the surveillance.
- Reporting the surveillance results.

3.0 DEFINITIONS

Corrected During the Assessment (CDA) – An isolated condition adverse to quality (CAQ) requiring only remedial action to correct and for which resolution can be verified through review of objective evidence prior to the exit meeting.

Finding – A condition, applicable to the program or process being audited, that deviates from specified requirements defined by codes, standards, or other established specifications (a clear violation of a clear requirement).

Observation – A condition that, if left unattended, could become a deviation from established acceptance criteria; or a suggestion that, if enacted, could strengthen the existing program.

4.0 PREPARATION FOR ASSESSMENTS

4.1 QA Independent Assessment Identification

Waste Isolation Pilot Plant (WIPP) program elements or activities requiring independent assessment are found in:

- WP 13-1, *Nuclear Waste Partnership LLC Quality Assurance Program Description*
- DOE/CBFO 94-1012, *U.S. Department of Energy Carlsbad Field Office Quality Assurance Program Document*
- Hazardous Waste Facility Permit NM4890139088-TSDF

Additional programs, processes, or activities important to compliance application, nuclear safety, waste characterization, or the isolation of waste within the disposal system require independent assessments to verify adequate and effective performance. These programs are found in:

- Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2000-2, Configuration Management Vital Safety Systems
- DOE/WIPP-04-3310, *WIPP Environmental Policy Statement*

- DOE/WIPP-07-3372, *Waste Isolation Pilot Plant Documented Safety Analysis*
- DOE/WIPP-07-3373, *Waste Isolation Pilot Plant Technical Safety Requirements*
- EFCOG Contractor Guide For Performance of Effectiveness Reviews
- NWP procedures that prescribe assessments

Activities which affect the following require independent assessments, in accordance with the contractor assurance system established by U.S. Department of Energy (DOE) Order 226.1B, Implementation of Department of Energy Oversight Policy:

- Environment, safety, and health (e.g., protection of the environment, workers, and the public from damage or injury)
- Safeguards and security
- Emergency management
- Cyber security

Independent assessments performed in accordance with the contractor assurance system include evaluations of compliance with the following, as applicable:

- Laws
- Regulations
- National standards
- DOE directives
- DOE-approved plans and program documents (e.g., authorization basis documents and QA program)
- Site-specific procedures/manuals
- Criteria review and approach documents
- Contractual performance objectives, and other contractually mandated requirements

The scope and frequency of audits scheduled and performed in accordance with the contractor assurance system must ensure that:

- Assessments required by applicable DOE directives, including environment, safety, and health, safeguards and security, emergency management, and cyber security, are being performed;

- The effectiveness of safety management programs, including programs that are credited in the safety basis, is being assessed adequately;

- Deficiencies are being self-identified; and

- Corrective actions are being taken in a timely and effective manner.

Supplier audits are based on requests for new suppliers to be added to the NWP QSL; those suppliers currently on the QSL which are due for reevaluation, or have their authorized scope changed; and suppliers providing products or services under Title 10 *Code of Federal Regulations* (CFR) Part 71, that require a facility audit every three years. These requests and reevaluations are processed in accordance with WP 13-QA3012, *Supplier Evaluation/Qualification*.

The Assurance Programs manager or assigned cognizant individual will:

- Review WIPP requirements documents and identify needs for independent assessments based on both written requirements for independent assessments and other programs or processes that affect safety, storage of waste, or the environment, the importance of which necessitates assurance of compliance.

- Upon notification from a QA procurement reviewer or a NWP Contracting Officer that a project is scheduled to begin or is ongoing, evaluate the need for initial and follow-on independent assessments based on this section 4.0.

- Review the potential assessment to be added using the criteria in the Assessment Priority Determination Tables (provided in attachment 1). Document a decision for either an audit or a surveillance on the NWP QA Independent Assessment Subject Master Table (example provided in attachment 2). This table is controlled by Assurance Programs and each revision, with date, is a record. A copy is located on the network in WQNRA on the Torreon server, under the folder "Assessment Planning," subfolder "Assessment Subject Master Table."

- Determine a frequency at which the assessment should be performed. If established by the requirement, that frequency is to be used. If not established by requirement, determine an adequate frequency based on relative risk, hazards, and complexity of the processes and activities to be evaluated. Also consider the scope and coverage of previous oversight activities, and historical performance. Document the frequency on the NWP QA Independent Assessment Subject Master Table.

4.2 QA Independent Assessment Scheduling

Assessments will be scheduled to begin as early in the life of a project or activity as practicable, and will continue at intervals consistent with the schedule for accomplishing the work.

The Assurance Programs manager or assigned cognizant individual will:

- Evaluate the timing of the first, or next, occurrence for the assessment to be scheduled against all current or planned assessments. Consider resources, date required, time available, known regulatory oversight preparedness needs, associated historical issues, and client expectations, then schedule the assessment to best accommodate the need.

- Document external (supplier) audits on the NWP QA Fiscal Year External Audit Schedule (example supplied in attachment 3), completing all necessary fields as applicable. Suppliers of parts and materials, and services regulated by 10 CFR 71, Subpart H, will require the performance of a site audit on a triennial basis. (Reg. Guide 7.10, section 18.2)

- Document internal audits on the NWP QA Fiscal Year Internal Audit Schedule (example supplied in attachment 3), completing all necessary fields as applicable.

- Develop additional informal schedule tools to track assessments, as necessary.

The Assurance Programs manager will:

- Review and approve internal and external audit schedules and revisions.

- Revise or update QA assessment schedules, as applicable, to reflect current needs.

- Approve any extensions or cancellations to the audit schedules prior to deviating from the approved schedule and notate the rationale on the next revision of the schedule.

- Distribute assessment schedules to the Carlsbad Field Office (CBFO), affected NWP management, applicable assessment personnel, and the assessment file.

4.3 QA Independent Assessment Planning

Assessments include audits and surveillances. Direction regarding assessments applies to both audits and surveillances. The term "assessor" denotes the person performing either the audit or surveillance, as appropriate. Any direction specific to either audits or surveillances is indicated where applicable.

The Assurance Programs manager will:

- Direct an assessment coordinator to maintain the Independent Assessment schedule and tracking documents. The log (see example in attachment 9) will be used to issue assessment numbers, and collect certain information regarding the assessments. The schedules (example, see attachment 3) contain certain deliverable information.

- Assign a qualified lead auditor to lead/perform audits. Determine if an audit team is necessary due to size or complexity of the scope.

- Assign a qualified surveillor or qualified lead auditor to perform surveillances.

The assessment coordinator will:

- Develop and maintain an independent assessment log for systematically issuing unique numbers to assessments performed by NWP QA. The log is to contain, at a minimum, the assessment number, assessment subject or manufacturer, date performed, assessor identification, and status.

- Develop and maintain schedules that contain the anticipated assessments for a specific time frame. The anticipated assessments are identified in the NWP QA Independent Assessment Subject Master Table with their respective performance frequencies. As the assessments are performed, collect applicable information and enter into the appropriate document.

- Prepare copies of the schedules for record or contract deliverable purposes, as necessary.

The lead auditor/surveillor will:

- Obtain from the assessment coordinator an audit or surveillance number that denotes the type of assessment ("I" or "E" for internal or external audit, or "S" for surveillance, the fiscal year, and a sequential number beginning with 01 (e.g., I06-01, E06-01, S06-01).

- Contact the cognizant individual for internal audits/surveillances or the supplier for external audits/surveillances to determine any safety/security issues and precautions of which the team should be aware. This includes Personal Protective Equipment (PPE), badging, logistics information, etc. Document the safety/security issues and precautions in the audit plan.

- Select an assessment team, if a team is needed, based on the scope, complexity, or special nature of the work being assessed, technical qualifications, knowledge of the items and activities being assessed, availability, experience, and the prospective assessor's ability to provide an objective contribution.

- Ensure the following, as applicable:

  — Personnel having direct responsibility for performing the activities being assessed shall not be involved in the selection of the team. Team members shall have the authority to carry out their assigned responsibilities and be independent from the items and/or processes being assessed. Assessors shall be authorized in accordance with WP 13-QA.04, and/or perform under the supervision of a lead auditor.

  — During assessments, technical specialists shall be used when evaluating the adequacy of technical processes. Technical specialists will be indoctrinated by the lead assessor commensurate with the scope, complexity, or special nature of the work being assessed, and of the assessments process associated with their duties. This indoctrination will be documented using a format similar to that defined in attachment 10. Attachment 10 may also be used to indoctrinate other assessors from the assessment group, at the discretion of the lead assessor.

  — External peers or subject matter experts may be used as necessary to support assessment activities.

- Ensure that the team members collectively have appropriate training and experience commensurate with the scope of the assessment.

- Indoctrinate the audit team to the audit process, as needed, and their associated tasks before the audit. Include a review of potential hazards and plan accordingly for proper PPE, ALARA (as low as reasonably achievable), and additional controls deemed necessary. Document the indoctrination using a format similar to that defined in attachment 10.

- Prepare the audit plan, for both internal audits and external supplier audits, using guidance in attachment 4, and obtain QA management approval. The audit plan will include purpose, scope (including the work to be assessed and related corrective actions since previous assessments), requirements, audit personnel, organizations to be notified, applicable documents, written procedures to be used, schedule, safety/security issues and precautions, and background. Background should include previous findings, Corrective Action Requests, and weaknesses noted within the intended scope. For external supplier assessments, obtain supplier history from the QSL file or Coordinator.

- Review, with team members, any plan generated, pertinent background information that includes previous audit or oversight results, applicable procedures, and applicable technical documents so that team members are familiar with the work being assessed.

- If the assessment is external, notify the affected organization or company management by correspondence of the scheduled assessment, identifying the scope of the assessment. The notification need not include the audit checklist.

- Determine, with QA management, when internal surveillances are to be formally announced prior to performance. In such cases, notify the organization to be surveilled by correspondence of the surveillance, its scope, and schedule.

Assessor(s) will:

- Refer to the NWP QA Independent Assessment Subject Master Table for identification of requirements documents from which assessment criteria should be developed.

- Develop the criteria to be used during the assessment based on approved requirements; will also consider the following when developing criteria:

  — For internal assessments, include criteria, as applicable, to assess application of Integrated Safety Management (ISM) in accordance with Management Policy MP 1.28, *Integrated Safety Management*, and WP 15-GM.03, *Integrated Safety Management System Description*. The Safety Management Responsibilities section of the latter document provides a source from which criteria can be generated. For internal assessments, the intention is to review the ISM controls in evidence or exhibited in the activity being assessed. For external assessments, ISM controls may be considered regarding the hazards that the assessor could encounter (e.g., anticipated hazards mitigated by adequate PPE).

  — Although Graded Approach is assessed separately, consider possible criteria in accordance with WP 09-CN3005, *Graded Approach to Application of QA Controls*.

  — Consider Conduct of Operations criteria applicable to the activity being assessed.

  — Consider environmental controls or environmental response to unusual occurrences applicable to the activity being assessed.

  — Consider software controls applicable to the activity being assessed.

- When assessing a WIPP Vital Safety System (VSS), develop criteria from the following:

  — Applicable portion of WP 09-CN3025, Annual System Health/Walkdown/Requalification, Attachment 1, Assessment Boundary for Vital Safety System Definitions

— General for VSS assessments - Timely closure of modifications, Cognizant Engineer walkdowns, periodic maintenance performed as required in SDDs, maintenance performed in accordance with manufacturer recommendations, combustible materials in the disposal circuit in the underground, software QA

- For an audit, develop the audit checklist(s) under the direction of the lead auditor using the guidance in attachment 5. Checklist line items are generally written as directions to verify conformance of the activity being evaluated with established requirements, or as questions whether or not the activity being evaluated conforms with the requirement.

- For a surveillance, the criteria may be identified briefly on the Surveillance Report or on a detailed checklist to be filed with the assessment. Examples of brief criteria include, "observe actions based on steps XX through and including YY," or "observe waste hoist lifting activity for adherence to Procedure XXX, Revision Y, Section ZZ," or "review 15 WIPP Forms for adequacy, completeness, and implementation of corrective actions," etc. Criteria typically are found in QA manuals and program plans, procedures, previous assessments and corrective action documents, and contract requirements.

- For Effectiveness Reviews of completed corrective actions for 'significant' WIPP Forms, P-A externally-reportable issues, etc., develop criteria considering the following:

  — Effectiveness reviews are performed to verify the effectiveness of corrective actions that have been implemented to prevent the recurrence of significant issues.

  — Effectiveness is measured by a significant change in one or more of these four measures:

    1. The probability of the original event recurring

    2. The frequency of the problem recurring

    3. Reduction in the magnitude or severity of the problem

    4. Elimination of the original problem

5.0 ASSESSMENT PERFORMANCE

The lead auditor/surveillor will:

- For audits and external surveillances (optional for internal surveillances), conduct an entrance meeting with the assessment team and appropriate personnel representing the assessed organization(s). The entrance meeting is intended to introduce the assessors, explain the purpose, scope, and schedule for the assessment, and establish interfaces and contacts with the organization being assessed.

- For Effectiveness Reviews of completed corrective actions for 'significant' WIPP Forms, P-A externally reportable issues, etc., perform the assessment using one or more of the following methods. The method selected should be appropriate for the specific corrective/preventive actions. The direct observation method is the method of preference, but other methods should also be applied, as necessary.

  — Observe the work or performance of an evolution.

  — Conduct facility inspections or activity monitoring.

  — Utilize past performance indicators to track any ongoing recurrences.

  — Review databases or similar problems.

  — Run a test to challenge the system or process (if applicable).

  — Run a mock item through the process, or complete a performance test (if applicable).

  — Perform a walkthrough of the work, process, or evolution.

  — Interview impacted managers and workers on their understanding of, and involvement with, the implemented corrective actions.

  — Review a documented, previously completed equivalent evaluation of the original problem prior to initiating the effectiveness review.

The assessment team will:

- Evaluate the applicable quality program element(s) by examining objective evidence, observing activities in progress, examining items (including components, specimens, and machinery, etc.), and/or interviewing personnel responsible for the activity. Include technical evaluations of the applicable procedures, instructions, activities, and items, as appropriate. Objective evidence related to the planning and technical aspects of the work performance is to be examined to the depth necessary to determine if these elements are being implemented effectively.

- Review previous corrective actions, as applicable, to evaluate implementation and effectiveness when recurring problems are found.

- Observe, to the extent possible, actual operations to verify conformance to requirements.

- Record the results of the evaluations performed on the assessment checklist or surveillance report, as applicable.

- Record, on the assessment checklist or surveillance report, as applicable, objective evidence examined, including all documents reviewed, with sufficient detail so that any conditions or practices may be noted in the report with adequate detail. Include, as applicable, document number, title, and revision.

- Record, on the assessment checklist or surveillance report, as applicable, the results of observations of processes or items, including the quantity of items examined to indicate the size or breadth of the examination. Identify the items, where possible.

- Record, on the assessment checklist or surveillance report, as applicable, the names of personnel interviewed.

- Inform the lead auditor/surveillor of progress and/or problems with assigned tasks periodically during the assessment.

- Notify immediately the lead auditor/surveillor if conditions are identified during an internal audit or surveillance that qualify as an event or potentially reportable occurrence under the requirements of 10 CFR Part 21, 10 CFR Part 71, WP 12-ES3918, *Reporting Occurrences in Accordance with DOE Order 232.2*, etc.

- Notify immediately the lead auditor/surveillor if conditions are identified that are believed to be unsafe. If an internal assessment condition requires immediate work stoppage, proceed as directed in MP 1.2, *Stop-Work Policy*. During external assessments, notify the supplier management, or their designated point-of-contact.

- Acknowledge and track any CDAs. Verify that the actions completed correct the condition. Document CDAs on a WIPP Form, in accordance with WP 04-IM1000, for trending.

The lead auditor/surveillor will:

- Notify QA management and the management of the assessed organization as soon as practicable if conditions are discovered that could have a significant adverse impact on prior work or affect work in progress, or if conditions require prompt attention. If conditions require immediate attention as defined in WP 12-ES3918 or MP 1.2, perform action as directed by the appropriate document.

- Notify the management of the assessed organization as soon as practicable of any issues identified, to assure accuracy, and allow opportunity for resolution during the assessment.

- Notify Packaging Manager of issues that affect nuclear packaging (TRUPACTs, HalfPACTs, etc.) or are otherwise potentially reportable to the U.S. Nuclear Regulatory Commission (NRC), to allow them to screen for reportability under 10 CFR Part 21 or 10 CFR Part 71, etc.

- For audits and external surveillances, conduct an exit meeting with appropriate personnel representing the assessed organization(s). The exit meeting is intended to provide a general overview of the evaluation of the program element and any issues requiring attention.

6.0 ASSESSMENT REPORTING

The reporting of the assessment, if performed as an audit or external surveillance, will follow the guidance provided in attachment 6; and, if performed as an internal surveillance, will use the example provided in attachment 8.

Assessments that involve sensitive (e.g., permit- or personnel-related) information are to be coordinated through the NWP Legal Counsel. The lead auditor/surveillor and QA management will determine the necessary reviewers (i.e., NWP Legal Counsel, etc.) for proper processing of such assessment information.

The lead auditor/surveillor/manager will:

- Prepare the assessment report with the assistance, as necessary, of the assessment team, and sign the report.

- Ensure that the assessment report includes the following, as appropriate:

  — Assessment purpose and scope (surveillances to include criteria used)

  — Identification of assessors

— Identification of personnel contacted

— Identification of documents reviewed, including revision indicator

— Summary statement(s) indicating program (or program element) adequacy, implementation, effectiveness (applicable to scope), and a brief statement of ISM evaluations performed

— Commendable practices or situations (if any are identified)

— Findings (conditions adverse to quality, if any are identified) – Enter internal (NWP) conditions adverse to quality into the Issues Management System using the WIPP form in accordance with WP 04-IM1000. Identify findings in the report as directed in attachments 6 and 8. Concisely describe in the report (and on the WIPP Form for internal findings) the specific condition that deviates from the requirements, with sufficient detail to enable remedial actions to be taken by the audited organization, and subsequent closure by QA. Clearly quote or state the requirement from which the deviation was noted. Group findings of a common nature together whenever possible so that systematic breakdowns can be identified. Evaluate findings based on the relative importance to indicate the degree of impact on compliance application, waste characterization, repository performance assessment, waste isolation, waste transportation, nuclear safety, environmental protection, or management and operation of the WIPP facility.

— Observations (if any are identified) - Concisely state either the condition observed that, if left unaddressed, could deteriorate into a finding, or the suggestion that could strengthen the existing program or process.

— Corrected During Assessment (CDA) - Concisely describe the CAQ found, the requirement from which the condition deviated, and the action(s) taken to resolve the condition. Document CDAs on a WIPP Form, in accordance with WP 04-IM1000, for trending.

— Include the following statement in external supplier audit reports:

(Name of Company) will be (select "retained on," "added to," "added to pending successful resolution of finding," or "removed from") the NWP QSL for (state the scope or limitations of products or services authorized).

— Include the following statement in audit reports for suppliers currently on the NWP QSL:

If the agreements and commitments contained herein are deemed by the supplier to involve a change in the order concerning work scope, price, or schedule, it is agreed that such work will not commence or continue until authorized by a written change notice. It is understood that if the supplier commences such work without a written change notice, it is at the supplier's risk.

- Using cover correspondence, issue the assessment report to all affected entities within 45 calendar days of conclusion of the audit. The 45 calendar day time limit may be extended at the discretion of the Assurance Programs manager.

  — Cognizant department manager (all reports)

  — Compliance Coordinator (all reports)

  — CTS Coordinator (external reports containing findings)

  — Facility point-of-contact (external reports)

  — QSL Coordinator (external qualification or requalification audits)

  — Packaging Manager (reports affecting packaging)

  — Assessment Coordinator (all reports)

  — Lessons Learned Coordinator (reports containing findings determined by the lead auditor/surveillor/management to be potential Lessons Learned issues)

  — QA assessment file for this assessment

  — Others as designated by QA management

Because internal findings are transferred to WIPP Forms, internal reports are considered closed at the time of issue. For external audit reports, include direction to the supplier for responding to any findings.

- Document CDAs on a WIPP Form, in accordance with WP 04-IM1000, for trending.

- For external supplier qualification audits, complete the Supplier Evaluation/QSL Update Request Form in accordance with WP 13-QA3012, and forward to the QSL Coordinator.

  It is recommended to electronically file a copy of the completed checklist and the report in the applicable assessment folder within "Assessment Reports" in the shared folder WQNRA on the Torreon server.

7.0 ASSESSMENT RESPONSE

The cognizant manager of the assessed WIPP organization will review the assessment (audit or surveillance) results assigned to their organization on the WIPP Form, and respond using the Issues Management (WIPP Form) process in accordance with WP 04-IM1000.

The facility contact (for external assessments) is expected to respond as directed in the issuing cover letter and report. Any request for extension of corrective action due date shall be reviewed by the Assurance Programs Manager or designee.

8.0 ASSESSMENT FOLLOW-UP

In accordance with WP 04-IM1000, the WIPP Form screening committee will assign the lead auditor/surveillor as a technical reviewer of actions/corrective action plans developed in response to a WIPP Form issued as the result of an internal audit/surveillance finding. As a technical reviewer, the lead auditor/surveillor/manager will be responsible for determining the long-term effectiveness of the corrective actions, and will be expected to sign the Corrective Action Plan, so indicating, in accordance with WP 04-IM1000. Issues that cannot be resolved will be referred to management.

For external supplier audit or surveillance findings and the resulting supplier's committed actions, the lead auditor/surveillor/manager will review the supplier's actions, and report completion based on the supplier's approved commitment(s).

9.0 ASSESSMENT CLOSURE AND FILING

The lead auditor/surveillor/manager will:

- For external supplier audits or surveillances with findings, verify that the corrective actions were completed as committed, issue a closure letter to the supplier and any other affected organizations, and ensure that copies are distributed to the QSL Coordinator (if applicable) and the Compliance Coordinator.

- Review, using the file checklist (attachment 7), the assessment file for completeness: purge working documents, sign the checklist, notify the assessment coordinator, and forward the complete file to the QA file. The assessment file is to include:

  — Audit Plan (for audits)

  — Completed Assessment Checklist (required for audits, or when used for surveillances)

  — Completed Assessment Report (including identification of documents reviewed and personnel contacted)

  — Assessment response (for external assessments)

  — Corrective Action completion, follow-up, and verification (for external assessments)

  — Other documentation determined to be necessary to support the assessment (closure correspondence, etc.)

REFERENCES	
DOCUMENT NUMBER AND TITLE	KEY STEP
10 CFR Part 21, "Reporting of Defects and Noncompliance"	
10 CFR Part 71, "Packaging and Transportation of Radioactive Material"	
Reg. Guide 7.10, *Establishing Quality Assurance Programs for Packaging Used in Transport of Radioactive Material (NRC)*	
DNFSB Recommendation 2000-2, *Configuration Management Vital Safety Systems*	
DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*	
Hazardous Waste Facility Permit, Waste Isolation Pilot Plant, Permit #NM4890139088 TSDF, Issued by New Mexico Environment Department	
DOE/CBFO 94-1012, *Carlsbad Field Office Quality Assurance Program Document*	
DOE/WIPP 04-3310, *WIPP Environmental Policy Statement*	
DOE/WIPP-07-3372, *Waste Isolation Pilot Plant Documented Safety Analysis*	
DOE/WIPP-07-3373, *Waste Isolation Pilot Plant Technical Safety Requirements*	
EFCOG Contractor Guide for Performance of Effectiveness Reviews	
MP 1.2, *Stop-Work Policy*	
MP 1.28, *Integrated Safety Management*	
WP 04-IM1000, *Issues Management Processing of WIPP Forms*	
WP 09-CN3005, *Graded Approach to Application of QA Controls*	
WP 09-CN3025, *Annual System Health/Walkdown/Requalification*	
WP 09-CN3040, *Commercial Grade Item Dedication*	
WP 12-ES3918, *Reporting Occurrences in Accordance with DOE Order 232.2*	
WP 13-1, *Nuclear Waste Partnership LLC Quality Assurance Program Description*	**1**
WP 13-QA.04, *Quality Assurance Department Administrative Program*	
WP 13-QA3012, *Supplier Evaluation/Qualification*	
WP 15-GM.03, *Integrated Safety Management System Description*	

Attachment 1 – NWP QA Internal Assessment Priority Determination Tables

Determine whether the assessment will be performed as an audit or surveillance using the tables below:

- Review the assessment to be performed against the criteria in the Risk and Hazard Table to determine a numeric value.
- Review the assessment also against the criteria in the Importance and Complexity Table to determine a numeric value.
- Multiply the two numeric values.
- Use the Assessment Priority Table and the number derived from the previous bullet to determine the priority of the assessment to be performed and schedule the type of assessment indicated.

Risk and Hazard Table	
Description	Probability and Consequence Level
If not performed, improbable undetected impact on environment safety, health, safeguards and security, emergency management, cyber security, or QA	1
If not performed, possible minor undetected impact on environment, safety, health, safeguards, and security, emergency management, cyber security, or QA	2
If not performed, possible major undetected impact on environment, safety, health, safeguards, and security, emergency management, cyber security, or unknown status of QA program, or possible continuation of negative trend or repetitive nonconformance	3

Importance and Complexity Table	
Description	Importance and Complexity Level
Necessary to verify actions in document other than a requirement-source or implementing procedure	1
Necessary to verify an action required by an implementing procedure	2
Necessary to complete an assessment required by an implementing procedure	3
Necessary to complete an assessment required by an implementing procedure, and complex in nature	4
Necessary to complete a specific program assessment requirement, or commitment (both non-complex and complex in nature)	4

Attachment 1 – NWP QA Internal Assessment Priority Determination Tables

Assessment Priority Table		
Derived Numeric Value	Priority	Action
1-4	Low	Schedule Surveillance
5-8	Medium	Schedule Surveillance or Audit
9-12	High	Schedule Audit

Attachment 2 – Example of NWP QA Internal Assessment Subject Master Table

NWP QA INDEPENDENT ASSESSMENT SUBJECT MASTER TABLE Revision XX mm/dd/yy							
Area of Interest	**Source/Reference**	**Risk/Hazard**	**Complexity**	**Priority**	**Audit**	**Surv**	**Frequency**
Management System NWP Organization Facility Ops Chain of Command QA Organization	Source WP 13-1, R.27, §1.1 Reference DSA/TSR 10 CFR 71 Subpart H	3	4	12	**X**		Biennial (frequency not specified in 830.122, NQA-1, WP 13-1, R.27, or WP 13-QA.03)
Personnel Qualification and Training **Facility Staff Qualifications Training** **Qualified Operators**	Source WP 13-1, R.27, §1.2 Reference DSA/TSR 10 CFR 71 Subpart H DSA/TSR	3	4	12	**X**		Biennial

Attachment 3 – Example of QA Fiscal Year External and Internal Audit Schedules

NWP QUALITY ASSURANCE
FISCAL YEAR 2007 EXTERNAL AUDIT SCHEDULE

Supplier/Location Audit	Product/Service	Lead Auditor	Audit Number	Remarks
ACME Manufacturing 123 Any Street Anywhere, NM	Pipe, flanges, fittings	Lead Auditor Name	E07-01	Completed October 2006
Jones Cal Services 456 Busy Highway Big City, NM	Calibration Services	Lead Auditor Name		Scheduled January 2008

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Signatures on last printed page: Manager, Assurance Programs, and Manager, Quality Assurance

NWP QUALITY ASSURANCE
FISCAL YEAR 2007 INTERNAL AUDIT SCHEDULE

Audit Title and Audit Criteria	Scheduled	Lead Auditor (when determined)	Audit Number (when determined)	Status
Personnel Qualification	March 2007			

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Signatures on last printed page: Manager, Assurance Programs, and Manager, Quality Assurance

Attachment 4 – Audit Plan Guidance

NUCLEAR WASTE PARTNERSHIP LLC
QUALITY ASSURANCE AUDIT PLAN
Title of audit (subject)

Audit number

Audited organization(s) (and location if supplier audit)

1. Purpose and Scope of the audit

2. Applicable Requirements Documents
   WP 13-1, *NWP Quality Assurance Program Description*
   (Any others, including regulatory documents containing requirements)

3. Procedure(s) to be used to perform the audit
   WP 13-QA.03, *Quality Assurance Independent Assessment Program*

4. Hazards, Safety/security issues
   Precautions
   Badging, logistics information
   PPE (if any)

5. Audit Team
   Lead Auditor
   Team Auditors (if any)
   Technical Expertise (if any)
   Anticipated Observers (if any)

6. Schedule
   Pre-Audit Meeting
   Audit Activities
   Post-Audit Meeting

7. Background
   Previously reported findings (if any)
   Previous corrective action issues (if any)
   Previously reported weaknesses (if any)

8. Signatures:

Prepared by: _____ Approved by: _____
(Printed Name) (Printed Name)
Lead Auditor Manager, Assurance Programs

Attachment 5 – Example of NWP Quality Assurance Assessment Checklist

(The following table is shown on first page only, followed by the second table as space allows.)

NWP Quality Assurance Assessment Checklist	
Organization Assessed: _____	Assessment Number: _____
Requirements Documents: _____	Dates of Assessment: _____
Assessor(s): _____	**Key: S=Satis., U=Unsat., N=N/A**

(The top row of the following table is a header to be shown on each page to which this table expands with usage.)

Item	[Type in Assessment # here] Assessment Item	Reference Document(s)	**Key**	Assessor Comments
	(Add rows as needed)			

(The following signature line is shown on the last page only, following the end of the above table.)

Approved by: _____ _____
Lead Auditor/Surveillor (print name and sign) Date:

Notes: Refer to the NWP QA Independent Assessment Subject Master Table for identification of requirements documents from which assessment criteria should be developed.
Review any corrective actions committed as a result of the previous assessment; develop criteria to evaluate their effectiveness.
Develop criteria that evaluate a broad range of the requirements with enough detail to be meaningful in verifying compliance and effectiveness.
Develop criteria to evaluate effectiveness of Graded Approach and the ISM system.

Attachment 6 – Audit Report Guidance

Nuclear Waste Partnership LLC
Quality Assurance (select either **Internal** or **External**) **Audit Report**
[Descriptive, yet concise **title** - if external, provide company and address]
[**Audit Number**]

I. Executive Summary: Concise summary (generally one page or less), written in paragraph format including brief mention of organization audited (include location for external supplier) and audit date, abbreviated purpose and scope, results in general terms, conclusion of program adequacy (including ISM), any commendable situations noted, and any major issues requiring further action.

II. Audit Details

Purpose and Scope (more detailed than the Executive Summary)
Criteria used (identify or make reference to checklist, and specifically address ISM)
Audit Team
Inclusive dates of audit
Location(s) of audit
Conclusion(s) regarding compliance, effectiveness, and ISM evaluations performed.
Include a statement addressing the number of findings, observations, and/or "CDAs."
An acceptable method would be, "The assessment resulted in 2 Findings, 0 Observations, and 3 issues closed during the assessment."
Commendable practices or activities (if applicable)

[Include the following statement, as applicable, in assessment reports containing findings.]

Response to Findings (external supplier audits only) - When responding to audit findings, the following elements are required to be addressed:

- Cause of nonconformance
- Interim actions planned to correct the nonconformance
- Evaluation of the extent of the condition beyond that cited in the report
- Actions planned to prevent recurrence
- Schedule of implementation/completion

Findings (are to be numbered as [audit no.]-F-[sequential number beginning with 01], and internal findings are to also cross-reference to the WIPP Form Number. Example – "S04-027-F-01 issued as WF04-120")

- Condition noted
- Requirement not met

Observations (numbered as [assessment no.]-O-[sequential number beginning with 01])

- Condition (noted, or considered to be an improvement)

Attachment 6 – Audit Report Guidance

Conditions corrected during the assessment (numbered as [assessment no.]-CDA-[sequential number beginning with 01])

- Condition noted
- Requirement from which condition deviated
- Action taken, and verification of completion

[Include the following statements in external supplier audit reports]

[Name of company] will be [select "retained on," "added to," "added to, pending successful resolution of findings," or "removed from"] the NWP Qualified Suppliers List for [state the scope or limitations of products or services authorized].

If the agreements and commitments contained herein are deemed by the supplier to involve a change in the order concerning work scope, price, or schedule, it is agreed that such work will not commence until authorized by a written change notice. It is understood that if the supplier commences such work without a written change notice, it is at the supplier's expense.

III. Attachments:

1. Table of Personnel Contacted
2. Table of Documents Reviewed
3. (Any other information deemed appropriate for attachment)

IV. Signatures:

Prepared by: _____ _____
(Printed Name) Date

Approved by: _____ _____
(Printed Name) Date
Manager, Assurance Programs

Attachment 6 – Audit Report Guidance

Attachment 1 Table of Personnel Contacted

[A] Attended Audit Entrance Meeting
[B] Contacted During the Audit
[C] Attended Audit Exit Meeting

Personnel Contacted	A	B	C
(Added rows as needed)			

Attachment 2 Table of Documents Reviewed

Document Identification	Document Title or Description
(Add rows as needed)	

Attachment 7 – Example of Independent Assessment Record File Completion Checklist

INDEPENDENT ASSESSMENT RECORD FILE COMPLETION CHECKLIST

Assessment No. _____

	Complete
Audit Team/Technical Specialist Indoctrination	☐
Assessment Plan (required for audit, optional for surveillance)	☐
Assessment report	☐
Assessment response (if external assessment contained findings)	☐
Assessment Checklist (required for audit)	☐
Closure letter (if external assessment contained findings)	☐
Other	
_____	☐
_____	☐
_____	☐
_____	☐

I have reviewed the above listed records and verified their completeness and legibility.

_____

Lead Auditor/Surveillor Signature Date

Attachment 8 – Example of Surveillance Report

Nuclear Waste Partnership LLC Quality Assurance **(make this a header row)** **Surveillance Report Number:** **Date:**	
Subject	Organization(s) Surveilled
Scope Surveillor(s)	
Requirement References (include revision no.)	
Surveillance Criteria [ ] Checklist on file in QA	
Personnel Contacted (* indicates persons to whom a copy of this report is to be distributed)	
Documents reviewed [ ] See attachment	
Details/Results/Conclusions [ ] WIPP Form(s) identified in Findings	
[Print and Sign] Date Lead Auditor/Surveillor	[Print and Sign] Date Manager, Assurance Programs
cc: Manager of assessed organization, WIPP Form Coordinator (if containing findings), Compliance Coordinator, Assessment Coordinator, CTS Coordinator (if containing findings), Packaging Manager (if containing packaging issues)	
Page 1 of (total)	

Make the top row a header to appear on every page.
Insert pagination (page X of Y) at the bottom center

Attachment 9 – Example of NWP QA Independent Assessment Log

NWP QUALITY ASSURANCE
INDEPENDENT ASSESSMENT LOG

Assessment Number	Subject/Manufacturer	Location	Date Performed	Lead Auditor/ Surveillor	Assessment Team	Results Findings/CDAs/ Observations	Status of External Findings
E05-06	Supplier X	Wichita, KS	5/10/2005	(Name)	(Names)	8 Findings 1 CDA 2 Obs.	All findings closed 5/10/05, QA:05-00287

Attachment 10 – Technical Specialist/Auditor Participation Indoctrination for Quality Assurance Audits Example

Technical Specialist/Auditor Participation Indoctrination
for Quality Assurance Audits
Audit XXX0XX
(Audit Title)

In preparation for participation as a Technical specialist/Auditor, this documentation serves as a record that the below listed individual has been indoctrinated per the requirements of the NWP QAPD, and procedure WP 13-QA.03.

Items discussed:

- Applicable portion of the NWP QAPD
- Applicable section of WP 13-QA.03, which includes audit checklist preparation and completion, documentation required during the audit process, and the audit report format.
- Applicable requirements documentation associated with this audit.
- Expectations of an Auditor.
- Potential hazards. Plan accordingly for proper PPE, ALARA, and additional controls deemed necessary, i.e., badging, logistics, etc.

Experience Background:

(Enter short biography for each specialist [auditor as desired] detailing previous experience and qualifications.)

Technical Specialist/Auditor:

Print Name	Signature

Lead Auditor:

Print Name	Signature

List of Processes and Equipment Evaluated During the Audit

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams
PREVIOUSLY APPROVED PROCESSES OR EQUIPMENT		
N/A	Acceptable Knowledge Procedures – CCP-TP-002, CCP-TP-005, & CCP-TP-506	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)
N/A	Data Generation and Project Level Validation & Verification (V&V) Procedures – CCP-TP-001, CCP-TP-002, CCP-TP-500	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)
N/A	WIPP Waste Information System (WWIS) Procedures – CCP-TP-030, CCP-TP-033, & CCP-TP-530	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)
16VE1	Visual Examination (VE) Procedures – CCP-TP-113	Debris (S5000)
16RHVE1	Visual Examination (VE) Procedures – CCP-TP-500	Debris (S5000)
16RR1	Real-Time Radiography Mobile Characterization System (MCS) RTR #6 Procedures – CCP-TP-053 & CCP-TP-165	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)
N/A	Quality Assurance Program	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)
NEW PROCESSES OR EQUIPMENT		
16RR2	Real-Time Radiography Mobile Characterization System (MCS) RTR #7 Procedures – CCP-TP-053 & CCP-TP-164	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)
DEACTIVATED PROCESSES OR EQUIPMENT		
NONE		