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United States Government

Department of Energy





# memorandum

Carlsbad Field Office
Carlsbad, New Mexico 88221

DATE: JUN 28 2013

REPLY TO ATTN OF: CBFO:OQA:DSM:MAG:13-1470:UFC 2300.00

SUBJECT: Interim Audit Report A-13-18, INL/CCP Characterization and Certification Activities for CH and RH TRU Waste

TO: Benjamin Roberts, DOE-ID

The Carlsbad Field Office (CBFO) conducted Annual Recertification Audit A-13-18, Idaho National Laboratory Central Characterization Program (INL/CCP) Characterization and Certification Activities for Contact-Handled (CH) and Remote-Handled (RH) Transuranic (TRU) Waste, June 3-6, 2013. The subject CBFO interim audit report is attached.

The audit team concluded that, overall, the INL/CCP implementing procedures are adequate relative to the flow-down of requirements. The audit team determined that the INL/CCP technical requirements are being satisfactorily implemented and are effective in all areas.

As a result of the audit, two conditions adverse to quality, isolated in nature, were corrected during the audit. The audit team identified one Observation during the audit and offered one Recommendation to INL/CCP management for consideration.

If you have any questions regarding the attached report, please contact me at (575) 234-7491.

Dennis S. Miehls
Acting Director, Office of Quality Assurance

Attachment

cc: w/attachment

| | | | |
|---|---|---|---|
| J. Franco, CBFO | *ED | R. Joglekar, EPA | ED |
| M. Navarrete, CBFO | ED | S. Ghose, EPA | ED |
| J. R. Stroble, CBFO | ED | R. Lee, EPA | ED |
| N. Castaneda, CBFO | ED | J. Kieling, NMED | ED |
| M. Pinzel, CBFO | ED | T. Kliphuis, NMED | ED |
| F. Sharif, NWP | ED | S. Holmes, NMED | ED |
| J. Hoff, NWP | ED | R. Maestas, NMED | ED |
| M.A. Mullins, NWP | ED | C. Smith, NMED | ED |
| W. Ledford, NWP | ED | D. Winters, DNFSB | ED |
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| A. J. Fisher, NWP/CCP | ED | G. White, CTAC | ED |
| I. Joo, NWP/CCP | ED | T. Bowden, CTAC | ED |
| M. Walker, NWP/CCP | ED | WWIS Database Administrators | ED |
| J. Carter, NWP/CCP | ED | WIPP Operating Record | ED |
| T. Peake, EPA | ED | CBFO QA File | |
| L. Bender, EPA | ED | CBFO M&RC | |
| E. Feltcorn, EPA | ED | *ED denotes electronic distribution | |

# U.S. DEPARTMENT OF ENERGY
# CARLSBAD FIELD OFFICE

# INTERIM AUDIT REPORT

# OF THE

# IDAHO NATIONAL LABORATORY
# CENTRAL CHARACTERIZATION PROGRAM

# IDAHO FALLS, IDAHO,
# AND CARLSBAD, NEW MEXICO

## AUDIT NUMBER A-13-18

## June 3 – 6, 2013

# CHARACTERIZATION AND CERTIFICATION ACTIVITIES FOR CONTACT-HANDLED AND REMOTE-HANDLED TRANSURANIC WASTE

**Prepared by:** Tamara D. Bowden **Date:** 6/28/13
Tamara D. Bowden, CTAC
Audit Team Leader

**Approved by:** D. Smith **Date:** 6-28-13
Dennis Miehls, CBFO
Acting Quality Assurance Director

## 1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Recertification Audit A-13-18 was conducted to evaluate the continued adequacy, implementation, and effectiveness of Idaho National Laboratory (INL) transuranic (TRU) waste characterization activities performed for INL by the Nuclear Waste Partnership LLC (NWP) Central Characterization Program (CCP). Activities were evaluated 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), the *Remote-Handled TRU Waste Characterization Program Implementation Plan* (WCPIP), the *CCP Transuranic Authorized Methods for Payload Control* (CCP CH-TRAMPAC), and the *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control* (CCP RH-TRAMPAC).

The audit team evaluated characterization and certification activities for contact-handled (CH) Summary Category Groups (SCGs) S3000 homogeneous solids waste, S4000 soils/gravel waste, and S5000 debris waste, and remote-handled (RH) SCGs S3000 homogeneous solids waste and S5000 debris waste, in addition to other technical elements, quality assurance (QA) elements, and transportation activities. The specific items audited are listed in section 2.1.

The audit was conducted at the INL/CCP facility near Idaho Falls, Idaho, and the NWP/CCP facilities in Carlsbad, New Mexico, June 3 – 6, 2013. The audit team concluded that INL/CCP adequately incorporates upper-tier requirements into their program plans and procedures. The audit team verified that the INL/CCP program for characterization and certification activities related to CH SCGs S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris wastes, and RH SCGs S3000 homogeneous solids and S5000 debris wastes, continue to be adequate, satisfactorily implemented, and effective.

The audit team identified no conditions adverse to quality (CAQs) resulting in corrective action reports (CARs) during the audit. Two deficiencies, isolated in nature and requiring only remedial corrective action, were identified and corrected during the audit (CDA). See section 6.2 for details. One Observation was identified during the audit, and one Recommendation was offered for management consideration. See sections 6.3 and 6.4 for details.

## 2.0 SCOPE AND PURPOSE

### 2.1 Scope

The audit team evaluated the continued adequacy, implementation, and effectiveness of the INL/CCP TRU waste characterization and certification activities for CH SCGs S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris wastes, and RH SCGs S3000 homogeneous solids and S5000 debris wastes. The following elements were evaluated:

General (Idaho Falls)

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

Quality Assurance (Carlsbad)

- Personnel Qualification and Training
- Nonconformance Reporting
- Records

Technical Activities

NWP/CCP (Carlsbad)

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

INL/CCP (Idaho Falls)

- Acceptable Knowledge (AK)/Waste Certification
- Project-level Data Verification and Validation (V&V)
- Real-time Radiography (RTR)
- Visual Examination (VE)
- Headspace Gas (HSG) Sampling
- Solids Sampling and Analysis
- Nondestructive Assay (NDA)
- Dose-to-Curie (DTC)
- Flammable Gas Analysis (FGA)
- Gas Generation Testing Program (GGTP)
- Leak Testing
- Container Management
- TRUPACT-II Operations/RH 72-B Operations/Transportation

The evaluation of INL/CCP TRU waste activities and documents was based on current revisions of the following documents:

Waste Isolation Pilot Plant Hazardous Waste Facility Permit NM4890139088-TSDF (HWFP)

*Quality Assurance Program Document*, DOE/CBFO-94-1012

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

*Remote-Handled TRU Waste Characterization Program Implementation Plan*, DOE/WIPP-02-3214

*TRUPACT-II Safety Analysis Report: Contact-Handled Transuranic Waste Authorized Methods for Payload Control (CH-TRAMPAC), and the TRUPACT-II Certificate of Compliance NRC 71-9218*

*RH-TRU 72-B Safety Analysis Report: Remote-Handled Transuranic Waste Authorized Methods for Payload Control (RH-TRAMPAC), and the RH-TRU 72-B Certificate of Compliance NRC 71-9212*

*CCP Transuranic Waste Characterization Quality Assurance Project Plan*, CCP-PO-001

*CCP Transuranic Waste Certification Plan*, CCP-PO-002

*CCP Transuranic Authorized Methods for Payload Control* (CCP CH-TRAMPAC), CCP-PO-003

*CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control* (CCP RH-TRAMPAC), CCP-PO-505

*CCP/INL Interface Document*, CCP-PO-024

*CCP/INL RH TRU Waste Interface Document*, CCP-PO-501

Related technical and quality assurance implementing procedures

## 2.2 Purpose

Audit A-13-18 was conducted to assess the level of compliance of waste characterization and certification, QA program, and Transportation activities for CH SCGs S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris wastes, and RH SCGs S3000 homogeneous solids and S5000 debris wastes.

## 3.0 AUDIT TEAM AND OBSERVERS

### AUDITORS/TECHNICAL SPECIALISTS

| | |
|---|---|
| Dennis Miehls | Management Representative, CBFO Office of Quality Assurance |
| Tamara Bowden | Audit Team Leader, CBFO Technical Assistance Contractor (CTAC) |
| Cindi Castillo | Auditor, CTAC |
| Berry Pace | Auditor, CTAC |
| Greg Knox | Auditor, CTAC |
| Rick Castillo | Auditor, CTAC |
| Jim Schuetz | Auditor, CTAC |
| Katie Martin | Auditor, CTAC |
| Roger Vawter | Auditor, CTAC |
| B.J. Verret | Auditor/Technical Specialist, CTAC |
| Prissy Martinez | Auditor/Technical Specialist, CTAC |
| Paul Gomez | Technical Specialist, CTAC |
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| Kirk Kirkes | Technical Specialist, CTAC |
| Rhett Bradford | Technical Specialist, CTAC |
| Dick Blauvelt | Technical Specialist, CTAC |
| Jim Oliver | Technical Specialist, CTAC |
| Todd Sellmer | Technical Specialist, NWP |

### OBSERVERS

| | |
|---|---|
| Marcus Pinzel | CBFO Office of the National TRU Program (NTP) |
| Martin Navarrete | CBFO Office of Quality Assurance (QA) |
| Joe Harvill | Senior Manager, CTAC |
| Steve Holmes | New Mexico Environment Department (NMED) |
| Ricardo Maestas | NMED |
| Connie Walker | NMED |

## 4.0 AUDIT PARTICIPANTS

INL/CCP individuals involved in the audit process are identified in Attachment 1. A preaudit meeting was held at the INL/CCP site near Idaho Falls, ID, and the Skeen-Whitlock Building in Carlsbad, NM, on June 3, 2013. Daily briefings were held with INL/CCP management and staff to discuss issues and potential deficiencies. The audit was concluded with a post-audit meeting held at the INL/CCP site near Idaho Falls, ID, and in the Skeen-Whitlock Building in Carlsbad, NM, on June 6, 2013.

## 5.0 SUMMARY OF AUDIT RESULTS

### 5.1 Program Adequacy, Implementation, and Effectiveness

The audit team concluded that the applicable INL/CCP TRU waste characterization activities, as described in the associated implementing procedures, are adequate,

satisfactorily implemented, and effective. Audited activities are described below. Attachment 2 contains a Summary Table of Audit Results. Attachment 3 contains a list of documents that were assessed during the audit. Attachment 4 contains a list of the processes and equipment evaluated.

The audit team identified no CAQs resulting in CARs during the audit. Two deficiencies, isolated in nature and requiring only remedial corrective action, were identified and considered CDA. One Observation was identified during the audit, and one Recommendation was offered for management consideration. The CDAs, Observation, and Recommendation are described in section 6.

## 5.2 General Activities

### 5.2.1 Results of Previous Audits

During the audit, the audit team verified that corrective actions for CAQs documented during the previous INL/CCP Recertification Audit, A-12-13, were being satisfactorily implemented and maintained. Corrective actions for CBFO CAR 12-026 (transportation) were found to be satisfactorily implemented and maintained. Corrective actions for CBFO CAR 12-027 (overall inattention to detail on CCP BDRs) were also found to be satisfactorily implemented and maintained.

### 5.2.2 Changes in Program or Operations

INL/CCP no longer performs CH RTR characterization. The unit was removed in December 2012. INL/CCP also removed the High Efficiency Neutron Counter (HENC) assay system. CBFO conducted Surveillance S-13-19 on January 24, 2013, to observe VE operations on CH S3000 solids waste, with the understanding that a review of completed batch data reports (BDRs) and operator qualification would be evaluated during INL/CCP Recertification Audit A-13-18. See section 5.4.5 for details. Headspace Gas and Solids Sampling and Analysis activities were evaluated prior to the permit modification to remove these characterization processes.

### 5.2.3 New Programs or Activities Being Implemented

No new programs or activities have been implemented since the performance of Audit A-12-13.

### 5.2.4 Changes in Key Personnel

INL/CCP has added Steve Castro as an alternate Site Project Manager (SPM), but there has been no other significant change to key personnel since the performance of Audit A-12-13.

## 5.3 Quality Assurance Activities

### 5.3.1 Personnel Qualification and Training

The audit team interviewed responsible personnel and reviewed documentation to verify that INL/CCP met the requirements of the CBFO QAPD, and CCP-QP-002, Rev. 34, *CCP Training and Qualification Plan*. Training and qualification records for the following positions were reviewed: CH waste and RH waste Acceptable Knowledge Experts (AKEs); SPMs; HSG Operators/Independent Technical Reviewers (ITRs); Flammable Gas Analysts (FGAs); NDA Operators/ITRs; NDA Expert Analysts; DTC Survey Operators/ITRs; VE Operators/ITRs; and Nondestructive Examination (NDE) RTR Operators/ITRs.

Records reviewed included the INL CH Program List of Qualified Individuals (LOQI) dated 5/31/2013, the RH Program LOQI dated 5/7/2013, subject matter expert/on-the-job-training appointment letters, test drum (capability demonstrations) and training container documentation, and annual eye examination forms for NDE RTR Operators.

The procedures reviewed and objective evidence assembled and evaluated during the audit indicated that the applicable requirements for Personnel Qualification and Training are adequately established for compliance with upper-tier requirements, and are satisfactorily implemented and effective.

### 5.3.2 Nonconformance Reporting

The audit team conducted interviews and reviewed implementing procedure CCP-QP-005, Revision 22, *CCP TRU Nonconforming Item Reporting and Control*, to determine the degree to which the procedure adequately addresses upper-tier requirements.

The audit team interviewed the project office quality assurance engineer and then randomly selected a sample of nonconformance reports (NCRs) for review (NCR-INL-0346-12, R0; NCR-INL-0349-12, R0; NCR-INL-0353-12, R0; NCR-INL-0357-12, R0; NCR-INL-0368-12, R0; NCR-INL-0428-12, R0; NCR-INL-0430-12, R0; NCR-INL-0433-12, R1; NCR-INL-0434-12, R1; NCR-INL-0438-12, R0; NCR-INL-0062-13, R0; NCR-INL-0066-13, R0; NCR-INL-0329-13, R0; NCR-INL-0336-13, R0; NCR-RHINL-0125-12, R1; NCR-RHINL-0496-12, R0; and NCR-RHINL-0502-12, R0). The purpose of the NCR review was to confirm that administrative deficiencies are being appropriately documented and tracked through resolution.

The audit team reviewed NCR-INL-1759-12, R0; NCR-INL-0418-12, R1; NCR-INL-0396-12, R1; and NCR-INL-0437-12, R0, which documented non-administrative deficiencies, first identified at the SPM level, and determined that the deficiencies had been reported to the Permittee within seven days, as required. There were no reportable RH NCRs since the previous recertification audit. All NCRs were verified as being managed and tracked in the CCP Integrated Data Center on the CCP NCR Logs.

Overall, Nonconformance Reporting activities were determined to be adequate, satisfactorily implemented, and effective.

### 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. 20, *CCP Transuranic Waste Characterization Quality Assurance Project Plan;* CCP-QP-008, Rev. 21, *CCP Records Management*; and CCP-QP-028, Rev. 15, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning.* Control of QA records was verified through review of the CH Records Inventory and Disposition Schedule (RIDS) dated 8/2/2012, and the RH RIDS dated 7/23/2012.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for QA records are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results. The audit team determined that Records activities were adequate, satisfactorily implemented, and effective.

## 5.4 Technical Activities

Audit team evaluations of applicable INL/CCP technical activities are summarized in the following subsections.

### 5.4.1 Acceptable Knowledge/Waste Certification

The audit team reviewed specific and complete AK program documentation for the CH debris waste stream ID-AECHDM, originally generated at Argonne National Laboratory-East (ANLE) and shipped to INL for WIPP characterization and certification, a CH solids stream, ID-RF-S3150A, from Rocky Flats Environmental Technology Site, a CH soils stream, ID-SDA-SOIL, from the excavation of the Subsurface Disposal Area (SDA) at Idaho, and an RH TRU debris stream, ID-ANLE-S5000, originally generated in hot cell activities at ANLE. With respect to review of the AK record for an RH S3000 waste stream, as in the previous audit, there were no RH solids streams completely prepared for audit. Therefore, the AK audit team once again reviewed the available AK record for waste stream IN-ID-BTO-030. This waste stream was generated at the Bettis Atomic Power Laboratory then shipped to INL where it has been repackaged and is being processed for shipment to WIPP. An approved AK Summary, applicable AK attachments, and relevant AK source documents have been prepared and were reviewed along with an RTR BDR for this four-drum waste stream.

The objective evidence compiled and reviewed included the AK Summary Reports, numerous AK source documents, HWFP Waste Analysis Plan (WAP)-compliant waste stream profile forms (WSPFs) and attachments, and BDRs for HSG, Solids Sampling & Analysis, VE, RTR, and NDA. Random container selection memos for HSG and solids

sampling lots as appropriate were reviewed along with corresponding HSG and Solids Analysis Summary Reports. Additional supporting documentation for the WCPIP requirements included Characterization Reconciliation Reports and supporting documentation, and DTC BDRs. Examples from the AK record were reviewed to assure that all of the data quality objectives (DQOs) cited in the WCPIP were met. In addition, the auditors examined the AK record regarding the methods for qualification of AK information as required by the WCPIP.

With regard to the WAP requirements, in addition to the AK Summary Reports, AK Source Document Summaries, and other relevant AK records cited above, the audit team reviewed for each waste stream the AK Documentation Checklist (attachment 1), the AK Information List (attachment 4), the AK Hazardous Constituents List (attachment 5), the AK Waste Form, Waste Material Parameters, Prohibited Items and Package (attachment 6), along with the applicable justification memo for waste material parameter weight estimates, and the AK Container List (attachment 8), with memos supporting the process for adding containers to the waste streams. Examples of the resolution of AK discrepancies in the AK record at characterization, NCRs dealing with prohibited items, AK accuracy reports, and the most recent internal surveillance were also collected and examined along with screenshots from the DTC database. Requisite training records were reviewed by the designated QA auditor for AKEs and SPMs based upon names provided by the AK auditors. The WAP-required container traceability exercise was conducted for a total of 10 waste containers from the five waste streams. The drums selected provided BDRs for RTR, VE, HSG sampling and analysis, and solids sampling and analysis .

The AK audit team drafted three concerns. The first concern dealt with several clarifying changes/additions to the five AK Summaries. These changes are incorporated into freeze files and will be addressed in the next revisions of the AK summaries. The detailed comments are included in this report (see section 6.4, Recommendation 1). The second concern addressed an entry error on the Characterization Reconciliation Checklist for waste stream ID-ANLE-S5000 that indicated that VE had been performed to address the physical form and liquids DQOs when in fact the characterization process utilized was RTR. This error was present for waste stream lots 32-36. The entry error was CDA (see section 6.2, CDA 1). The third concern raised by the AK audit team dealt with the increased volume of waste stream ID-ANLE-S5000 as compared to the estimate in the WSPF and attachments for this waste stream. The volume has essentially doubled. CCP procedure CCP-TP-002, *Reconciliation of DQOs and Reporting Characterization Data,* compels a revision to the WSPF and the AK summation; however; the criterion is unclear and subject to differing interpretation. Therefore, the AK auditors cited as an observation the need for CCP to evaluate CCP-TP-002, to see if clarification can be achieved (see section 6.3, Observation 1).

Overall, the AK Program was judged to be adequate in representing the requirements of the WAP, satisfactory in the implementation of these requirements, and effective in achieving the desired results; that is, waste was properly certified for shipment.

### 5.4.2 Project-level Data Verification and Validation

The audit team conducted personnel interviews and objective evidence was reviewed to ensure project-level activities were adequately performed to support waste characterization. INL/CCP BDRs were evaluated based on project-level requirements for RTR, VE, NDA, DTC, and HSG sampling for the S5000, S4000 and S3000 SCGs. Random selection requirements for HSG were evaluated, as well as the quarterly repeat data generation-level requirements for NDE, HSG, and VE. There were no solids/soil sampling activities conducted since the last recertification audit.

A review was performed on the following WSPF/Characterization Information Summaries (CIS) and associated batch data reports:

WSPF ID-RF-3114 & CIS Lot 109, Rev. 1
WSPF ID-RF-S5300-A & CIS Lot 137
WSPF ID-SDA-SOIL & CIS Lots 75 & 76
WSPF IN-NRF-SPC & CIS Lots 3 & 4

Visual Examination BDRs:
IN-SRP-VE-000085
IN-ARP-VE-002812
INLRHVE12001

Headspace Gas:
INHSG1204, ECL12029M
INHSG1202, ECL12023M
INHSG1206, ECL12036M

RTR:
INRTR5120004
RTR11-00132
RTR11-00157
INLRHRTR13005
INLRHRTR12012

NDA:
ASY11-00949
ASY11-01072
INNDAB12004
INNDAS120034
INNDAS120026
INNDAW120042

DTC:
INLRHDTC12017
INLRHDTC12010

Overall, project level activities were determined to be adequate, satisfactorily implemented, and effective.

### 5.4.3 WIPP Waste Information System/Waste Data System

Procedure CCP-TP-530, Revision 10, *CCP RH TRU Waste Certification and WWIS/WDS Data Entry*, and procedure CCP-TP-030, Revision 31, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry,* were evaluated with respect to requirements of DOE/CBFO-94-1012, Revision. 11, section 2.1 – *Work Processes*. The audit team determined that QAPD requirements are being adequately addressed and that the procedures contain adequate flow-down of CBFO QAPD requirements.

The audit team interviewed CCP Waste Certification Officials (WCOs) and reviewed CCP training records and determined that CCP WCOs are qualified to perform certification activities for both RH and CH waste. Waste Certification Assistants (WCAs) are qualified to perform certification activities for RH and CH waste WWIS/WDS data entry activities. WCOs and WCAs are qualified to perform these activities for all CCP host site locations.

The audit team interviewed CCP WCOs and determined that there have been no recent additions of WSPFs for RH or CH waste at the INL/CCP host site location.

The audit team evaluated a sample of data entry packages for both RH and CH waste WWIS/WDS data entry and waste container certification. Data is entered and verified in spreadsheet applications and subsequently submitted to the WWIS/WDS database. Data packages included CIS lists, WWIS/WDS Container Data Reports, WDS Master Template.xls data spreadsheet reports, RH WDS Master Template.xls data spreadsheet reports, and pages from BDRs showing characterization data values that were entered. WWIS/WDS Overpack Data Reports for RH and CH overpack assemblies were included in the data entry packages. Assignment of dunnage containers in CH Ten Drum Overpack (TDOP) assemblies is performed using functions within WWIS/WDS and was determined to be adequate. Data for waste SCGs for CH debris and CH and RH soils/solids/vitrified waste were included in the data packages. Data entry and certification of 55-gallon drums, standard waste boxes, TDOPs, and RH canister container types was evaluated and determined to be satisfactory with respect to details of the specific types. The audit team determined that data for individual waste containers and overpack assemblies is properly entered, verified, and certified.

The audit team evaluated software applications used for electronic transfer of data to the WWIS/WDS internet-based application. Application of software QA and control of these software items are adequate.

Overall, the audit team concluded that the upper-tier requirements in the CBFO QAPD adequately flow down into CCP procedures, that procedure steps are satisfactorily implemented, and that the program is effective in application of software QA to WWIS/WDS data entry and container certification.

### 5.4.4 Real-time Radiography

The audit team evaluated the adequacy, implementation and effectiveness of INL/CCP ability to characterize and certify CH and RH SCGs S3000 solids and S5000 debris waste using the RTR characterization process.

The audit team evaluated the following RTR-related CCP procedures: CCP-QP-002, Rev. 34, *CCP Training and Qualification Plan;* CCP-TP-028, Rev. 7, *CCP Radiographic Test Drum and Training Container Construction;* CCP-TP-053, Rev. 12, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure;* and CCP-TP-508, Rev. 7, *Standard Real-Time Radiography Inspection Procedure.* The results of the review indicate that the referenced procedures adequately address upper tier requirements.

The audit team evaluated RTR operator required test and training drum audio/ video media for six RTR operators. Record reviews included RTR operator training and qualification cards, waste stream training attendance sheets, eye exams, American Society of Nondestructive Testing (ASNT)-TC-1A Level II Radiography Certificates, and test/training drum documentation. The audit team verified that RTR operators were appropriately qualified.

RTR Unit 5, formerly located in Radioactive Waste Management Complex building WMF-610, was used to characterize CH SCG S3000 solids waste and S5000 debris waste from the date of the previous audit until it was taken out of service in December 2012. The audit team reviewed CH BDRs generated during this period. INL/CCP is no longer performing RTR waste characterization activities for CH SCG S3000 solids waste or S5000 debris waste using RTR Unit 5. Interviews with cognizant INL/CCP RTR personnel indicated that the unit was removed from the site in December 2012.

The audit team conducted a walk-through of the RTR Unit 0659 at the Idaho Nuclear Technology and Engineering Center (INTEC) Building 659. The RTR unit contained the required hardware to effectively characterize RH SCG S3000 solids waste and S5000 debris waste. The audit team observed RTR RH waste characterization activities being performed during the audit on June 4, 2013. The audit team observed the lines pair test, as well as the characterization scan on container number FCO100A-1. 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-INL-RH-RTR-007, and verified logbook entries were logged, as required, and reviewed by the vendor project manager (VPM) on a weekly basis.

The audit team examined the following CH RTR BDRs:

| | |
|---|---|
| INRTR5120001 | INRTR5120002 |
| INRTR5120003 | INRTR5120004 |

The audit team examined the following RH RTR BDRs:

INLRHRTR12005 INLRHRTR12013
INLRHRTR13001 INLRHRTR13002
INLRHRTR13003

During the review of BDRs, the audit team identified one concern. CH container 10367607 in BDR INRTR512001 had an NCR issued for polychlorinated biphenyl (PCB) liquids and 3.5 pints liquid in the container. The RTR operator made the correct notations for the prohibited liquids in Section 5 of Attachment 2 – CCP Radiography Data Sheet; however, review of the video scan indicated the container size was greater than 4 liters. The RTR operator recorded "No" for the question: "Are there sealed containers greater than 4 liters?" NCR-INL-0331-12 was revised to add "condition of greater than 4 liters sealed container for container 10367607." This concern was an isolated instance, revision to NCR-INL-0331-12 was made, and the audit team was able to verify the correction prior to the end of the audit (see section 6.2, CDA 2).

The procedure reviews, field observations, and document reviews provided evidence that the applicable requirements for characterizing CH SCG S3000 solids waste and S5000 debris waste using RTR Unit 5 were effectively implemented, from the date of the previous audit to the time the unit was taken out of service in December 2012. CH RTR is now being performed at AMWTP.

The procedure reviews, field observations, and document reviews provided evidence that the applicable requirements for characterizing RH S3000 solids waste and S5000 debris waste using RTR Unit 0659 are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

### 5.4.5 Visual Examination

The audit team evaluated VE activities performed by INL/CCP. For CH waste, VE is performed in accordance with CCP-TP-006, *CCP Visual Examination Technique for Idaho National Laboratory (INL) Newly Generated TRU Waste.* For RH waste, VE is performed in accordance with CCP-TP-500, *CCP Remote-Handled Waste Visual Examination.* The audit team toured the waste management facility, Building 1617, on June 4, 2013, to observe visual examination activities. Additionally, the audit team reviewed BDRs and training records for VE operators and Visual Examination Experts (VEEs). There were no concerns identified related to VE activities.

The audit team examined the following CH and RH VE BDRs:

IN-ARP-VE-002793 IN-SRP-VE-000028
IN-SRP-VE-000001 IN-SRP-VE-000183
INLRHVE12001

Overall, the audit team determined that INL/CCP VE Operations were adequate, satisfactorily implemented, and effective.

### 5.4.6 Headspace Gas Sampling

No HSG sampling activities were being performed during the audit. HSG sampling operations were evaluated by conducting personnel interviews and reviewing HSG BDRs. BDRs INHSG1202, INHSG1204, and INHSG1206 were examined and found to be satisfactory. Training and qualification of sampling individuals were confirmed to be acceptable. The audit team verified the field reference standard certificate of accuracy during the audit and found it to be acceptable.

No concerns were identified. INL/CCP procedures for HSG and analysis were found to be adequate and HSG sampling operations were deemed to be satisfactorily implemented and effective.

### 5.4.7 Solids Sampling and Analysis

Solids sampling procedures include CCP-TP-008, *CCP Solids Sampling Procedure,* and CCP-TP-512, *CCP Remote-Handled Waste Sampling.* No sampling had occurred since the last recertification audit (A-12-13) and, as of March 13, 2013, sampling is no longer required by the Permit. Accordingly, no evaluations were performed related to solids sampling.

### 5.4.8 Nondestructive Assay

The audit team assessed the adequacy, implementation, and effectiveness of the NDA systems used by INL/CCP to characterize waste from the S3000, S4000, and S5000 SCGs. The audit team evaluated the Waste Assay Gamma Spectrometer (WAGS), the SWEPP (Stored Waste Examination Pilot Plant) Gamma-Ray Spectrometer (SGRS), and the Super High Efficiency Neutron Counter (SuperHENC).

The SGRS and WAGS are both gamma spectrometers with multiple high-resolution Broad Energy Germanium (BEGe) detectors. The WAGS uses six such detectors divided into two vertical banks of three detectors each. One bank is positioned opposite a set of three Ba-133 (barium) sources. These detectors are calibrated, based on a density correction obtained from the Ba-133 transmission, to quantify gamma-emitting radionuclides using the Canberra MGA software. The second bank of three BEGe detectors uses cadmium filters to attenuate low energy gamma rays, thus, reducing dead time and increasing measurement resolution. The spectra obtained from these detectors are used to determine the relative isotopic ratios of gamma-emitting radionuclides. The SGRS differs from the WAGS in that it does not use a transmission source to perform a density correction. The SGRS utilizes four BEGe detectors that each acquires a gamma spectrum. The four spectra are then summed and corrected using a multi-curve correction that was developed during system calibration. This multi-curve correlates detector efficiency with waste density and gamma energy. Once the spectra are corrected, the same Canberra MGA software is used to quantify the

individual radionuclides present. Both the WAGS and the SGRS can assay 55-gallon (208-liter) drums.

The SuperHENC is a passive neutron counter equipped with a high purity germanium detector and a Cf-252 (californium) Add-A-Source to obtain matrix correction factors. The SuperHENC relies on isotopic distribution provided by either AK or an independent gamma measurement. The SuperHENC can assay standard waste boxes as well as 55-gallon (208-liter) and 100-gallon drums.

CBFO previously evaluated these NDA systems during Audit A-12-13.

Based on a review of the current revisions of INL/CCP procedures, technical documents, and completed BDRs provided prior to the audit, checklists were prepared and used to evaluate the following:

- System stability as evidenced by the implementation and effectiveness of quality control measurements, calibration verifications and weekly interfering matrix checks;
- Applicability of each system's calibration and operational range to the matrix, geometry and radionuclide content of samples assayed since the last audit;
- Successful participation in the CBFO-sponsored NDA Performance Demonstration Program (PDP);
- Completed BDRs to ensure data are reported and reviewed as required;
- Data storage and retrievability;
- Personnel qualification and training; and
- Continued operability and condition of the WAGS, SGRS, and SuperHENC since Audit A-12-13.

The audit team interviewed NDA personnel, observed equipment and practices, and examined electronic and paper copies of reports and records.

The SuperHENC participated in PDP Cycle 19A for drums along with the WAGS and SGRS, assaying two waste matrices, including combustibles and glass. All three instruments passed all test criteria. The SuperHENC also participated in PDP Cycle B12A for boxed waste. The test matrices included combustibles and metals. The SuperHENC passed all test criteria for the metals matrix, but failed test criteria for the combustibles matrix. INL/CCP performed a thorough investigation into the failure to meet test criteria. INL/CCP reported that the high bias failure when assaying the combustibles matrix drum was the result of the placement of sources in the test matrix and INL/CCP was provided with a revised test configuration for the combustibles matrix. The results of this revised configuration passed all test criteria. INL/CCP then reloaded the combustibles matrix box with the original loading configuration and performed three replicate measurements. Based on a review of the data sheets generated from the replicate measurements of the reloaded original test configuration and the passing results of the revised configuration, the SuperHENC was deemed to have successfully

passed all PDP test criteria. Subsequently, at the request of CBFO the SuperHENC participated in a supplemental PDP Cycle B12B where the test matrix was also a combustibles matrix. The SuperHENC passed all evaluation criteria.
No concerns were identified during the course of the audit.

Overall, NDA activities were determined to be adequate, satisfactorily implemented, and effective.

### 5.4.9 Dose-to-Curie

The audit team assessed the adequacy, implementation, and effectiveness of the DTC methodology used by INL/CCP to characterize waste from the S3000 and S5000 SCGs. The audit team evaluated the DTC measurement system.

DTC measurements are accomplished using multiple detectors: one to obtain the relative contributions of Co-60 (cobalt) and Cs-137 (cesium) to the gamma dose rate; and one of two other detectors (either high-range or low-range) to take dose rate measurements. CBFO previously evaluated the DTC methodology during Audit A-12-13.

Based on a review of the current revisions of INL/CCP procedures, technical documents, and completed BDRs provided prior to the audit, checklists were prepared and used to evaluate the following:

- System stability as evidenced by the implementation and effectiveness of quality control measurements, and the use of calibrated equipment;
- Applicability of each detector's calibration and operational range to the matrix, geometry and radionuclide content of samples assayed since the last audit;
- Completed BDRs to ensure data are reported and reviewed as required;
- Data storage and retrievability;
- Personnel qualification and training; and
- Continued operability and condition of the DTC equipment since Audit A-12-13.

The audit team interviewed DTC personnel, observed equipment and practices, and examined electronic and paper copies of reports and records.

DTC is performed in the CPP-659 area at the INTEC. The measurement acquisition control room (Cell 302) contains closed circuit camera control systems and display units and the readouts for the dose rate measurement, gamma spectrometry and the analysis resulting from the Osprey detector measurement. The actual measurements are performed in an adjacent hot cell (Cell 306) where the Osprey detector, DTC dose rate measurement probes, measurement fixture, and the rotating platform are located. The drums are lowered into the hot cell from a high bay above the hot cell. Each cell area was examined; attending personnel were interviewed; data acquisition equipment was examined; and records, logbooks, and procedures were reviewed.

The dose rate measurement is acquired using either a Thermo Electron Corporation Model RO-7 High Range Survey System or a Thermo Electron Corporation Model FH 40 G Dose Rate Measuring Unit, depending on the level of the radiation dose measurement relative to the environmental background.

The audit team observed the dose rate measurement probes, the enclosure, and shielding. CCP procedures were reviewed and operations staff was interviewed. Mock data acquisition and measurement data was observed and actual data contained in BDRs was reviewed. Technical and personnel elements of the DTC methodology are adequate, satisfactory, and effective.

No concerns were identified during the course of the audit.

Overall, DTC activities were determined to be adequate, satisfactorily implemented, and effective.

### 5.4.10 Flammable Gas Analysis

Flammable Gas Analysis (FGA) equipment (Gas Chromatography/Mass Spectrometry Units 5, 6, 9, and 10) was examined, personnel were interviewed, and FGA BDRs were reviewed. BDRs IN12FG5064, IN12FG5090, IN13FG5002, and IN13FG10006 were examined and found to be satisfactory. Initial calibration (IN12FG5032_ICAL, and INFG10021_ICAL) and minimum detection limit (IN08FG5156_MDL and IN11FG10002_MDL) studies were examined and found to be acceptable. Training and qualification of sampling individuals were confirmed to be acceptable.

A demonstration of sampling and analysis was conducted on June 4, 2013. No issues were identified during the demonstration. Gas Certificates of Accuracy were examined during the audit for the volatile organic compound gas standard, which included hydrogen and methane, a separate Continuing Calibration Verification VOC and hydrogen/ methane standard, Internal Standards, and bromofluorobenzene. Gases were traceable to National Institute of Science and Technology (NIST) standards and were used within their expiration dates. Equipment was examined and found to be compliant.

No concerns were identified. The audit team found INL/CCP procedures for Flammable Gas Analysis were adequate and operations were satisfactorily implemented and effective.

### 5.4.11 Gas Generation Testing Program

Gas Generation Testing (GGT) activities performed by CCP at INL were audited June 5, 2013. Only one GGT BDR, IN13G1001, has been produced since the last audit of CCP INL GGT activities. This BDR was reviewed and found to be compliant. Measuring and test equipment (M&TE) was examined for 10-psi relief valves and temperature controllers on the GGT test canisters. All M&TE were within calibration dates. The hydrogen standard used to check calibration of the Gas Chromatograph, ALM065420,

was examined. Cylinder ALM065420 contained the required level of hydrogen and was traceable to a NIST analysis. No concerns were noted in the audit of the CCP GGT Program.

The QA activities associated with GGT are adequately established for compliance with upper-tier requirements, satisfactorily implemented and are effective for personnel training and qualification, control on nonconforming conditions, document control, records, control of M&TE, logbooks, and work control for conduct of operations.

The GGT program at INL performed by the CCP is acceptable, satisfactorily implemented, and effective.

### 5.4.12 Leak Testing

INL/CCP performs two types of leak testing: Helium Leak Testing for CH waste packages, and Rate of Rise (RoR) Pressure Change Leak Testing for RH waste packages. Both were observed during Audit A-13-18.

CH waste loading activities use the Helium Leak Detection method to ensure packaging integrity. Helium Leak Testing performed by INL/CCP personnel was observed on June 4, 2013. All M&TE requiring calibration was verified to be within calibration due dates. This included the helium standard leak, torque wrenches, and vacuum and pressure gauges. The use of an acceptable grade of helium was verified. All Helium Leak Testing was performed by qualified Level II Helium Leak Tester personnel or under the direct supervision of Level II Helium Leak Tester personnel. Training of the tester personnel was confirmed. Leak testing of both the inner containment vessel and the outer containment vessel was observed as it was being performed. No issues were identified during these activities.

During RH waste loading activities on June 3, 2013, RoR Pressure Change Leak Testing was performed by INL/CCP at the INTEC facility on the RH-72B package which was loaded there. There is no M&TE associated with the RoR Leak Tester, but calibration was verified for torque wrenches used to tighten the bolts on the RH-72B package prior to leak testing. Training of the RoR operators was confirmed to be current. The RoR Leak Tester was verified to be in calibration prior to initiating leak testing. The RoR is an automated leak test system that results in either "Pass" or "Fail" after the testing is initiated. Observation of the RoR system verified the "Pass" results of the RH-72B package.

Both RoR Leak Testing and Helium Leak Testing were found to be adequate, satisfactorily implemented, and effective.

### 5.4.13 Container Management

All labeling and transport activities of drums and other TRU waste containers are performed by Advanced Mixed Waste Treatment Project personnel and will be verified during the AMWTP Recertification Audit.

### 5.4.14 TRUPACT-II Operations/RH 72-B Operations/Transportation

RH and CH waste transportation activities were evaluated during the audit. No concerns were identified.

RH-72B Cask unloading and loading activities were evaluated on June 3, 2013, and consisted of observing the RH-72B cask being unloaded from a trailer, opened, examined and maintenance activities performed, loaded with payload ID0336, closed, leak tested using the RoR Leak Testing method, reloaded onto the trailer, and the trailer labeled and placarded properly. Two Shipping Reports, INR13028 and INR13029, were examined. Both reports contained the required information, from receipt and acceptance of the RH-72B cask through loading and leak testing, to labeling and placarding, and acknowledgement by WIPP of shipping authorization. All required reviews were performed and noted in the proper locations on all forms. There were no concerns identified for the RH waste transportation activities performed by CCP at INL.

CH waste transportation activities were evaluated on June 4, 2013. Receipt of two TRUPACT-II packages and one HalfPACT were observed. Unloading, inspection, maintenance activities, loading of payloads, closure of the packages, leak testing using the helium leak testing method, labeling and placarding, and final approval for shipment were all observed during this audit. Additionally, shipping packages for shipments IN130094 and IN130096 were reviewed and found to contain the required information and reviews and signatures. M&TE was verified to be within calibration requirements. Container integrity inspections were observed and package loading of a TDOP unit was performed for the auditors. An interview was conducted with the Transportation Certification Official (TCO) and his responsibilities were determined to be compliant.

Training was verified for both CH and RH waste handling operators, leak test personnel, TCOs, and WCOs/WCAs.

Entry of data into the WWIS/WDS by the WCO/WCA personnel was evaluated in Carlsbad, NM. All required elements of the program were complete and accurate. Information receipt from site characterization activities, entry of this information into the WWIS/WDS, acceptability of the information, and certification of containers was found to be compliant. The required information was sent to the site by the WCO to enable payloads to be built and confirmed.

The Transportation Program was found to be adequate, satisfactorily implemented, and effective.

## 6.0 CORRECTIVE ACTIONS, OBSERVATIONS, AND RECOMMENDATIONS

### 6.1 Corrective Action Reports

During the audit, the audit team may identify CAQs, as described below, and document such conditions on CARs.

Condition Adverse to Quality (CAQ) – An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, nonconformances, and technical inadequacies.

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

There were no CARs issued as a result of the audit.

### 6.2 Deficiencies Corrected During the Audit

During the audit, the audit team may identify CAQs. The audit team members and the Audit Team Leader (ATL) 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, determines if the CAQ is an isolated case requiring only remedial action and therefore can be CDA. Deficiencies that can be classified as CDA are those isolated deficiencies that do not require a root cause determination or actions to preclude recurrence, and those for which 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), or one or two individuals have not completed a reading assignment.

Upon determination that the CAQ is isolated, the audit team member, in conjunction with the ATL, 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 ATL categorizes the condition as CDA.

Two deficiencies, requiring remedial action only, were identified during the audit.

**CDA 1**

The Characterization Reconciliation Reports (CRRs) for ID-ANLE-S5000, Lots 32-36, indicate that the VE process was used to meet the DQOs for physical form and liquids, but RTR was the characterization process utilized. The auditee provided corrected CRRs indicating RTR was the characterization process utilized.

**CDA 2**

Container 10367607 in BDR INRTR512001 has an NCR issued for PCB liquids and 3.5 pints liquid in the container. The RTR operator made the correct notations for the prohibited liquids in Section 5 of Attachment 2 – CCP Radiography Data Sheet. Review of the video scan indicated the container was greater than 4 liters. The RTR operator recorded "No" for the question: "Are there sealed containers greater than 4 liters?" CCP revised NCR-INL-0331-12 to add the condition of an inner sealed container greater than 4 liters in container 10367607.

### 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.

One Observation was identified during this audit.

**OBSERVATION 1**

CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*, section 4.7.3 and Attachment 2 call for a revision to the WSPF and aspects of summary for the AK summary report subject to three non-permit-driven criteria, in addition to the permit-driven requirement for revision when a hazardous waste number is added (or removed). One of the criteria is an increase in the waste stream volume. For waste stream ID-ANLE-S5000, the volume has doubled; however, this criterion does not specify a percentage increase (or decrease) that would call for the revision. CCP should review the procedure to address this issue.

### 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.

One Recommendation was presented for INL/CCP management consideration during this audit.

**RECOMMENDATION 1**

The following are examples of freeze file changes to the AK Summary Reports reviewed during the audit for consideration:

- For clarification, the language in CCP-AK-INL-590, Revision 2, should be revised to note that the items in the cement matrix noted in section 2.0 are metals fines. In addition, AK Source Document C201 should be added to the discussion of section 5.4.2.1, RH TRU Waste Calculations

- For clarification, the volume of the RH debris stream described in CCP-AK-INL-500 should be changed from <1000 drums to the actual number. In addition, references to the WIPP-WAP requirement to assign hazardous waste numbers when there is lack of analytical evidence demonstrating that the constituents would not have exceeded the regulatory threshold should be deleted

- In section 5.4.4 of AK Summary CCP-AK-INL-025, clarify how the waste management procedures at ANLE affect the presence/absence of prohibited items for the debris waste stream

## 7.0 LIST OF ATTACHMENTS

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

| PERSONNEL CONTACTED DURING AUDIT A-13-18 | | | | |
|---|---|---|---|---|
| **NAME** | **TITLE/ORG** | **PREAUDIT MEETING** | **CONTACTED DURING AUDIT** | **POST AUDIT MEETING** |
| Abbott, Preston | NDA/MCS | X | X | |
| Allen, Randall | CTAC Manager | X | | X |
| Ams, David | CCP/LANL AK | X | X | |
| Andrews, Sway | Operator/DTC/CWI | | X | |
| Armijo, Cheryl | Records Analyst/NTPC Training | | X | |
| Bhatt, Raj | RH TRU/CWI | X | X | |
| Billett, Michele | Training Coordinator/ NTPC Training | | X | |
| Blyth, Bob | Quality Assurance/DOE-ID | | | X |
| Cannon, Val | Assurance Programs Manager/NWP | X | | |
| Castro, Steve | SPM/CCP NWP | X | X | X |
| Christensen, Tyson | RTR LO/VJT CCP | X | X | X |
| Clark, Lawrence | MLU/TCO/CH AMWTP | | X | |
| Cordingley, Syd | TCO/AMWTP | | X | |
| Covington, Chris | MLU/Operator/CH Loading/AMWTP | | X | |
| DeBruyn-Kops, Aaron | Flam Gas Operator/ GGT/CCP | | X | |
| Davis, Chris G. | Decon/RTR Operator/ CCP | | X | |
| Davis, Crary | Operator/WAGS/MCS | | X | |
| Dial, Brent | Operator/SGRS/MCS | | X | |
| Dover, Dale | GGT Lead/CCP | | X | X |
| Fisher, A.J. | Support Group Manager/NWP | X | | X |
| Frost, Lisa | CH Support/CWI | X | | X |
| Harvill, Joe | Sr. Manager/CTAC | X | | |
| Holmes, Steve | Observer/NMED | X | X | X |
| Johnsen, Tom | CH TRU STR/CWI | X | | |
| Jones, Laura | NCR Coordinator/QA/ NWP | | X | |
| Joo, Irene | RH PM/NWP | X | X | X |

| PERSONNEL CONTACTED DURING AUDIT A-13-18 | | | | |
|---|---|---|---|---|
| **NAME** | **TITLE/ORG** | **PREAUDIT MEETING** | **CONTACTED DURING AUDIT** | **POST AUDIT MEETING** |
| Kirkes, Creta | WCO/WCA/WWIS-WDA Data Entry/CCP | | X | |
| Klingler, Larry | Quality Assurance/ NWP/CCP | | | X |
| LaRue, Bruce | Environmental Scientist/ ID DEQ INL Oversight Program | | | X |
| Ledford, Wayne | QA Specialist/NWP | X | | X |
| Lee, Ronnie | PM/NWP/NTPC | | | X |
| Maestas, Ricardo | Observer/NMED | X | | X |
| Mathews, Deven | MLU/Operator/CH Loading/AMWTP | | X | |
| Merrill, Kip | MLU/Operator/RH Shipping-Loading/ INTEC | | X | |
| Miles, Jeri | VPM/CCP | X | | X |
| Murdock, Mel | Shipping Shift Supervisor/CH Packaging/AMWTP | | X | |
| Nesser, Catherine | QA Specialist/NWP | | | X |
| Pearcy, Mark | SPM/CCP | X | | X |
| Pearcy, Sheila | CCP Records Manager/ Stoller | | X | X |
| Peters, Kevin | CCP/AKE | X | X | |
| Pimentel, Trisha | Records/CCP | X | X | X |
| Pinzel, Marcus | DOE/CBFO | X | | X |
| Poirier, Joe | FGA Lead/NFT CCP | X | X | |
| Poole, Jeff | VE Expert/NWP/CCP | | X | X |
| Pruitt, Doug | DOE-ID | X | | |
| Ramirez, Mike | WCO/WWIS-WDS Data Entry/NWP/CCP | | X | X |
| Reynolds, Tammy | Program Manager/NWP/ CCP | | | X |
| Roberts, Ben | DOE-ID | X | | X |
| Semon, Robert | MLU/TCO/CH AMWTP | | X | |
| Sensibaugh, Michael | Operations Manager/ | | | X |

| PERSONNEL CONTACTED DURING AUDIT A-13-18 | | | | |
|---|---|---|---|---|
| **NAME** | **TITLE/ORG** | **PREAUDIT MEETING** | **CONTACTED DURING AUDIT** | **POST AUDIT MEETING** |
| | NWP/CCP | | | |
| Smith, Greg | RH VPM/NWP CCP | X | X | X |
| Smith, Scott | CCP/AKE | X | X | |
| Stallings, Andrew | RTR/VE/CCP | X | | |
| Thomas, Bill | MLU/TCO/RH Shipping/ INTEC | | X | |
| Verlanic, Bill | P.M./CCP NWP | X | | X |
| Vernon, Jim | SPM/CCP NWP | X | X | X |
| Walker, Connie | Observer/NMED | X | X | |
| Walters, Eddy | HSG Lead/NFT CCP | X | X | |
| Watson, Lisa | CCP/LANL AK | X | X | |
| West, John | NDA EA/MCS | X | | |
| Weyerman, C. Wade | MLU/Field Ops Manager/RH Loading/ INTEC/LANL | | X | |
| White, Fred | TDOP Loading/AMWTP | | X | |

## Summary Table of Audit Results

| Documents | Concern Classification | | | | QA Evaluation | | Technical |
|---|---|---|---|---|---|---|---|
| | CARs | CDAs | Obs | Rec | Adequacy | Implementation | Effectiveness |
| **Activity** | | | | | | | |
| Management | | | | | A | S | E |
| Interface/SOW | | | | | A | S | E |
| Acceptable Knowledge | | 1 | 1 | 1 | A | S | E |
| Reconciliation of DQO's/WSPFs | | | | | A | S | E |
| Project Level V & V | | | | | A | S | E |
| WWIS/WDS | | | | | A | S | E |
| Real-Time Radiography | | 1 | | | A | S | E |
| Visual Examination | | | | | A | S | E |
| Headspace Gas Sampling | | | | | A | S | E |
| Solids/Soils Sampling | | | | | A | I | E |
| Nondestructive Assay | | | | | A | S | E |
| Dose-to-Curie | | | | | A | S | E |
| Flammable Gas Analysis | | | | | A | S | E |
| Gas Generation Testing | | | | | A | S | E |
| Leak Testing | | | | | A | S | E |
| Container Management | | | | | A | S | E |
| Transportation | | | | | A | S | E |
| Training | | | | | A | S | E |
| Nonconformance Reporting | | | | | A | S | E |
| QA Records | | | | | A | S | E |
| TOTALS | 0 | 2 | 1 | 1 | | | |

**Definitions**

E = Effective
S = Satisfactory
I = Indeterminate
M=Marginal

CAR = Corrective Action Report
CDA = Corrected During Audit
NE = Not Effective
Obs = Observation

Rec = Recommendation
A = Adequate
NA = Not Adequate

# LISTING OF AUDITED DOCUMENTS

| | Document No. | Rev | Document Title |
|---|---|---|---|
| 1. | CCP-PO-001 | 20 | CCP Transuranic Waste Characterization Quality Assurance Project Plan |
| 2. | CCP-PO-002 | 26 | CCP Transuranic Waste Certification Plan |
| 3. | CCP-PO-003 | 12 | CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC) |
| 4. | CCP-PO-005 | 23 | CCP Conduct of Operations |
| 5. | CCP-PO-006 | 3 | CCP Conduct of Operations Matrix |
| 6. | CCP-PO-008 | 9 | CCP Quality Assurance Interface with the WTS Quality Assurance Program |
| 7. | CCP-PO-016 | 5 | CCP Gas Generation Testing Program Quality Assurance Project Plan |
| 8. | CCP-PO-024 | 13 | CCP/INL Interface Document |
| 9. | CCP-PO-501 | 7 | CCP/INL RH TRU Waste Interface Document |
| 10. | CCP-PO-505 | 2 | CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC) |
| 11. | CCP-QP-002 | 34 | CCP Training and Qualification Plan |
| 12. | CCP-QP-005 | 22 | CCP TRU Nonconforming Item Reporting and Control |
| 13. | CCP-QP-008 | 21 | CCP Records Management |
| 14. | CCP-QP-016 | 17 | CCP Control of Measuring and Test Equipment |
| 15. | CCP-QP-017 | 3 | CCP Identification and Control of Items |
| 16. | CCP-QP-021 | 8 | CCP Surveillance Program |
| 17. | CCP-QP-022 | 13 | CCP Software Quality Assurance Plan |
| 18. | CCP-QP-028 | 15 | CCP Records Filing, Inventorying, Scheduling, and Dispositioning |
| 19. | CCP-QP-030 | 8 | CCP Written Practice for the Qualification of CCP Helium Leak Detection Personnel |
| 20. | CCP-TP-001 | 20 | CCP Project Level Data Validation and Verification |
| 21. | CCP-TP-002 | 25 | CCP Reconciliation of DQOs and Reporting Characterization Data |
| 22. | CCP-TP-003 | 19 | CCP Data Analysis for S3000, S4000, and S5000 Characterization |
| 23. | CCP-TP-005 | 24 | CCP Acceptable Knowledge Documentation |
| 24. | CCP-TP-006 | 17 | CCP Visual Examination Technique for INL Newly Generated TRU Waste Retrieved from Pits |
| 25. | CCP-TP-008 | 10 | CCP Solids Sampling Procedure |
| 26. | CCP-TP-010 | 4 | CCP Waste Assay Gamma Spectrometer (WAGS) & SWEPP Gamma-Ray Spectrometer (SGRS) Calibration Procedure |
| 27. | CCP-TP-019 | 6 | CCP Waste Assay Gamma Spectrometer (WAGS) Operating Procedure |
| 28. | CCP-TP-028 | 7 | CCP Radiographic Test Drum and Training Container Construction |
| 29. | CCP-TP-030 | 31 | CCP CH TRU Waste Certification and WWIS/WDS Data Entry |
| 30. | CCP-TP-033 | 19 | CCP Shipping of CH TRU Waste |
| 31. | CCP-TP-053 | 12 | CCP Standard Real-Time Radiography (RTR) Inspection Procedure |
| 32. | CCP-TP-054 | 3 | CCP Adjustable Center of Gravity Lift Fixture Preoperational Checks and Shutdown |
| 33. | CCP-TP-055 | 5 | CCP Varian Porta-Test Leak Detector Operations |
| 34. | CCP-TP-058 | 4 | CCP NDA Performance Demonstration Plan |
| 35. | CCP-TP-068 | 9 | CCP Standardized Container Management |
| 36. | CCP TP-080 | 5 | CCP Operating the WMF 610 Real-Time Radiography (RTR) System |
| 37. | CCP-TP-082 | 8 | CCP Waste Container Filter Vent Operation |
| 38. | CCP-TP-083 | 7 | CCP Gas Generation Testing |
| 39. | CCP-TP-086 | 17 | CCP CH Packaging Payload Assembly |
| 40. | CCP-TP-093 | 17 | CCP Sampling of TRU Waste Containers |
| 41. | CCP-TP-106 | 8 | CCP Headspace Gas Sampling Batch Data Report Preparation |
| 42. | CCP-TP-107 | 12 | Operating the CCP High Efficiency Neutron Counter Using NDA 2000 |
| 43. | CCP-TP-108 | 6 | Calibrating the CCP High Efficiency Neutron Counter Using NDA 2000 |
| 44. | CCP-TP-109 | 9 | CCP Data Reviewing, Validating, and Reporting Procedure |

# LISTING OF AUDITED DOCUMENTS

| | Document No. | Rev | Document Title |
|---|---|---|---|
| 45. | CCP-TP-113 | 16 | CCP Standard Contact-Handled Waste Visual Examination |
| 46. | CCP-TP-115 | 5.1 | CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure |
| 47. | CCP-TP-119 | 5 | CCP Operating the Real-Time Radiography (RTR) System #5 |
| 48. | CCP-TP-138 | 2 | CCP Execution of Long-Term Objective for the Unified Flammable Gas Test Procedure |
| 49. | CCP-TP-146 | 8 | CCP SuperHENC Operating Procedure |
| 50. | CCP-TP-148 | 8 | CCP SuperHENC Data Reviewing, Validating and Reporting Procedure |
| 51. | CCP-TP-162 | 2 | CCP Random Selection of Containers for Solids and Headspace Gas Sampling and Analysis |
| 52. | CCP-TP-163 | 3 | CCP Evaluation of Waste Packaging Records for Visual Examination of Records |
| 53. | CCP-TP-170 | 2 | CCP SuperHENC Calibration Procedure |
| 54. | CCP-TP-500 | 11 | CCP Remote-Handled Waste Visual Examination |
| 55. | CCP-TP-504 | 13 | CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste |
| 56. | CCP-TP-506 | 2 | CCP Preparation of the RH TRU Waste AK Characterization Reconciliation Report |
| 57. | CCP-TP-507 | 7 | CCP Shipping of Remote-Handled Transuranic Waste |
| 58. | CCP-TP-508 | 7 | CCP RH Standard Real-Time Radiography Inspection Procedure |
| 59. | CCP-TP-509 | 3 | CCP Remote-Handled Transuranic Container Tracking |
| 60. | CCP-TP-512 | 5 | CCP Remote-Handled Waste Sampling |
| 61. | CCP-TP-530 | 10 | CCP RH TRU Waste Certification and WWIS/WDS Data Entry |
| 62. | DOE/WIPP 02-3183 | 8 | CH Packaging Guidance |
| 63. | DOE/WIPP 02-3184 | 13 | CH Packaging Operations Manual |
| 64. | DOE/WIPP 02-3283 | 5 | RH Packaging Program Guidance |
| 65. | DOE/WIPP 02-3284 | 7 | RH Packaging Operations Manual |
| 66. | DOE/WIPP 06-3345 | 4 | Waste Isolation Pilot Plant Flammable Gas Analysis Procedure |
| 67. | WP 13-QA.03 | 21 | Quality Assurance Independent Assessment Program |

# Processes and Equipment Reviewed During Audit A-13-18 of the INL/CCP

| WIPP # | Process/Equipment Description | Applicable to the Following Waste Streams/Groups of Waste Streams | Currently Approved by NMED | Currently Approved by EPA |
|---|---|---|---|---|
| **NEW PROCESSES OR EQUIPMENT** | | | | |
| | NO NEW PROCESSES | | | |
| PREVIOUSLY APPROVED PROCESSES OR EQUIPMENT | | | | |
| 14VE1 | Visual Examination (VE)<br>Procedure – CCP-TP-006<br>Description –Visual Examination Technique (VET) | Solids (S3000)<br>Soils (S4000)<br>Debris (S5000) | YES | YES |
| 14RHVE1 | Visual Examination<br>Procedure – CCP-TP-500<br>Description - The VE of audio/video media process used for a total of 70 retrievably stored remote-handled (RH) debris waste drums | Solids (S3000)<br>Soils (S4000)<br>Debris (S5000) | YES | YES |
| 14RR2 | Nondestructive Examination<br>Procedure – CCP-TP-053<br>Equipment – MCS RTR-5<br>Description – MCS Real-time Radiography (RTR) Mobile Characterization (RTR-5) System | Solids (S3000)<br>Debris (S5000) | YES | YES |
| 14RRH1 | Nondestructive Examination<br>Procedure – CCP-TP-508<br>Equipment – RTR-RTR-0659<br>Description – VJ Technologies, Real-time Radiography Characterization (RH-RTR-0659) System | Solids (S3000)<br>Debris (S5000) | YES | YES |
| N/A | Acceptable Knowledge | Solids (S3000)<br>Soils (S4000)<br>Debris (S5000) | YES | YES |
| N/A | Solids/Soils and Gravel Sampling and Custody for CH | Solids (S3000)<br>Soils (S4000) | YES | N/A |

# Processes and Equipment Reviewed During Audit A-13-18 of the INL/CCP

| WIPP # | Process/Equipment Description | Applicable to the Following Waste Streams/Groups of Waste Streams | Currently Approved by NMED | Currently Approved by EPA |
|---|---|---|---|---|
| N/A | Solids/Soils and Gravel Sampling and Custody for RH | Solids (S3000) | YES | N/A |
| N/A | SUMMA® Headspace Gas (HSG) Sampling and Custody | Debris (S5000) | YES | N/A |
| N/A | Data Validation and Verification | Solids (S3000)<br>Soils (S4000)<br>Debris (S5000) | YES | YES |
| N/A | WIPP Waste Information System (WWIS) | Solids (S3000)<br>Soils (S4000<br>Debris (S5000) | YES | YES |
| 14SHC1 | Nondestructive Assay<br>Procedure – CCP-TP-146<br>Description – CCP Super High Efficiency Neutron Counter | Solids (S3000)<br>Debris (S5000) | N/A | YES |
| 14HENC1 | Nondestructive Assay<br>Procedure – CCP-TP-107<br>Description – CCP High Efficiency Neutron Counter | Solids (S3000)<br>Soils (S4000)<br>Debris (S5000) | N/A | YES |
| 14SGRS1 | Nondestructive Assay<br>Procedure – CCP-TP-115<br>Description – Stored Waste Examination Pilot Plant (SWEPP) Gamma Ray Spectrometer (SGRS) | Solids (S3000)<br>Soils (S4000)<br>Debris (S5000) | N/A | YES |
| 14WAGS1 | Nondestructive Assay<br>Procedure – CCP-TP-019<br>Description – Waste Assay Gamma Spectrometer | Solids (S3000)<br>Soils (S4000)<br>Debris (S5000) | N/A | YES |

# Processes and Equipment Reviewed During Audit A-13-18 of the INL/CCP

| WIPP # | **Process/Equipment Description** | Applicable to the Following Waste Streams/Groups of Waste Streams | Currently Approved by NMED | Currently Approved by EPA |
|---|---|---|---|---|
| 14DTC1 | Radiological characterization process using dose-to-curie (DTC) and modeling-derived scaling factors for assigning radionuclide values to RH waste stream<br><br>Dose-rate fractional contribution of Cs-137 and Co-60 using OSPREY $La_3Br(Ce)$ gamma detector<br><br>Procedure CCP-TP-504 | Solids (S3000)<br>Debris (S5000) | N/A | YES |
| N/A | Load Management | Solids (S3000)<br>Soils (S4000)<br>Debris (S5000) | N/A | YES |
| N/A | Quality Assurance Program | Solids (S3000)<br>Soils (S4000)<br>Debris (S5000) | N/A | YES |