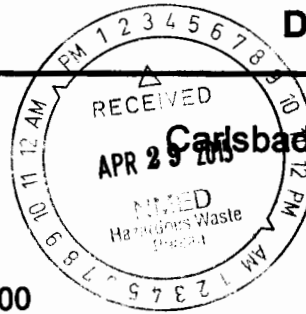




United States Government

Department of Energy

memorandum

Carlsbad Field Office
New Mexico 88221

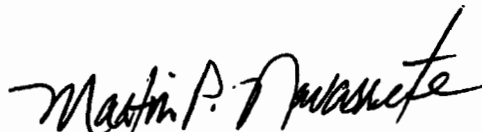
DATE: APR 29 2015
REPLY TO
ATTN OF: CBFO:QAD:MPN:SG:15-0717:UFC: 2300.00
SUBJECT: Interim Audit Report A-15-09, ORNL/CCP TRU Waste Characterization Activities
TO: Laura Wilkerson/DOE-OR

The Carlsbad Field Office (CBFO) conducted Audit A-15-09, Oak Ridge National Laboratory/Central Characterization Program (ORNL/CCP) Transuranic (TRU) Waste Characterization and Certification, March 31 – April 2, 2015. The interim audit report is attached.

The audit team concluded that, overall, the ORNL/CCP programs evaluated are adequate relative to the flow-down of requirements, and the technical activities evaluated are satisfactorily implemented and effective in all areas, with one exception documented in the audit report.

As a result of the audit, one CBFO corrective action report was issued and transmitted under separate cover. Additionally, the audit team identified one condition adverse to quality, which was corrected during the audit, one observation, and offered two recommendations to ORNL/CCP management for consideration.

If you have any questions or comments concerning the audit report, please contact me at (575) 234-7483.


Martin P. Navarrete
Senior Quality Assurance Specialist

Attachment



cc: w/ attachment

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J. Carter, NWP/CCP	ED	Site Documents	ED
V. Cannon, NWP/QA	ED	WWIS Database Administrators	ED
B. Allen, NWP/QA	ED	CBFO QA File	
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U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

INTERIM AUDIT REPORT

OF THE

OAK RIDGE NATIONAL LABORATORY
CENTRAL CHARACTERIZATION PROGRAM

FOR

TRU WASTE CHARACTERIZATION ACTIVITIES

OAK RIDGE, TENNESSEE
and CARLSBAD, NEW MEXICO

AUDIT NUMBER A-15-09

MARCH 31 – APRIL 2, 2015



Prepared by:

R. L. Castillo

Rick L. Castillo, CTAC
Audit Team Leader

Date:

4/28/15

Approved by:

Michael R. Brown

Michael R. Brown, Director
CBFO Quality Assurance Division

Date:

4/28/2015

1.0 EXECUTIVE SUMMARY

U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Recertification Audit A-15-09 was performed to evaluate the adequacy, implementation, and effectiveness of established programs for transuranic (TRU) waste characterization activities performed for the Oak Ridge National Laboratory (ORNL) by the Nuclear Waste Partnership LLC (NWP) Central Characterization Program (CCP). The audit team evaluated the programs, procedures, and processes for characterizing contact-handled (CH) Summary Category Groups (SCGs) S3000 solids, S4000 soils/gravel, and S5000 debris wastes, and remote-handled (RH) SCG S5000 debris waste. The audit was conducted relative to the requirements of the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), the *CBFO Quality Assurance Program Document (QAPD)*, the *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*, and the *Remote-Handled TRU Waste Characterization Program Implementation Plan (WCPIP)*.

Audit activities were conducted at ORNL TRU Waste Processing Center (TWPC) facilities in Oak Ridge, Tennessee, and at the Skeen-Whitlock Building in Carlsbad, New Mexico, March 31 – April 2, 2015. Overall, the audit team concluded that the ORNL/CCP technical and quality assurance (QA) programs evaluated were adequately established for compliance with applicable upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

The audit team identified five concerns during the audit. One concern related to a departure from a requirement to identify all waste items in the container during the visual examination (VE) process and the failure to issue nonconformance reports. The concern was observed during the evaluation of VE activities, and resulted in the issuance of CBFO Corrective Action Report (CAR) 15-033 (see section 6.1). The remaining concerns were identified in the areas of project-level data validation and verification, resulting in one minor isolated deficiency that was corrected during the audit (CDA) (see section 6.2), and acceptable knowledge, resulting in one observation (see section 6.3) and two recommendations submitted for management consideration (see section 6.4).

2.0 SCOPE AND PURPOSE

2.1 Scope

The scope of the audit included evaluations for the adequacy, implementation, and effectiveness of the technical and QA activities performed by NWP CCP at ORNL for characterization of CH and RH SCG S5000 debris wastes, CH SCG S3000 solids waste, and CH SCG S4000 soils/gravel waste. Transportation evaluations were limited to the area of flammable gas analysis, since that was the only transportation-related activity being performed. The following areas were evaluated:

General

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

Quality Assurance

- Nonconformances
- Personnel Qualification and Training
- Records

Technical

- Acceptable Knowledge (AK) (including waste certification, e.g., Waste Stream Profile Forms)
- Project-Level Data Validation and Verification (PLV&V)
- Real-time Radiography (RTR)
- Visual Examination (VE)
- Nondestructive Assay (NDA)
- Radiological Characterization (Dose-to-Curie) (DTC)
- Container Management
- Flammable Gas Analysis (FGA)
- WIPP Waste Information System (WWIS)/Waste Data System (WDS)

The evaluation of the adequacy of ORNL/CCP documents was based on current versions of the following documents:

Waste Isolation Pilot Plant Hazardous Waste Facility Permit NM4890139088-TSDF

Quality Assurance Program Document (QAPD), DOE/CBFO-94-1012

Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC), DOE/WIPP-02-3122

Remote-Handled TRU Waste Characterization Program Implementation Plan (WCPIP), DOE/WIPP-02-3214

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

CCP Transuranic Waste Characterization Quality Assurance Project Plan (QAPjP), CCP-PO-001

CCP Transuranic Waste Certification Plan, CCP-PO-002

Related CCP QA and technical implementing procedures

2.2 Purpose

Audit A-15-09 was conducted to determine the degree of adequacy and effective implementation of program requirements for the characterization and certification of CH and RH SCG S5000 debris wastes, CH SCG S3000 solids waste, and CH SCG S4000 soils/gravel waste at the ORNL.

3.0 AUDIT TEAM AND OBSERVERS

AUDITORS/TECHNICAL SPECIALISTS

Michael Brown	Director, CBFO Quality Assurance Division
Martin Navarrete	Management Representative, CBFO Quality Assurance Division
Rick Castillo	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Tamara Ackman	Auditor, CTAC
Katie Martin	Auditor, CTAC
Priscilla Martinez	Auditor, CTAC
Berry Pace	Auditor, CTAC
Charlie Riggs	Auditor, CTAC
Jim Schuetz	Auditor, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Rhett Bradford	Technical Specialist, CTAC
Paul Gomez	Technical Specialist, CTAC
Michel Hall	Technical Specialist, CTAC
Porf Martinez	Technical Specialist, CTAC
Judith Stewart	Technical Specialist, CTAC
B.J. Verret	Technical Specialist, CTAC
Greg Knox	Technical Specialist-in-Training, CTAC

OBSERVERS

Robert Murray	Office of Standards and Quality Assurance, EM-43
Steven Ross	Office of Standards and Quality Assurance, EM-43
Larry Perkins	Office of Standards and Quality Assurance, EM-43
Ray Wood	Office of Standards and Quality Assurance, EM-43 Contractor
Robert Thielke	Office of Standards and Quality Assurance, EM-43 Contractor
Lindsey Bender	U.S. Environmental Protection Agency (EPA)
Steve Holmes	New Mexico Environment Department (NMED)
Norma Castaneda	CBFO TRU Sites & Transportation Division (TSTD)
Mark Doherty	CBFO TSTD
Dale Bignell	CBFO/CTAC

4.0 AUDIT PARTICIPANTS

The ORNL/CCP individuals involved in the audit process are identified in Attachment 1. A pre-audit meeting was held on March 31, 2015, at the TWPC in Oak Ridge, Tennessee, and at the Skeen-Whitlock Building in Carlsbad, New Mexico. Daily management briefings were held to update ORNL/CCP management and staff on audit progress and identified concerns. A post-audit meeting was held on April 2, 2015, at the TWPC in Oak Ridge, Tennessee, and at the Skeen-Whitlock Building in Carlsbad, New Mexico.

Attachment 2 contains a summary table of audit results. Attachment 3 contains a list of ORNL/CCP documents audited. Attachment 4 lists the processes and equipment evaluated during the audit. Audit activities, including objective evidence reviewed, are described below.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

This audit was performed to assess the capability of ORNL/CCP to characterize CH and RH SCG S5000 debris wastes, CH SCG S3000 solids waste, and CH SCG S4000 soils/gravel waste for compliance with the requirements specified in the WIPP HWFP Waste Analysis Plan (WAP), the WIPP WAC, the CBFO QAPD, and the RH TRU WCPIP. The characterization methods assessed were AK, VE, RTR, NDA, and DTC. Other areas evaluated were data generation and project-level data V&V, WWIS/WDS data entry, FGA, data quality objective (DQO) reconciliation, container management, and the preparation of Waste Stream Profile Forms (WSPFs).

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

5.2 General

5.2.1 Results of Previous Audits

The audit team examined the results of the previous CBFO audit of the ORNL/CCP (A-14-03), wherein three conditions adverse to quality (CAQs) were identified. One CAQ resulted in the initiation of CAR 14-009, related to the use of an obsolete version of an AK summary report during VE. The other two CAQs, which were corrected during the audit, related to an RTR data sheet that did not reflect the required number of layers of confinement in a container, and a VE batch data report (BDR) reflecting the incorrect BDR number. During the performance of this audit, the audit team did not observe any

instances similar to the conditions identified during A-14-03, suggesting that the corrective actions taken were adequate in precluding recurrence.

5.2.2 Changes in Programs or Operations

The audit team determined through interview with the CCP/ORNL vendor project manager (VPM) that there were no significant changes in the programs or operations at the CCP/ORNL TWPC since the previous recertification audit.

5.2.3 New Programs or Activities Being Implemented

Since the last recertification audit, CCP/ORNL resumed CH VE operations and initiated the use of the Mobile ISOCS (in-situ object counting system) Large Container Counter (MILCC) Unit #2 for conducting CH nondestructive assay (NDA). These systems and activities were evaluated during CBFO Audit A-14-29 and were determined to be adequate and satisfactorily implemented.

5.2.4 Changes in Key Personnel

The audit team determined through interview with the CCP/ORNL VPM that the only change in key personnel was the addition of a back-up VPM to provide daily operational assistance to the primary VPM as needed.

5.2.5 CCP/ORNL Program Interface

The audit team evaluated the program interface established between the CCP and the ORNL TWPC as documented in CCP-PO-027, *CCP/TRU Waste Processing Center/Oak Ridge National Laboratory Interface Document*, Rev. 7. This document describes the interfaces, roles and responsibilities, and program requirements applicable to both organizations in support of CCP waste characterization activities at the ORNL TWPC. Program interface requirements evaluated included responsibilities of the ORNL TWPC Site Technical Representative (STR), CCP VPM, Site Project Manager (SPM), and QA Engineer. The audit team concluded that requirements evaluated, as described in the interface document, were satisfactorily implemented. No concerns were identified.

5.3 Quality Assurance Activities

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

5.3.1 Personnel Qualification and Training

The audit team conducted interviews and reviewed implementing procedure CCP-QP-002, Rev. 38, *CCP Training and Qualification Plan*, to determine the degree to which

the procedure adequately addresses upper-tier requirements. Results of the review indicate that the procedure adequately addresses upper-tier requirements.

Personnel training records associated with VE, RTR, NDA, DTC, AK, FGA, and site project management were examined to verify implementation of associated requirements and to verify that personnel performing waste characterization activities are appropriately qualified. Record reviews included qualification cards and other pertinent qualification documentation, such as attendance sheets/briefings on newly-revised AK summaries for RTR and VE operators; appointment letters for VE experts (VEEs), RH technical staff, and NDA expert analysts; comprehensive exams; test drum and training container documentation; and eye examinations for qualified RTR operators.

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

5.3.2 Nonconformances

The audit team reviewed implementing procedure CCP-QP-005, Rev. 24, *CCP TRU Nonconforming Item Reporting and Control*, to determine the degree to which the procedure adequately addresses upper-tier requirements. Results of the review indicate that the procedure adequately addresses upper-tier requirements. The audit team interviewed the CCP QA engineer and randomly selected nonconformance reports (NCRs) for review.

The following NCRs reviewed were initiated at the data generation level (DGL):

NCR-ORNL-0244-14
NCR-ORNL-0883-14
NCR-ORNL-0895-14
NCR-ORNL-0912-14
NCR-ORNL-1089-14

The following NCRs reviewed were initiated at the project level (PL):

NCR-ORNL-0161-14
NCR-ORNL-0045-15
NCR-ORNL-0047-15
NCR-RHORNL-0576-14

The team concluded that nonconformances are being appropriately documented and tracked through resolution as required. NCRs reviewed included revised and voided NCRs. The audit team determined that there were no NCRs related to RH waste

characterization activities initiated at the DGL since the last ORNL recertification audit. There were no NCRs related to CH or RH waste characterization activities written at the PL that required reporting to CBFO. However, the audit team verified CCP personnel are familiar with the process for reporting NCRs to the Permittee via email to CBFO within the time frame required by the Permit. All the NCRs examined were verified to have been entered, managed, and tracked in both the CCP Integrated Data Center (IDC) and the NCR 2014 and 2015 Logs, as well as through the required reconciliation reporting mechanism. The CCP QA engineer performed an evaluation of all NCRs written within the last 12 months and determined that there are no NCRs of similar subject that identified a reportable trend.

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

5.3.3 Records

The audit team conducted interviews and reviewed implementing procedures relative to the control and administration of QA records to determine the degree to which the procedures adequately address upper-tier requirements. The audit team reviewed procedures CCP-PO-001, Rev. 21, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*; CCP-QP-008, Rev. 24, *CCP Records Management*; and CCP-QP-028, Rev. 16, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning*. Results of the review indicate that the procedures adequately address upper-tier requirements.

The level of control for QA records was verified through review of the CH Records Inventory and Disposition Schedule (RIDS) dated 7/30/2014 and the RH RIDS dated 7/17/2014. Each RIDS is reviewed annually, as required. The audit team evaluated a sample of transmittal forms used to document submittal of records from the ORNL/CCP host site location to the CCP Records Center in Carlsbad, New Mexico. The audit team determined that the completed forms adequately described the records being transmitted, and that the transmittal process was performed in accordance with the procedure.

The audit team verified the maintenance of records in file cabinets and in the electronic system. Records that are maintained in paper copy in the CCP Records Center are placed in locked fire-resistant cabinets. Access to the file cabinets is controlled through the use of keys, and labels placed on each cabinet post the names of personnel approved for access to the files. Files are adequately organized and maintained in both the paper and electronic file systems. Files that require control of access, such as those determined to be Unclassified Controlled Nuclear Information (UCNI), Official Use Only (OUO), Internal Use Only (IUO), and No Foreign National (NFORN) documents, are maintained on separate electronic servers where computer user access is

restricted. Paper copies of these restricted access documents are stored separate from other documents.

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

5.4 Technical Activities

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

5.4.1 Acceptable Knowledge

The audit team evaluated the acceptable knowledge (AK) process for characterizing CH TRU mixed SCGs S3000 solids, S4000 soils/gravel, S5000 debris wastes, and RH TRU mixed SCG S5000 debris waste. The AK audit staff specifically evaluated compliance with the WAP requirements listed in the C6-2 checklist along with portions of the C6-1 checklist. Objective evidence was reviewed and compiled to demonstrate compliance with each of the applicable requirements on these checklists. The team also reviewed the AK record with respect to relevant requirements of the CH and RH WAC and, specifically for the RH waste stream, the requirements of the RH TRU WCPIP, Rev. 3.

The AK auditors reviewed the latest revisions to the AK summary reports for four distinct waste streams representing the four respective SCGs identified above. The AK summary reports and respective waste stream designations are as follows: CCP-AK-ORNL-001, Rev. 10 for CH SCG S3000 waste stream OR-NFS-CH-HOM-A; CCP-AK-ORNL-009, Rev. 1 for CH SCG S4000 waste stream OR-SWSA-CH-SOIL; CCP-AK-ORNL-003, Rev. 3 for CH SCG S5000 waste stream OR-RADP-CH-HET; and CCP-AK-ORNL-500, Rev. 4 for RH SCG S5000 waste stream OR-REDC-RH-HET. These AK summary reports were reviewed with respect to the information related to specific WAP and WAC requirements. In addition, WSPFs or draft WSPFs and attachments were examined for each audited waste stream. Numerous AK source documents were reviewed to establish support for the waste stream descriptions and parameters noted in the AK summaries, particularly with respect to the assignment of hazardous waste numbers and the historical management of the containers in the waste streams. Furthermore, AK source documentation was reviewed for historic and current use of all absorbents identified in the AK record. Another important aspect of the AK source document review was the examination of ORNL procedures for the TWPC focused on the packaging, repackaging, and remediation of both CH and RH waste.

The audit team also examined the respective AK documentation checklists from CCP-TP-005, *CCP Acceptable Knowledge Documentation*, consisting of Attachment 1, the AK Documentation Checklists; Attachment 4, the AK Source Document Information Lists; Attachment 5, the AK Hazardous Constituents Lists; Attachment 6, the respective

AK Waste Form, Waste Material Parameters, Prohibited Items, and Packaging, along with the justification memoranda for waste material parameter weight estimates; Attachment 7, the Radionuclides List; AK/NDA memoranda for the CH waste streams; and Attachment 8, the Waste Containers Lists, along with the add-container documentation that assures that the parameters of containers added to a waste stream are examined to assure that the assignment is appropriate.

Examples of the resolution of AK discrepancies in the AK record and discrepancy resolution at characterization, along with AK reevaluation forms, were reviewed and added to the AK objective evidence. WAP-compliant AK accuracy reports and the most recent internal surveillance were also collected and reviewed. Requisite training records for AK experts (AKEs) and SPMs were reviewed by the designated QA auditor and were determined to be compliant with the requirements of the training program. With regard to nonconforming waste containers, the auditors examined several NCRs dealing with prohibited items and compiled objective evidence of container inspection prior to characterization activities. The WAP-required container traceability exercise was conducted by the AK audit team for a total of eight waste containers from the four waste streams. This exercise was performed for drums that completed the characterization and certification process. The drums selected are associated with BDRs from RTR, VE, NDA and DTC processes. Additional traceability documentation was assembled consisting of IDC database screenshots, AK tracking spreadsheet data, waste container lists, and waste container input forms completed by the waste generators. Several waste stream characterization checklists and supporting data were also examined, reconciling the results of characterization with the AK record. The review of these checklists was coordinated with the traceability containers where possible.

The audit team verified that nonconforming data and discrepancies between AK documentation and characterization results are being appropriately identified, reported, and documented on NCRs. The NCRs indicate the affected waste containers associated with the discrepant conditions are tagged and controlled until resolution of the deficient conditions is completed.

The audit team verified that AK documentation is developed and maintained in accordance with controlled implementing procedures. Additionally, the audit team verified that the records generated while developing AK documentation are identified in the records section of each procedure and located in records if required. The audit team verified that record copies of the BDRs selected by the AK audit team for verification of the traceability exercise were legible, accurate, complete, and properly numbered. The audit team verified that corrections to the selected BDRs and associated forms were accomplished in accordance with procedure requirements.

Three concerns were identified. The first concern is similar to concerns identified previously at other recertification audits, and regards the compilation and documentation of associated information relevant to past and current use of absorbents (see Recommendation 1 in section 6.4). The second concern identifies the need to add or modify text entries for clarification for AK Summary CCP-AK-ORNL-009 Rev. 1 (see

Recommendation 2 in section 6.4). The third concern identifies instances that should be changed on a draft WSPF and attachments for waste stream OR-NFS-CH-HOM-A. Question 6 in the Reconciliation of Data Quality Objectives is answered inaccurately regarding listed wastes. Additionally, the listing of discrepancy resolutions in the Summation of Aspects of AK Summary Report: OR-NFS-CH-HOM-A should be reviewed for accuracy (see Observation 1 in section 6.3).

The procedures reviewed and objective evidence assembled provided evidence that the applicable requirements for AK are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

5.4.2 Project-Level Data Validation and Verification

The audit team conducted interviews with responsible personnel and reviewed implementing procedures CCP-TP-001, Rev. 21, *CCP Project Level Data Validation and Verification*; CCP-TP-002, Rev. 26, *CCP Reconciliation of DQOs and Reporting Characterization Data*; CCP-TP-500, Rev. 13, *CCP Remote-Handled Waste Visual Examination*; CCP-TP-504, Rev. 17, *CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste*; and CCP-TP-005, Rev. 26, *CCP Acceptable Knowledge Documentation*, to determine the degree to which the procedures address upper-tier requirements. Results of the review indicate that the procedures adequately address upper-tier requirements.

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

RTR

OR-RTR6-0540 OR-RTR7-0044 OR-RTR7-0081

VE

ORNLRHVE14008 ORNLRHVE14009 ORNLRHVE14010 ORVECH0120

NDA/DTC

OR-IQ3-0355 OR-IQ3-0422 OR-MILCC2-0067 OR-MILCC2-0118

DTC

ORRHDTTC14001 ORRHDTTC14002

The audit team reviewed WSPFs for waste streams OR-RADP-CH-HET and OR-REDC-RH-HET. The WSPFs were properly completed with characterization information summaries (CISs). AK Accuracy Reports for waste streams OR-ISTP-CH-HET (Lots 1-8), OR-REDC-HET (Lots 25-44), and OR-RADP-CH-HET (Lots 1-12) were reviewed and confirmed to include the WSPF and associated CISs.

The audit team verified the required quarterly re-review of the DGL data by project level personnel for the following:

4th Quarter 2013 RTR

1st Quarter 2014 RTR

2nd Quarter 2014 RTR

3rd Quarter 2014 RTR

4th Quarter 2014 RTR

2nd Quarter 2014 VE

3rd Quarter 2014 VE

4th Quarter 2014 VE

During the 1st Quarter 2014, VE was not performed; therefore, results were not applicable to that quarter.

One concern was identified during the PL V&V review. It was discovered that CCP-AK-ORNL-001, Rev. 10, was annotated as "APPROVED FOR USE" by an SPM who did not approve the controlled document. The document was corrected with the proper SPM name, issued, and provided to the audit team. This concern was isolated and corrected during the audit (see CDA-1 in section 6.2).

With the exception of the concern identified, the procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for project-level data V&V activities are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

5.4.3 Real-time Radiography

The audit team evaluated the adequacy, implementation, and effectiveness of ORNL/CCP's ability to characterize CH SCGs S3000 solids waste, S4000 soils/gravel waste, and S5000 debris waste using RTR Unit #6 and Unit #7.

The audit team evaluated the following RTR-related CCP procedures: CCP-QP-002, Rev. 38, *CCP Training and Qualification Plan*; CCP-TP-028, Rev. 9, *CCP Radiographic Test Drum and Training Container Construction*; CCP-TP-053, Rev. 15, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*; CCP-TP-164, Rev. 1, *CCP Real-Time Radiography #7 Operating Procedure*; and CCP-TP-165, Rev. 3, *CCP Real-Time Radiography #6 Operating Procedure*. Results of the review indicate that the procedures adequately address upper-tier requirements.

The audit team examined the following CH RTR BDRs generated by characterizing waste in RTR Unit #6 and Unit #7:

OR-RTR6-0454

OR-RTR6-0540

OR-RTR6-0551

OR-RTR6-0581

OR-RTR6-0606

OR-RTR7-0013

OR-RTR7-0056

OR-RTR7-0075

OR-RTR7-0077

OR-RTR7-0102

The audit team also reviewed a sampling of audio/video media recordings of containers characterized on the referenced BDRs. The audit team reviewed video recordings of RTR characterization scans for CH SCGs S3000 solids waste, S4000 soils/gravel waste, and S5000 debris waste.

The audit team observed RTR operations for RTR Unit #6, interviewed the RTR operators, and verified the use of current AK summaries and RTR operating procedures. The audit team also examined RTR Unit #6 operational logbook CCP-ORNL-RTR6-003, 2015, ORNL-TWPC-RTR6, 7880J and verified logbook entries were reviewed by the VPM as required. The audit team also verified the use of several RTR operator aides and CCP standing orders. The audit team observed the image (lines/pair) test and the RTR characterization scan on container X10C1351469 from BDR OR-RTR6-0644 and waste stream OR-NFS-CH-SOIL performed on RTR Unit #6. The RTR unit contained the components required by the WAP to effectively characterize each CH SCG wastes subject to the scope of the audit.

During the audit, no RTR waste characterization activities were being performed on RTR Unit #7. The audit team conducted a walk-through of RTR Unit #7 in building 7880 ZZ. The RTR unit contained the required hardware to effectively characterize CH SCGs S3000 solids waste, S4000 soils/gravel waste, and S5000 debris waste. The audit team interviewed RTR operators, reviewed CCP standing orders, and verified the availability of current AK summaries and RTR operating procedures. The audit team also examined RTR operational logbook CCP-ORNL-RTR-007-001, 2015, ORNL-TWPC, 7880ZZ and verified logbook entries were logged correctly and reviewed by the VPM as required.

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

The audit team also verified continued corrective actions for a CAQ identified and corrected during the previous audit (A-14-03) where an RTR data sheet did not reflect the estimated number of layers of confinement for the container, as required. No similar instances were identified during this audit.

The procedure reviews, field observations, and document reviews provided evidence that the applicable requirements for RTR are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No concerns were identified.

5.4.4 Visual Examination

The audit team evaluated the adequacy, implementation, and effectiveness of the ORNL/CCP VE characterization process for CH and RH SCG S5000 debris waste.

The audit team reviewed procedures CCP-TP-113, Rev. 18, *CCP Standard Contact-Handled Waste Visual Examination*, CCP-TP-500, Rev. 13, *CCP Remote-Handled Waste Visual Examination*, and CCP-QP-002, Rev. 38, *CCP Training and Qualification Plan*, to determine their adequacy in addressing upper-tier requirements. Results of the review indicate that the procedures adequately address upper-tier requirements.

ORNL/CCP uses the two-operator method when performing VE characterization. VE is performed by two qualified operators where the waste is visually examined and placed into containers. The audit team interviewed VE operators and the VEE. The audit team also examined the VE operational logbooks (CCP-ORNL-VE-002 and CCP-RH-ORNL-VE-003) and verified logbook entries were logged correctly and reviewed by the VPM as required. During the audit, the VE audit team toured the TWPC Hot Cell Facility and observed VE being performed on RH container ORRH00708 and CH container X10CSATN02455G1.

The audit team examined the following CH and RH VE BDRs generated from operations performed in the TWPC Hot Cell Facility to verify implementation and compliance with the requirements for documenting VE activities, as specified in CCP-TP-113 and CCP-TP-500:

ORNLRHVE13001	ORVECH0102	ORVECH0120
ORNLRHVE13003	ORVECH0105	ORVECH0123
ORNLRHVE13005	ORVECH0107	ORVECH0124
ORNLRHVE14002	ORVECH0110	
ORNLRHVE14007	ORVECH0112	
ORNLRHVE14008	ORVECH0113	
ORNLRHVE14010	ORVECH0115	
ORNLRHVE14012	ORVECH0117	

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

One concern was identified during the review of VE BDRs. There were two instances of waste items being recorded in the Waste Description field on Attachment 1, VE Data Form, after RH VE operations had been performed. The operator did not record all of the waste items initially, and when the additional waste items were subsequently recorded on the VE Data Form, no NCRs were generated to support the recording of additional waste items on Attachment 1 (see CAR 15-033 in section 6.1).

With the exception of the concern identified, the procedure reviews, field observations, and document reviews provided evidence that the applicable requirements for VE are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

5.4.5 Nondestructive Assay

The audit team evaluated the adequacy, implementation, and effectiveness of NDA activities at ORNL to characterize CH SCGs S3000 solids waste, S4000 soils/gravel waste, and S5000 debris waste using the Mobile Qualitative and Quantitative Drum Counter with Isotopics (IQ3) and the Mobile ISOCS (in-situ object counting system) Large Container Counter Unit #2 (MILCC2).

The audit team reviewed procedures CCP-TP-046, Rev. 5, *CCP Mobile IQ3 System Calibration Procedure*; CCP-TP-047, Rev. 12, *CCP Mobile IQ3 Gamma Scanner Operation*; CCP-TP-048, Rev. 16, *CCP ORNL NDA System Data Reviewing, Validating, and Reporting Procedure*; CCP-TP-076, Rev. 1, *CCP Operating the Mobile ISOCS Large Container Counter Using NDA 2000*; CCP-TP-077, Rev. 1, *CCP Calibrating the Mobile ISOCS Large Container Counter Using NDA 2000*; and CCP-TP-058, Rev. 6, *CCP NDA Performance Demonstration Program*, to determine the degree to which they address applicable upper-tier requirements. Results of the review indicate that the procedures adequately address upper-tier requirements.

MILCC2

Checklists were prepared based on current revisions of the WAC and CCP implementing procedures to evaluate the following:

- Operability and condition of the MILCC2 since Audit A-14-29
- System stability as evidenced by the implementation and effectiveness of quality control measurements. Weekly interfering matrix checks are being performed as evidenced in BDRs, and a 6-month report of weekly interfering matrix checks (MCS-MILCC2-2014-1)
- Successful calibration verifications and calibration confirmation, as required
- Applicability of each system's calibration and operational range to the waste assayed since Audit A-14-29
- Successful participation in the CBFO-sponsored Performance Demonstration Program (Cycle 21A)
- Completed BDRs to ensure data are reported and reviewed as required
- Data storage and retrievability

MILCC2 BDRs reviewed included:

- OR-MILCC2-0019
- OR-MILCC2-0066
- OR-MILCC2-0099
- OR-MILCC2-0121

The audit team confirmed the BDRs included results for 1 weekly interfering matrix drum and 8 waste drums; 1 weekly interfering matrix drum and 12 waste drums; 1

weekly interfering matrix drum and 12 waste drums; and 1 weekly interfering matrix drum and 12 waste drums, respectively, for a total of 4 weekly interfering matrix drums and 44 waste drums.

ORNL/CCP performed two single calibration verifications of the MILCC2, documented in CI-MILCC2-NDA-1005, Rev. 0, *Calibration Verification Report for the MCS MILCC2*, dated 8/27/2014, and CI-MILCC2-NDA-1006, Rev. 0, *Calibration Verification Report for the MCS MILCC2*, dated 10/15/2014. The audit team reviewed these documents and interviewed ORNL/CCP staff about the causes and resolutions of the issues that led to the performance of calibration verifications. The audit team found that the description of the causes and resolutions were technically adequate.

IQ3

Checklists were prepared based on current revisions of the WAC and CCP implementing procedures to evaluate the following:

- Operability and condition of the IQ3
- System stability as evidenced by the implementation and effectiveness of quality control measurements and calibration verification
- Successful calibration verifications and calibration confirmation
- Applicability of each system's calibration and operational range
- Successful participation in the CBFO-sponsored Performance Demonstration Program (Cycle 21A)
- Completed BDRs
- Data storage and retrievability

IQ3 BDRs reviewed included:

- OR-IQ3-0345
- OR-IQ3-0354
- OR-IQ3-0386
- OR-IQ3-0399

The audit team confirmed the BDRs included results for 1 weekly interfering matrix drum and 12 waste drums; 1 weekly interfering matrix drum and 12 waste drums; 1 weekly interfering matrix drum and 7 waste drums; and 1 weekly interfering matrix drum and 13 waste drums, respectively, for a total of 4 weekly interfering matrix drums and 44 waste drums.

The operability of the IQ3 was documented in a revised calibration report that documents the system's capability to assay CH SCG S3000 solids waste, as well as SCGs S4000 soils/gravel and S5000 debris wastes.

ORNL/CCP performed a single calibration verification of the IQ3, documented in MCS-IQ3-CALVER-2014-01, Rev. 0, *Calibration Verification Report for the MCS IQ3*, dated 12/8/2014. The audit team reviewed this document and interviewed ORNL/CCP staff about the cause and resolution of the issue that led to the performance of calibration verification. The audit team found that the description of the cause and resolution were technically adequate.

ORNL/CCP successfully participated in Performance Demonstration Program Cycle 21A that included four matrices (combustibles, glass, sludge, and metals) and three TRU alpha activity ranges (combustibles at mid-low [> 0.02 to 0.2 curies (Ci)], glass and metals at mid-high (> 0.2 to 2.0 Ci), and sludge at high (> 2.0 Ci)).

The procedure reviews, field observations, and document reviews provided evidence that the applicable requirements for NDA are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No concerns were identified.

5.4.6 Radiological Characterization (Dose-to-Curie)

The audit team evaluated the adequacy, implementation, and effectiveness of the DTC methodology used by the ORNL/CCP to characterize waste stream OR-REDC-RH-HET. Approximately nineteen 55-gallon drums of RH SCG S5000 debris waste have been measured, resulting in three completed BDRs (ORRHDTC14001, ORRHDTC14002, and ORRHDTC15001).

For DTC, the dose rate is defined as the external exposure rate from gamma-ray-emitting radionuclides within the waste matrix, predominately Cesium-137 (Cs-137). Based on a review of current revisions of CCP procedures and data provided prior to and during the audit, a checklist was prepared and used to evaluate the following:

- Continued use of average radionuclide ratios previously developed through examination of swipe sample data and corroborated by the NDA of CH waste derived from the original RH waste stream
- Continued use of the previously approved relationship between the measured dose or exposure rate and the activity of Cs-137
- Measurement of the external dose or exposure rate of the waste containers
- Calculation of the radionuclide activities and other derived radiological quantities and associated uncertainties
- Results of applying the DTC methodology to characterize waste as evidenced in BDR ORRHDTC14001, ORRHDTC14002, and ORRHDTC15001
- Determination of the number of containers examined, completed BDRs, and BDRs that had been through PL review that were generated prior to this audit
- Completed BDR to ensure data are reported and reviewed as required
- Data storage and retrievability
- Personnel qualification and training

The source of the RH waste at the ORNL Radiochemical Engineering Development Center (REDC) Hot Cells was the decontamination of the cell following years of efforts to produce Curium and trans-Curium elements. Based on sample data collected for 63 swipe samples, scaling factors were developed to establish ratios of the isotopes of interest to Cs-137. An understanding of the similarity of the chemical processes used during various time periods was used to develop a mathematical relationship to relate the isotopic quantities between the various time periods of waste generation. CH waste that was separated from the original RH waste stream was subjected to NDA, and the results were used to confirm the radionuclide ratios developed by the mathematical relationship.

Measurements of the external dose or exposure rates of the waste are made in a hot cell in building 7880, room 231 (DTC Hotcell/Alcove). The exposure rate, attributed entirely to Cs-137, is measured four times at a distance of 1.0 meter from the 55-gallon waste containers. A Thermo Scientific Model FHZ-612 (XC-0761) survey meter is used to measure the dose rate. Each container is rotated 90 degrees successively between each of the four measurement intervals. The average measured dose or exposure rate for each 55-gallon waste container and associated scaling factors are used to estimate the activity of individual radionuclides and other derived radiological quantities and associated uncertainties.

The procedure reviews, field observations, and document reviews provided evidence that the applicable requirements for radiological characterization are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No concerns were identified.

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

The audit team conducted interviews and reviewed implementing procedures relative to the WWIS/WDS data entry process to determine the degree to which the procedures adequately address upper-tier requirements. The procedures reviewed included CCP-TP-030, Rev. 34, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry*, and CCP-TP-530, Rev. 11, *CCP RH TRU Waste Certification and WWIS/WDS Data Entry*. Results of the review indicate that the procedures adequately address upper-tier requirements.

The audit team evaluated the implementation of the WWIS/WDS data entry procedures for manual data entry and electronic data transfer into the WWIS/WDS software application. The evaluation included review of electronic records in the IDC, review of data entry by a waste certification assistant, and waste certification by the waste certification official. Other records reviewed included container information summaries, pages from BDRs showing analyses values in the IDC, WWIS/WDS Waste Container Data Reports, and submittals for WWIS/WDS review/approval. Records for data entry of both CH- and RH-type waste characterization and certification data were reviewed.

The audit team reviewed the CH waste characterization case files for six CH waste containers. Containers X10C0600036A, NFS0084A, and X10C0402975CC were certified under the previous revision of procedure CCP-TP-030 (Rev. 33), using the manual spreadsheet data characterization and certification process. Containers X10C0402865G, X10C0402860A, and X10C0402862D were certified under the current procedural process, CCP-TP-030, Rev. 34, which includes certification using the IDC. The audit team determined that both the Waste Certification Data Entry Form (WCDEF) spreadsheet and the IDC processes were performed in accordance with the appropriate procedure revision. Per interviews with CCP personnel, the audit team determined that implementation using the IDC process is preferred and expected to reduce time to characterize, certify, and submit container information to WWIS/WDS for approval.

Container NFS0478A was evaluated due to its association with the review and approval of a new WSPF. The container was selected as a demonstration of procedural implementation for the evaluation of the CH waste stream OR-NFS-FCH-HOM-A. The container is entered in the WWIS/WDS appropriately and maintains the status of "presubmittal for characterization." The container will be promoted and submitted for full certification once the WSPF is approved. The container was adequately characterized and certified in accordance with the procedural requirements.

The audit team reviewed files for three RH waste canisters, ORRH00678, ORRH00679, and ORRH00681, which had not yet been built into canister configurations for shipping at the time of the audit. Due to the current status of WIPP operations, CCP is certifying RH containers at this time only in preparation for building shipments when WIPP resumes operations. The RH waste canisters were from the waste stream OR-REDC-RH-HET. Evaluation of RH waste characterization included Characterization Information Summary (CIS) excerpts, WCDEF signed spreadsheet copies, supporting forms and data, and WWIS/WDS Waste Container Data Reports.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for WWIS/WDS data entry are adequately established, satisfactorily implemented, and effective in achieving the desired results. No concerns were identified.

5.4.8 Flammable Gas Sampling and Analysis

The audit team conducted interviews with responsible FGA personnel and confirmed that ORNL/CCP personnel performing FGA use DOE procedure DOE/WIPP 06-3345, Rev. 7, *Waste Isolation Pilot Plant Flammable Gas Analysis*. A walkthrough of the FGA CH drum sampling area was performed, and the instrumentation and equipment was verified to be acceptable. A demonstration of sampling and analysis was observed. The following FG BDRs were examined:

- OR14FG8064
- OR14FG8152
- OR14FG8161
- OR14FG8173

- OR15FG8018
- LA1013FG8002_MDL (minimum detection limit study)
- OR14FG8055_ICAL (initial calibration study)
- OR14FG8159_ICAL

All FG BDRs were determined to have been completed accurately and compliantly. Additionally, the logbook for FG CCP-ORNL-FGA8-004 contained the required information and was properly reviewed and signed by the VPM, as required.

The procedures reviewed and objective evidence assembled concluded that the applicable requirements for FGA are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No concerns were identified.

5.4.9 Container Management

ORNL performs container movement for the CCP and is responsible for supplying containers to the CCP for characterization activities. ORNL personnel move containers and track their location using ORNL procedures and techniques.

The audit team conducted interviews with responsible personnel and reviewed implementing procedure CCP-TP-509, Rev. 6, *CCP Remote-Handled Transuranic Container Tracking*, relative to RH container management activities performed by ORNL/CCP, to determine the degree to which the CCP procedure adequately addresses upper-tier requirements. ORNL/CCP tracks RH containers using the RH AK Tracking Spreadsheet. This spreadsheet was examined and contained the required information.

ORNL/CCP CH container management is performed using procedure CCP-TP-068, Rev. 11, *CCP Standardized Container Management*. Compliance was verified by field observations of CH containers in the Contact-Handled Staging Area (CHSA) building, examination of container management documents, and interviews with the container management specialist. CH containers are introduced into the ORNL/CCP characterization system by verifying the integrity of the container, weighing it, and initiating a drum traveler sheet which is affixed to the top of the drum. The containers are prepared for the characterization technique and then ORNL/CCP performs the required characterization. It was verified that a drum traveler sheet was affixed to container X10C1351494, which was undergoing characterization, and that each characterization process completed was noted on the drum traveler sheet. ORNL/CCP personnel use information entered into the CH AK Tracking Spreadsheet to track drums until disposal, and note final disposition in the CH AK Tracking Spreadsheet.

Containers associated with an NCR are returned to ORNL for remediation. VPM Hold Tags were verified to be properly placed on drums as required, and the tags are removed only with approval of the VPM. Drums with NCRs or Hold Tags are easily identified to preclude shipment to the WIPP.

The procedure review, field observations, and document reviews provided evidence that the applicable requirements for container management are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No concerns were identified.

6.0 CORRECTIVE ACTIONS, OBSERVATIONS, AND RECOMMENDATIONS

6.1 Corrective Action Reports

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

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

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

The following CAR was issued as a result of this audit.

CAR 15-033

Condition:

There were two instances of waste items being recorded in the Waste Description field on Attachment 1, Visual Examination Data Form, after RH waste VE operations had been performed. In both instances, the operator did not record all of the waste items in the Waste Description field.

1. An initial VE was performed on container #ORRH00687, dated 1/8/14. Additional waste items were recorded in the Waste Description field on Attachment 1 on 2/11/14.
2. An initial VE was performed on container #ORRH00691, dated 1/27/14. Additional waste items were recorded in the Waste Description field on Attachment 1 on 2/11/14.

Further, no NCRs were initiated to support the recording of the additional waste items in the Waste Description field on Attachment 1.

Requirement:

CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, Rev. 21, section C3-4b states: "Any nonconformance identified during this process is documented on an NCR (Section C3-7)."

CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*, Rev. 13, section 4.1.2

[D] states: "Examine the waste, **AND** record the description of the material to be placed in the package in the Waste Description field on Attachment 1."

CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*, Rev. 13, section 2.4.2 [A] states: "If a condition adverse to quality is identified, the individual(s) identifying the condition **SHALL** initiate a nonconformance report (NCR) in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*."

6.2 Deficiencies Corrected During the Audit

During the audit, the audit team may identify CAQs. Audit team members, the Audit Team Leader (ATL), and the CBFO Management Representative evaluate the CAQs to determine if they are significant. Once a determination is made that the CAQ is not significant, the audit team member, in conjunction with the ATL and the CBFO QA Management Representative, determines if the CAQ is a minor and isolated case requiring only remedial action and therefore can be corrected during the audit.

Upon determination that the CAQ is minor and isolated, the audit team member, in conjunction with the ATL and the CBFO QA Management Representative, evaluates/verifies any objective evidence/actions submitted or taken by the audited organization and determines if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been corrected, the CBFO QA Management Representative categorizes the condition as corrected during audit (CDA) according to the definition below.

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

One CAQ was identified and corrected during this audit, as detailed below.

CDA-1

Condition:

Document CCP-AK-ORNL-001, Rev. 10, is annotated as "APPROVED FOR USE" by an SPM who did not approve the controlled document. Further investigations of e-mail, record files, and the Q&MIS database confirmed a different SPM approved the document.

Requirement:

CCP-QP-010, *CCP Document Preparation, Approval, and Control*, Rev. 25, section 4.1.42 states: "Finalize document by performing the following: [B] On the cover page, insert the effective date and the name of the person who approved the procedure."

During the audit, the auditor was provided with objective evidence that included the corrected cover page for CCP-AK-ORNL-001, which named the appropriate approver of the document. The concern was determined to be isolated in nature and evidence confirming the correction was presented to the audit team and verified prior to the conclusion of the audit.

6.3 Observations

During the audit, the audit team may identify potential problems that should be communicated to the audited organization. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as Observations using the following definition:

Observation – A condition that, if not controlled, could result in a CAQ.

Once a determination is made, the audit team member, in conjunction with the ATL, categorizes the condition appropriately.

The audit team identified the following Observation during this audit.

Observation 1

The draft Waste Stream Profile Form and attachments for waste stream OR-NFS-CH-HOM-A contain information that should be changed. In the Reconciliation of Data Quality Objectives, question 6 is answered inaccurately regarding listed wastes. In addition, the listing of discrepancy resolutions in the Summation of Aspects of AK Summary Report: OR-NFS-CH-HOM-A should be reviewed for accuracy.

6.4 Recommendations

During the audit, the audit team may identify suggestions for improvement that should be communicated to the audited organization. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as Recommendations using the following definition:

Recommendations – Suggestions that are directed toward identifying opportunities for improvement and enhancing methods of implementing requirements.

Once a determination is made, the audit team member, in conjunction with the ATL, categorizes the condition appropriately.

The audit team identified the following two Recommendations during this audit.

Recommendation 1

It is recommended that ORNL AK summaries at the next revision provide the following information regarding the identity and use of absorbent materials identified in the AK record:

- Specific reference to the applicable absorbent MSDS sheets compiled in AK source documents
- Direction to examine additional relevant absorbent information in chemical tables listed in the AK summaries
- Reference to AK source documents with applicable procedures utilizing absorbents

Recommendation 2

It is recommended that AK Summary Report CCP-AK-ORNL-009, Rev. 1, be revised to incorporate the following changes for clarity:

1. P13, S4.1.1-change date from 1970 to 1972
2. P14-change all figure 4 references to figure 5
3. P24, S4.5-change date from 1970 to 1972
4. P30, S5.4-change waste stream designation from OR-ISTP-CH-HET to OR-SWSA-CH-HET
5. P52, table 5-4-for the notation for "mercury amalgam agent" change the EPA Hazardous Waste Number to NA

7.0 LIST OF ATTACHMENTS

- Attachment 1: Personnel Contacted During the Audit
- Attachment 2: Summary Table of Audit Results
- Attachment 3: Table of Audited Documents
- Attachment 4: List of Processes and Equipment Reviewed

PERSONNEL CONTACTED DURING AUDIT A-15-09				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Cheryl Armijo	TFE/CCP Training Records Analyst		X	
Charla Anderson	TWPC General Manager			X
Susan Anderson	MCS/CCP NDA Operator		X	
William Bailey	DOE OR EM FR			X
Lindsey Bender	US EPA HQ QA Observer		X	
Dale Bignell	CTAC/Portage Observer	X	X	X
Michele Billett	NWP/CCP TFE Training Coordinator		X	
Gary L. Birge	DOE/CBFO TRU Waste Physical Scientist-TRU Waste Certification Manager		X	X
Daphne Brothers	NWP/CCP RTR Operator		X	
Michael R. Brown	CBFO QA Division Director	X		X
Carmel Byrd	NFT/CCP FGA Operator		X	
Norma Castaneda	CBFO/TSTD Waste Certification Manager	X		
Robert Ceo	Canberra/MCS NDA EA		X	
Jason Cofer	NWP/CCP VE Operator		X	
Dan E. Coffey	TWPC AKPKE/ Characterization Support	X		X
Karen Deacon	DOE OR PM	X		X
David Dickey	TWPC RTR Operator		X	
Mark Doherty	CTAC/TSTD Observer	X	X	X
A.J. Fisher	NWP/CCP Support Services Manager		X	
James Gaenslen	TWPC RH PAR Operator		X	
Chad Gerlock	Canberra/MCS NDA Operator		X	
Mark Green	TWPC RH Floor Supervisor		X	
Trey Greenwood	NWP/CCP AK Manager	X	X	

PERSONNEL CONTACTED DURING AUDIT A-15-09				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Anthony Harley	NWP/CCP VE Operator		X	
LaTravia Harmon	NWP/CCP QA	X	X	X
Jeff Harrison	NWP/CCP AK Expert	X	X	
Joe P. Harvill	NWP/CCP Technical Advisor		X	
Fred Heacker	WAI TWPC Deputy General Manager			X
Steve Holmes	NMED/HWB Observer	X	X	X
Ricky Johnson	TWPC RTR Operator		X	
Laura Jones	NWP/CCP QAE		X	
Martin Jones	TWPC RH Floor Supervisor		X	
Irene Joo	NWP/CCP RH Manager	X	X	X
Creta Kirkes	NWP/CCP WCO		X	
Scott Kranker	TWPC Waste Programs STR	X	X	X
Wayne Ledford	NWP/CCP QA Specialist		X	X
Ronnie Lee	NWP/CCP Project Manager			X
Greta Leos	TFE Records Clerk		X	
Eric Lyles	NWP/CCP RTR Operator		X	
Ricardo Maestas.	NMED Observer			X
Mike McCauley	TWPC WCO-LLW	X		X
Kevin Meyer	MCS/CCP NDA EA		X	
Dennis Miehl	CBFO Sr. QA Specialist	X		X
Tommy Mojica	NWP/CCP VE Expert		X	
Bob Murray	DOE-HQ EM43 Observer	X	X	X
Leon Navarrete	TFE Records Clerk		X	
Martin Navarrete	CBFO Sr. QA Specialist	X		X
Brian Oakley	WAI TWPC Feedstock & Disposition Support	X		
Fred Oney	NWP/CCP RTR Lead Operator	X	X	X

PERSONNEL CONTACTED DURING AUDIT A-15-09				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Jose Payanes	NWP/CCP Document Services Manager		X	
Eric Pennala	MCS General Manager			X
Larry Perkins	DOE-HQ EM43 Observer	X	X	X
Kevin Peters	NWP/CCP AK Expert	X	X	
Mike Ramirez	NWP/CCP Certification Manager		X	
Ron Reeves	NWP/CCP Project Manager	X	X	X
Jeremy Robinson	NFT/CCP Lead FGA SME	X	X	X
Steven Ross	DOE-HQ EM43 Observer	X	X	X
Steve Schafer	NWP/CCP AK Expert	X	X	
Beverly Schrock	NWP/CCP SPM	X	X	X
Farok Sharif	NWP NTP Project Manager			X
Mike Sensibaugh	NWP/CCP Operations Mgr.	X	X	X
Coleman Smith	NMED Observer			X
Andrew Stallings	NWP/CCP ORNL VPM	X	X	X
Bob Thielke	TEA/DOE-HQ EM43 Observer		X	X
Pat Tilmon	NWP/CCP VPM	X		X
Shawn Treadway	NWP/CCP Container Manager		X	
Marcel Villani	Canberra/MCS NDA Technical Director-in-Training		X	
Joe Wachter	Canberra/MCS NDA Technical Director		X	X
Daniel Wade	NWP/CCP SPM	X		X
Ronald Whitson	MCS/CCP NDA/DTC Lead		X	X
Chuck Wise	TFE CCP Training Coordinator		X	
Ray Wood	TEA/DOE- HQ EM43 Observer	X	X	
Ray Weedon	QAI QA Manager			X
Jewell Yturralde	TFE Records Clerk III		X	

SUMMARY TABLE OF AUDIT RESULTS

QA / Technical Elements	Concern Classification				QA Evaluation		Technical Evaluation
	CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness
Acceptable Knowledge			X	XX	A	S	E
Reconciliation of DQO's WSPFs					A	S	E
Project Level Data V & V		X			A	S	E
Real-time Radiography					A	S	E
Visual Examination	X				A	S	E
Nondestructive Assay					A	S	E
Dose-to-Curie					A	S	E
Container Mgmt / FGA					A	S	E
QA General C6-1 Training					A	S	E
QA General C6-1 NCRs / Records / Doc Control					A	S	E
QA General C6-1 WWIS / WDS					A	S	E
TOTALS	1	1	1	2	A	S	E

Definitions

E = Effective

S = Satisfactory

I = Indeterminate

M = Marginal

U = Unsatisfactory

CAR = Corrective Action Report

CDA = Corrected During Audit

NE = Not Effective

Obs – Observation

Rec = Recommendation

A = Adequate

NA = Not Adequate

TABLE OF AUDITED DOCUMENTS

NUMBER	PROCEDURE NUMBER	REV	PROCEDURE TITLE
1.	CCP-PO-001	21	CCP Transuranic Waste Characterization Quality Assurance Project Plan
2.	CCP-PO-002	27	CCP Transuranic Waste Certification Plan
3.	CCP-PO-027	5	CCP/TRU Waste Processing Center/Oakridge National Laboratory Interface Document
4.	CCP-QP-002	38	CCP Training and Qualification Plan
5.	CCP-QP-005	24	CCP TRU Nonconforming Item Reporting and Control
6.	CCP-QP-008	24	CCP Records Management
7.	CCP-QP-010	25	CCP Document Preparation, Approval, and Control
8.	CCP-QP-016	20	CCP Control of Measuring and Testing Equipment
9.	CCP-QP-021	10	CCP Surveillance Program
10.	CCP-QP-022	15	CCP Software Quality Assurance Plan
11.	CCP-QP-028	16	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
12.	CCP-TP-001	21	CCP Project Level Data Validation and Verification
13.	CCP-TP-002	26	CCP Reconciliation of DQOs and Reporting Characterization Data
14.	CCP-TP-005	26	CCP Acceptable Knowledge Documentation
15.	CCP-TP-028	9	CCP Radiographic Test Drum and Training Container Construction
16.	CCP-TP-030	34	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
17.	CCP-TP-033	22	CCP Shipping of CH TRU Waste
18.	CCP-TP-046	5	CCP Mobile IQ3 System Calibration Procedure
19.	CCP-TP-047	12	CCP Mobile IQ3 Gamma Scanner Operation
20.	CCP-TP-048	16	CCP ORNL NDA System Data Reviewing, Validating, and Reporting Procedure
21.	CCP-TP-053	15	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
22.	CCP-TP-058	6	CCP NDA Performance Demonstration Program
23.	CCP-TP-068	11	CCP Standardized Container Management
24.	CCP-TP-076	1	CCP Operating the Mobile ISOCS Large Container Counter Using NDA 2000
25.	CCP-TP-077	1	CCP Calibrating the Mobile ISOCS Large Container Counter Using NDA 2000
26.	CCP-TP-082	10	CCP Waste Container Filter Vent Operation
27.	CCP-TP-113	18	CCP Standard Contact-Handled Waste Visual Examination
28.	CCP-TP-164	1	CCP Real-Time Radiography #7 Operating Procedure
29.	CCP-TP-165	3	CCP Real-Time Radiography #6 Operating Procedure
30.	CCP-TP-500	13	CCP Remote-Handled Waste Visual Examination
31.	CCP-TP-504	17	CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste
32.	CCP-TP-506	5	CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report
33.	CCP-TP-507	8	CCP Shipping of Remote-Handled Transuranic Waste
34.	CCP-TP-509	6	CCP Remote-Handled Transuranic Container Tracking
35.	CCP-TP-530	11	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
36.	WP 15-GM1002	1	Issues Management Processing of WIPP Forms

List of Processes and Equipment Reviewed

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams
PREVIOUSLY APPROVED PROCESSES OR EQUIPMENT		
N/A	Acceptable Knowledge Procedures – CCP-TP-002, CCP-TP-005, & CCP-TP-506	Solids (S3000) Soils (S4000) Debris (S5000)
N/A	Data Generation and Project Level Validation & Verification (V&V) Procedures – CCP-TP-001, CCP-TP-002, CCP-TP-500	Solids (S3000) Soils (S4000) Debris (S5000)
N/A	WIPP Waste Information System (WWIS) Procedures – CCP-TP-030, CCP-TP-033, & CCP-TP-530	Solids (S3000) Soils (S4000) Debris (S5000)
16VE1	Visual Examination (VE) Procedures – CCP-TP-113	Debris (S5000)
16RHVE1	Visual Examination (VE) Procedures – CCP-TP-500	Debris (S5000)
16RR1	Real-Time Radiography Mobile Characterization System (MCS) RTR #6 Procedures – CCP-TP-053 & CCP-TP-165	Solids (S3000) Soils (S4000) Debris (S5000)
16RR2	Real-Time Radiography Mobile Characterization System (MCS) RTR #7 Procedures – CCP-TP-053 & CCP-TP-164	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)
16DTC1	Radiological Characterization (Dose-to-Curie) Procedure - CCP-TP-504	Debris (S5000)
16IQ1	Nondestructive Assay – Canberra Mobile Qualitative and Quantitative Drum Counter with Isotopics (IQ3) Procedures – CCP-TP-046, CCP-TP-047, & CCP-TP-048	Solids (S3000) Soils (S4000) Debris (S5000)
16MILCC2	Nondestructive Assay – Mobile In Situ Object Counting System Large Container Counter (MILCC2) Procedures – CCP-TP-076, CCP-TP-077, CCP-TP-139	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)
N/A	Quality Assurance Program	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)

List of Processes and Equipment Reviewed

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams
NEW PROCESSES OR EQUIPMENT		
NONE		
DEACTIVATED PROCESSES OR EQUIPMENT		
NONE		