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Department of Energy

memorandum

Carlsbad Field Office
Carlsbad, New Mexico 88221

DATE: JUN 27 2014

REPLY TO ATTN OF: CBFO:OQA:DSM:MAG:14-1204:UFC 2300.00

SUBJECT: Transmittal of Interim Audit Report A-14-18, INL/CCP Characterization and Certification Activities for CH and RH TRU Waste

TO: Benjamine B. Roberts, DOE-ID

The Carlsbad Field Office (CBFO) conducted Annual Recertification Audit A-14-18 of the Idaho National Laboratory Central Characterization Program (INL/CCP) Characterization and Certification Activities for Contact-Handled (CH) and Remote-Handled (RH) Transuranic (TRU) Waste on June 3-5, 2014. The Interim Audit Report is attached.

The audit team concluded that, with the exceptions described below, the implementing procedures reviewed during the audit are adequate relative to the flow-down of requirements, and the technical activities evaluated are satisfactorily implemented and effective.

As a result of the audit, three CBFO Corrective Action Reports were issued and transmitted under separate cover. Additionally, one condition adverse to quality, isolated in nature, was corrected during the audit. The audit team identified one Observation and offered one Recommendation to INL/CCP management for consideration.

If you have any questions concerning Audit A-14-18, please contact me at (575) 234-7491.

D. S. Miehls

Dennis S. Miehls
Senior Quality Assurance Specialist

Attachment

cc: w/attachment

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Site Documents	ED
CBFO QA File	
CBFO M&RC	

*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-14-18

June 3 – 5, 2014

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

Prepared by: Tamara D. Ackman **Date:** 6/27/14
Tamara D. Ackman, CTAC
Audit Team Leader

Approved by: D. J. Mills FOR **Date:** 6-27-14
Michael R. Brown, Director
Office of Quality Assurance

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Recertification Audit A-14-18 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); *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WAC); and the *Remote-Handled TRU Waste Characterization Program Implementation Plan* (WCPIP).

The audit team evaluated characterization and certification activities for contact-handled (CH) Summary Category Groups (SCGs) S3000 homogeneous solids waste; S4000 soils/gravel waste; S5000 debris waste, and remote-handled (RH) SCGs S3000 homogeneous solids waste and S5000 debris waste. Specific technical and quality assurance (QA) elements 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 – 5, 2014. The audit team concluded that the INL/CCP adequately incorporates upper-tier requirements into its program plans and procedures. The team verified that INL/CCP activities for characterization and certification 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.

During the audit, the team identified three conditions adverse to quality (CAQs) resulting in the issuance of three CBFO corrective action reports (CARs) (see section 6.1). The CARs were issued under separate cover. One deficiency, isolated in nature, and requiring only remedial corrective action, was identified and corrected during the audit (CDA) (see section 6.2). One Observation was identified during the audit, and one Recommendation was offered for management consideration (see sections 6.3 and 6.4).

2.0 SCOPE AND PURPOSE

2.1 Scope

Audit A-14-18 was conducted to evaluate 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 audit included the following elements:

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 (PL V&V)
- Real-time Radiography (RTR)
- Visual Examination (VE)
- Nondestructive Assay (NDA)
- Dose-to-Curie (DTC)
- Flammable Gas Analysis (FGA)
- Gas Generation Testing (GGT)
- Container Management

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

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

CCP Transuranic Waste Certification Plan, CCP-PO-002

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

The audit team assessed the INL/CCP's level of compliance with the referenced upper-tier requirements for waste characterization and certification and applicable QA program 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
Martin Navarrete	CBFO Office of Quality Assurance Representative
Tamara Ackman	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Berry Pace	Auditor, CTAC (RTR)
Charlie Riggs	Auditor, CTAC (VE)
Cindi Castillo	Auditor, CTAC (NDA and DTC)
Harley Kirschenmann	Auditor, CTAC (AK)
Jim Schuetz	Auditor, CTAC (C6 QA and WWIS/WDS)
Katie Martin	Auditor, CTAC (C6 QA)
Mike Noland	Auditor in Training, CTAC
B.J. Verret	Auditor/Technical Specialist, CTAC (GGT, FGA, and Container Management)
Porf Martinez	Technical Specialist, CTAC (RTR and VE)
Paul Gomez	Technical Specialist, CTAC (PL V&V)
Dick Blauvelt	Technical Specialist, CTAC (AK)
Charleen Roberts	Technical Specialist, CTAC (AK)
Jim Oliver	Technical Specialist, CTAC (NDA and DTC)
Greg Knox	Technical Specialist in Training, CTAC (RTR and Container Management)
Rick Castillo	Technical Specialist in Training, CTAC (VE)

OBSERVERS

Marcus Pinzel	CBFO Office of the National TRU Program (NTP)
Steve Holmes	New Mexico Environment Department (NMED)
Ricardo Maestas	NMED
Coleman Smith	NMED
Ines Triay	NMED

4.0 AUDIT PARTICIPANTS

The INL/CCP individuals involved in the audit process are identified in Attachment 1. A pre-audit meeting was held at the Radioactive Waste Management Complex (RWMC), building WMF-637 main conference room at the INL near Idaho Falls, ID, and at the Skeen-Whitlock Building in Carlsbad, NM, on June 3, 2014. 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 RWMC building WMF-637 main conference room at the INL and in the Skeen-Whitlock Building in Carlsbad, NM, on June 5, 2014.

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 plans and procedures, are adequate in meeting upper-tier requirements, and that the procedures evaluated are satisfactorily implemented and effective in achieving the desired results. Audited activities are described below. Attachment 2 contains a Summary Table of Audit Results. Attachment 3 contains a list of audited documents. Attachment 4 contains a list of the processes and equipment reviewed during the audit.

During Audit A-14-18, the audit team identified three CAQs resulting in the issuance of three CBFO CARs. One deficiency, isolated in nature and requiring only remedial corrective action, was identified and corrected during the audit. The team documented one Observation during the audit, and one Recommendation was offered for management consideration. The CARs, CDA, Observation, and Recommendation are described in detail in section 6.

5.2 General Activities

5.2.1 Results of Previous Audits

No CBFO CARs were issued as a result of the A-13-18 recertification audit.

5.2.2 Changes in Program or Operations

There have been no program changes since the A-13-18 recertification audit. The only identified operational change was associated with the suspension of TRU waste shipments to the WIPP site as the result of an underground salt truck fire and radiation release in February 2014.

5.2.3 New Programs or Activities Being Implemented

No new programs or activities have been implemented since the performance of the A-13-18 recertification audit.

5.2.4 Changes in Key Personnel

Two changes in key personnel have occurred since the A-13-18 recertification audit. INL/CCP added Rich Kantrowitz as the Site Project Manager (SPM) and Brandye Pyeatt as the alternate SPM. No other significant changes were noted.

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. 37,

CCP Training and Qualification Plan. The results of the review indicate that the referenced procedures adequately address upper-tier requirements.

Training and qualification records for the following positions were reviewed: CH waste and RH waste Acceptable Knowledge Expert (AKE), SPM, Flammable Gas Analyst (FGA), Gas Generation Tester (GGT), NDA Operator/ITR, NDA Expert Analyst, DTC Survey Operator/ITR, VE Operator/ITR, and Nondestructive Examination (NDE) RTR Operator/ITR.

Records reviewed included the INL CH Program List of Qualified Individuals (LOQI) dated 6/2/2014, the RH Program LOQI dated 5/27/2014, 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 results of the review indicate that the referenced personnel are adequately trained to accomplish their respective tasks. No concerns were identified.

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, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.3.2 Nonconformance Reporting

The audit team conducted interviews and 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. The team concluded that the referenced procedure is adequate in meeting requirements.

The team interviewed the project office quality assurance engineer and randomly selected the following nonconformance reports (NCRs) for review:

NCR-INL-0004-14, R0	NCR-INL-0012-14, R0	NCR-INL-0294-14, R0
NCR-INL-0296-14, R1	NCR-INL-0304-14, R0	NCR-INL-0071-13, R0
NCR-INL-0075-13, R0	NCR-INL-0078-13, R0	NCR-INL-0346-13, R0
NCR-INL-0109-13, R0	NCR-INL-0106-13, R0	NCR-INL-0103-13, R0
NCR-INL-0101-13, R0	NCR-INL-0100-13, R0	NCR-INL-0096-13, R0
NCR-INL-0092-13, R0	NCR-INL-0088-13, R0	NCR-INL-0082-13, R0
NCR-RHINL-0370-13, R0	NCR-RHINL-0372-13, R0	NCR-RHINL-0433-13, R1
NCR-RHINL-0356-14, R1		

The purpose of the NCR review was to confirm that administrative deficiencies are appropriately documented and tracked through resolution. There were no reportable 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. No concerns were identified.

The procedures reviewed and objective evidence assembled and evaluated during the audit indicated that the applicable requirements for Nonconformance Reporting are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

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 procedures adequately address upper-tier requirements. The team reviewed procedures CCP-PO-001, Rev. 21, *CCP Transuranic Waste Characterization Quality Assurance Project Plan;* CCP-PO-002, Rev. 27, *CCP Transuranic Waste Certification Plan*; CCP-QP-008, Rev. 22, *CCP Records Management*; and CCP-QP-028, Rev. 15, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning.* The results of the review indicate that the referenced procedures adequately address upper-tier requirements.

The audit team verified that the records evaluated were retrievable, legible, accurate, and properly completed. Changes were made with a single line-out, entering the change, and initialing and dating each change. Records are maintained in Fire King fire-rated file cabinets while in temporary storage at the INL prior to transmittal to Carlsbad. Control of QA records was verified through review of the CH Records Inventory and Disposition Schedule (RIDS) dated 8/1/2013, and the RH RIDS dated 7/23/2013. No concerns were identified.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for Records 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 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 implementing procedures CCP-QP-021, Rev. 9, *CCP Surveillance Program*; CCP-TP-002, Rev. 26, *CCP Reconciliation of DQOs and Reporting Characterization Data*; CCP-TP-005, Rev. 26, *CCP Acceptable Knowledge Documentation*; CCP-TP-506, Rev. 4, *CCP Preparation of the RH TRU Waste AK Characterization Reconciliation Report*; and WP 13-QA.03, Rev. 22, *Quality Assurance Independent Assessment Program*, to determine the degree to which the procedures adequately address upper-tier requirements. The results of the review indicate that the referenced procedures adequately address upper-tier requirements.

The audit team conducted interviews and reviewed documentation to support all applicable AK requirements, completed WAP Table C6-1 and C6-2 checklists, and compiled and reviewed objective evidence to demonstrate compliance with the WAP. Document checklists for the WCPIP and the WAC requirements were also completed during the audit.

The audit team examined specific and complete AK program documentation for the CH SCG S5000 debris waste stream ID-SDA-DEBRIS, and a CH SCG S3000 soils waste stream, ID-SDA-SOIL, both from the excavation of the Subsurface Disposal Area (SDA) at Idaho; CH SCG S3000 solids waste stream ID-SRP-S3000 from the remediation of both organic and inorganic sludge waste streams from Rocky Flats Environmental Technology Site; and an RH TRU SCG S5000 debris waste stream, IN-EBR-S5000, generated from the decommissioning of the Experimental Breeder Reactor at the INL.

The AK record for an RH SCG S3000 waste stream, ID-ANLW-W269-RH, was also examined. This single drum waste stream contains absorbed liquids from RH laboratory operations at the INL. Characterization activities have not been completed for this waste stream; however, a completed AK Summary Report, applicable AK attachments, and relevant AK Source documents have been prepared and were reviewed along with a VE batch data report (BDR).

The objective evidence compiled and reviewed included the AK Summary Reports, numerous AK source documents, WAP-compliant waste stream profile forms (WSPFs) and attachments, and BDRs for VE, RTR, and NDA. Additional supporting documentation for the WCPIP requirements included a Characterization Reconciliation Report and supporting documentation, and dose-to-curie (DTC) calculations for the RH debris stream contained in CCP-RC-INL-601, *CCP RH TRU Radiological Characterization Technical Report*. Current drafts of the Certification Plans for these two RH streams were examined. Examples from the AK record were reviewed to confirm 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.

In addition to the AK Summary Reports, AK Source Document Summaries and other relevant AK records cited above, the audit team reviewed the following documents for each waste stream: AK Documentation Checklist, attachment 1; AK Information List, attachment 4; AK Hazardous Constituents List, attachment 5; AK Waste Form, Waste Material Parameters, Prohibited Items and Packaging, attachment 6, along with the applicable justification memo for waste material parameter weight estimates; and AK Container List, attachment 8, with memos supporting the process for adding containers to the waste streams, as applicable. Examples of the resolution of AK discrepancies in the AK record and at characterization, NCRs dealing with prohibited items, AK Accuracy reports, and the most recent internal surveillance report were also collected and examined along with screenshots from the IDC database.

The WAP-required container traceability exercise was conducted for nine waste containers from the five waste streams. The drums selected provided BDRs for RTR,

VE, and NDA. Additional traceability documentation included AK tracking spreadsheets, the IDC screen shots, container input forms, characterization information summaries, and waste stream characterization checklists, when available.

The audit team identified three concerns. The first concern pertained to clarifying changes/additions to the AK Summary for waste stream ID-SRP-S3000. These changes were incorporated into a freeze file and will be addressed in the next revision of this AK Summary (see section 6.4, Recommendation 1). The second concern addressed inconsistencies between two AK Source Document Summaries and the Source Documents themselves, from waste stream ID-SRP-S3000. The AK Source Document Summaries were corrected during the audit and verified by the audit team (see section 6.2, CDA 1). The final AK concern pertained to the completeness of CCP-TP-005, Attachment 5, regarding the justification and basis for presence of toxicity characteristic metals (see section 6.1, CAR 14-047).

The audit team interviewed personnel and reviewed the LOQI and training qualification cards to verify, in accordance with CCP-QP-002, Rev. 37, *CCP Training and Qualification Plan,* that site AKE and SPM personnel responsible for compiling, assessing, and resolving AK discrepancies are qualified and their qualification status is accurately documented. Results of the review indicate that AKEs and SPM are properly trained and qualified.

The audit team reviewed AK-related audit and surveillance reports to verify that the AK process is regularly assessed, issues are documented, and corrective actions are tracked and closed. The team verified that deficiencies are documented in a CAR and issued to CCP, which then responds to the CAR in accordance with CCP-PO-001, Rev. 21, *CCP TRU Waste Characterization Quality Assurance Project Plan* (CCP QAPjP). Corrective action activities, including assignment of responsibilities and due dates, are then organized by CCP.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the Acceptable Knowledge activities evaluated are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.4.2 Project-level Data Verification and Validation

The audit team conducted interviews with responsible personnel and reviewed the following implementing procedures to determine the degree to which the they address upper-tier requirements: 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-005, Rev. 26, *Acceptable Knowledge Documentation*; CCP-TP-006, Rev. 18, *CCP Visual Examination Technique for INL Newly Generated TRU Waste;* CCP-TP-500, Rev. 13, *CCP Remote-Handled Waste Visual Examination*; and CCP-TP-508, Rev. 9, *CCP RH Standard Real-Time Radiography Inspection Procedure.* The team concluded that the referenced procedures were adequate in addressing requirements.

The audit team evaluated the following BDRs in support of both CH and RH characterization activities completed at the INL/CCP to verify that data PL V&V activities are performed in compliance with applicable procedural requirements.

RTR

INLRHRTR13004 INLRHRTR13009 INLRHRTR14003

VE

IN-ARP-VE-002797 IN-ARP-VE-002919 IN-ARP-VE-002940 IN-SRP-VE-000265
IN-SRP-VE-000444 IN-SRP-VE-000690 INLRHVE13001

Nondestructive Assay/Dose-to-Curie

INNDAS140005	INNDAS140057	INNDAW130089	INNDAW140041
INNDAW140045	INLRHDTC13004	IDRH1202	ALD13002A
ALD13002B	ALD13002G	ALD13002I	ALD13002L

The audit team found the BDRs were completed in accordance with procedural requirements. The RH DTC BDRs were reported through the SPM level, meeting reporting requirements. The analytical laboratories are appropriately documented on the NWP Qualified Suppliers List, which was last evaluated February 26, 2014, and due to be evaluated February 28, 2015.

The audit team reviewed three WSPFs for waste streams ID-AECHDM, Rev. 0; ID-AECHHM, Rev. 0; and ID-SRP-S3000, Rev. 0. The WSPFs were found to be properly completed with Characterization Information Summaries (CIS). An AK Source Document Summary Discrepancy Resolution report (DR701) was provided to the audit team that consisted of only minor changes to the AK document and none that affected container waste stream reassignment.

The documentation of quarterly repeat reviews of data generation-level BDRs was found to have been properly maintained since the previous audit. For a randomly selected container, the audit team found that all quarterly requests had been documented and submitted to the data generation-level for re-review. Results were appropriately received and some that were recently received will be available during the next recertification audit. No concerns were identified.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for Project-level Validation and Verification activities are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.4.3 WIPP Waste Information System/Waste Data System

The audit team conducted interviews with responsible personnel and reviewed implementing procedures CCP-TP-530, Rev. 11, *CCP RH TRU Waste Certification and WWIS/WDS Data Entry*, and CCP-TP-030, Rev. 33, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry*, to determine the degree to which they address upper-tier requirements. The review indicated that the referenced procedures were adequate in addressing applicable 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) were found to be qualified to perform certification activities for RH and CH waste WWIS/WDS data entry activities. The team determined the WCOs and WCAs are properly qualified to perform certification activities for the INL host location, as well as all other CCP host site locations.

The audit team interviewed CCP WCOs and reviewed documentation for certification of new WSPFs for the INL host location. The team verified that certification data entered into WWIS and WSPFs were approved and adequately entered into WDS in accordance with CCP procedures.

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 are entered and verified in spreadsheet applications and subsequently submitted to the WWIS/WDS database. Data packages for CH containers include CIS lists, radiation survey documentation, WDS overpack build and loading sheets, as appropriate, evidence of verification of resolution of CARs and NCRs associated with containers, WWIS/WDS Container Data Reports, WDS Master Template.xls data spreadsheet reports, and NDA, FGA, and VE BDR data excerpts. Data packages for RH containers includes CIS lists, evidence of verification of resolution of CARs and NCRs associated with containers, AK summary report excerpts, WWIS/WDS Container Data Reports, RH WDS Master Template.xls data spreadsheet reports, radiation survey documentation, DTC and VE BDR data excerpts, and WDS overpack build and loading sheets.

The audit team reviewed the data packages that included dunnage containers in CH ten-drum overpack (TDOP) assemblies and determined that assignment of dunnage was correctly performed using functions within WWIS/WDS. Data entry and certification of 55-gallon drums, TDOPs, and RH canister container types were 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 witnessed a demonstration of entry and verification of FGA data into WWIS/WDS for containers that are analyzed by CCP but are certified by the AMWTP organization. FGA data are entered using the IDC and are adequately checked and verified prior to submittal to WDS. The remainder of characterization data are entered

by AMWTP, which then certifies the containers. AMWTP operations were not in the scope of this audit and were not evaluated.

The audit team evaluated spreadsheets and IDC software applications used for data entry, electronic verification of data, and transfer of data to the WWIS/WDS internet-based application. Application of software QA and control of these software items were determined to be adequate. No concerns were identified.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for Waste Information System/Waste Data System activities are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.4.4 Real-time Radiography

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

The audit team reviewed RTR-related CCP procedures CCP-QP-002, Rev. 37, *CCP Training and Qualification Plan;* CCP-TP-028, Rev. 9, *CCP Radiographic Test Drum and Training Container Construction;* and CCP-TP-508, Rev. 9, *CCP RH 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 training drum audio/video media for three RTR operators. Record reviews included RTR operator training and qualification cards, waste stream training attendance sheets, eye exams, SNT ASNT-TC-1A Level II Radiography Certificates, and training drum documentation. The audit team verified that RTR operators were appropriately qualified, as required.

The audit team conducted a walk-through of the RTR Unit 659 at the INTEC facility in building 659 on Tuesday, June 3, 2014. The unit contained the required hardware to effectively characterize RH SCG S3000 solids waste and S5000 debris waste. The team observed RTR RH waste characterization activities, including the characterization scan for containers FC0104A-1 and FC0104A-2, both consisting of S5000 debris waste. There were no containers being scanned during the audit that contained S3000 homogeneous solids.

The audit team interviewed RTR operators, and confirmed the appropriate use of the current RTR operating procedure (CCP-TP-508, Rev. 9). The team identified a concern related to the use of AK Summary Report CCP-AK-INL-580. During interviews with the RTR operator and the RTR subject matter expert (SME), auditors asked which AK summary report was being used for reference during the scan. The SME pointed to AK Summary Report CCP-AK-INL-580, which was opened in a three-ring binder. The audit team noted the version in the binder was Revision 3; however, CCP-AK-INL-580, Rev. 4

had been issued March 14, 2014 (see section 6.1, CAR 14-046). The audit team also examined RTR operational logbook CCP-INL-RH-RTR-659, and verified logbook entries were logged as required and reviewed by the vendor project manager (VPM) on a weekly basis.

The audit team examined RH RTR BDRs INLRHRTR140002 and INLRHRTR140003 (the only BDRs generated since the previous audit) and determined that they were appropriately completed in accordance with requirements.

Overall, the procedures reviewed, field observations, and document/record reviews provided evidence that the applicable Real-time Radiography 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 the adequacy, implementation and effectiveness of INL/CCP activities to characterize and certify CH SCG S3000 homogeneous solids and S5000 debris waste and RH S5000 debris waste using the VE characterization process.

The audit team evaluated CCP procedures CCP-QP-002, Rev. 37, *CCP Training and Qualification Plan;* CCP-TP-006, Rev. 18, *CCP Visual Examination Technique for INL Newly Generated TRU Waste;* CCP-TP-113, Rev. 18, *CCP Standard Contact-Handled Waste Visual Examination;* and CCP-TP-500, Rev. 13, *CCP Remote-Handled Waste Visual Examination.* The results of the review indicate that the procedures adequately address upper-tier requirements.

The audit team examined training records for five VE operators/ITRs, and confirmed the appointment of five INL/CCP VE Experts (VEEs). The audit team verified that VE operators, ITRs, and the VEEs were appropriately qualified as required.

INL/CCP uses the two-operator method when conducting VE characterization activities. VE is performed by two qualified operators where the waste is visually examined and placed into containers. The audit team interviewed VE operators and VEEs, toured Hot Cell 308 in building 659 at the INTEC facility, and observed RH VE of parent container FCO100A-3 from waste stream ID-HFEF-S5400-RH, into daughter containers FCO100A-3A and FCO1003B. The team verified the current revision of CCP-TP-500 (Rev. 13) was being used to perform VE and the current revision of the associated AK summary (CCP-AK-INL-580, Rev. 4) was available for reference, as needed.

The audit team toured the ARP-5 facility, building 1617 at the RWMC and observed CH VE being performed on SCG S3000 waste from waste stream ID-SRP-S3000, into container SRP23081. The audit team verified the current revision of CCP-TP-006 (Rev. 18) was being used to perform VE and the current revision of the associated AK summary (CCP-AK-INL-026, Rev. 0) was available for reference, as needed.

The audit team examined VE operational logbooks CCP-RH-INL-VE-008 for VE activities performed on RH waste at the INTEC facility, and CCP-INL-VEL-023 for VE activities performed at the ARP-5 facility, and verified logbook entries were logged correctly and reviewed by the VPM as required.

The audit team examined BDR VE RH BDR INLRHVE13001 (only RH BDR generated since the previous audit), and VE CH BDRs IN-ARP-VE-002787, IN-ARP-VE-002814, IN-ARP-VE-002895, IN-ARP-VE-002832, IN-ARP-VE-002924, IN-ARP-VE-002905, IN-SRP-VE-000240, IN-SRP-VE-000357, IN-SRP-VE-000487, and IN-SRP-VE-000648, and determined that they were appropriately completed in accordance with requirements. No concerns were identified.

The procedures reviewed, field observations, and document/record reviews provided evidence that requirements for characterizing RH S5000 debris waste and CH S3000 homogeneous solids waste and S5000 debris waste using Visual Examination at the RWMC and INTEC facilities are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.4.6 Nondestructive Assay

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

The audit team reviewed the following procedures to determine the degree to which the they adequately address upper-tier requirements: CCP-TP-010, Rev. 4, *CCP Waste Assay Gamma Spectrometer (WAGS) & SWEPP Gamma-Ray Spectrometer (SGRS) Calibration Procedure*; CCP-TP-019, Rev. 6, *CCP Waste Assay Gamma Spectrometer (WAGS) Operating Procedure*; CCP-TP-115, Rev. 5.1, *CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure*; CCP-TP-146, Rev. 9, *CCP SuperHENC Operating Procedure*; CCP-TP-148, Rev. 8, *CCP SuperHENC Data Reviewing, Validating, and Reporting Procedure*; and CCP-TP-170, Rev. 3.1, *CCP SuperHENC Calibration Procedure*. Results of the review indicated that the procedures are adequate in addressing requirements.

The SGRS and WAGS are both gamma spectrometers with multiple high-resolution Broad Energy Germanium (BEGe) detectors. The WAGS uses six BEGe detectors divided into two vertical banks of three detectors each. One bank is positioned opposite a set of three Ba-133 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 an HPGe detector and a Cf-252 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 (SWBs) as well as 55-gallon (208-liter) and 100-gallon drums.

CBFO previously evaluated these NDA systems during the A-13-18 recertification audit, June 4 – 6, 2013.

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 determined 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 Peformance Demonstration Program (PDP)
- Completed BDRs to ensure data are reported and reviewed as required
- Data storage and retrievability
- Personnel qualification and training
- Continued operability and condition of the WAGS, SGRS, and SuperHENC since the A-13-18 recertification audit

The audit team interviewed NDA personnel, observed equipment and system operations, and examined electronic and paper copies of reports and records, including field operation logbooks. The team also verified training qualification documentation for NDA operators and NDA Expert Analysts.

The SuperHENC participated in PDP Cycle B13A for SWBs that consisted of metals and combustible matrices with high TRU alpha activity of weapons grade plutonium with large particle sizes. The SuperHENC also participated in PDP Cycle 20A for drums, along with the WAGS and SGRS, assaying three waste matrices including combustibles, metals, and sludge. The combustibles and metals test drums had weapons grade material with enhanced Am-241 in the metals matrix drum loaded in the mid-low range (greater than .02 to .2 Ci). The sludge drum was also loaded with weapons grade plutonium with enhanced Am-241 loaded at the mid-high range (greater than .2 to 2.0 Ci). All three instruments passed all test criteria.

The following BDRs were reviewed:

WAGS (6 of 111 BDRs selected covering both WSID ID-RF-3114 (described in CCP-AK-INL-005) and ID-SRP-S3000 (described in CCP-AK-INL-030):

INNDAW130074	INNDAW130089	INNDAW130126	INNDAW140007
INNDAW140033	INNDAW140037		

SGRS (7 of 150 BDRs selected covering WSIDs: ID-RF-3114 (described in CCP-AK-INL-005) and ID-SRP-S3000 (described in CCP-AK-INL-030), and ID-AECHDM, ID-AECHHM (described in CCP-AK-INL-025):

INNDAS130044	INNDAS130055	INNDAS130083	INNDAS130114
INNDAS140025	INNDAS140049	INNDAS140056	

SuperHENC (4 of 4 BDRs selected covering WSID BN-550 (described in RPT-TRUW-07, Rev. 19):

INNDAD13001	INNDAD13002	INNDAD13003	INNDAD13004

Two calibration verifications were performed on both the WAGS and the SGRS since Audit A-13-18. No calibration verifications were performed on the SuperHENC.

The calibration verifications on the WAGS are documented in CCP-INL-WAGS-14-001 and CCP-INL-WAGS-14-003. Both of these calibration verifications were performed following the failure and subsequent replacement of digital signal analyzer power supplies. The calibration verifications were reviewed for technical adequacy and found to be acceptable.

The calibration verifications on the SGRS are documented in CCP-INL-SGRS-13-004 and CCP-INL-SGRS-14-001. The calibration verifications documented in CCP-INL-SGRS-13-004 were the result of a detector replacement, and the calibration verifications documented in CCP-INL-SGRS-14-001 were the result of the replacement of a bearing in the detector chamber shield door. Both calibration verifications were reviewed for technical adequacy and found to be acceptable.

One concern was identified during the audit in the area of NDA training. No objective evidence was provided to document required indoctrination training/reading of CCP-HSP-013, *CCP WAGS & SGRS Health and Safety Plan*, for three NDA SGRS Operators and three NDA WAGS Operators, as required by the respective operating procedures.

In addition, the required indoctrination training/reading of CCP-HSP-013 is not listed on the current revisions of the NDA SGRS and NDA WAGS qualification cards. CCP-TP-019, Rev. 6, *CCP Waste Assay Gamma Spectrometer (WAGS) Operating Procedure*, section 2.2.1 states: "Personnel must have read CCP-HSP-013, *CCP Waste Assay Gamma Spectrometer (WAGS) and SWEPP Gamma-Ray Spectrometer (SGRS) Nondestructive Assay Systems Health and Safety Plan.*" CCP-TP-115, Rev. 5.1, *CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure*, section 2.2.2 states: "Personnel must have read CCP-HSP-013, *CCP Waste Assay Gamma Spectrometer (WAGS) and SWEPP Gamma-Ray Spectrometer (SGRS) Nondestructive Assay Systems Health and Safety Plan* prior to performing this procedure." (See section 6.1, CAR 14-044.)

The procedures reviewed, field observations, and document/record reviews provided evidence that the applicable requirements for Nondestructive Assay are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.4.7 Dose-to-Curie

The audit team assessed the adequacy, implementation, and effectiveness of the dose-to-curie (DTC) methodology used at the INL/CCP to characterize waste from SCG S3000 homogeneous solids waste and SCG S5000 debris waste. The audit team evaluated the DTC measurement system. Procedure CCP-TP-504, Rev. 15, *CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste*, was reviewed to determine the degree to which the procedure adequately addresses upper-tier requirements. The results of the review indicate that the procedure is adequate in addressing the requirements.

DTC measurements are accomplished using multiple detectors: one to obtain the relative contributions of Co-60 and Cs-137 to the gamma dose rate, and one of two probes (either high-range or low-range) to take dose rate measurements. CBFO previously evaluated the DTC methodology during the A-13-18 recertification audit, June 4-6, 2013.

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 determined 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 operational field logbooks
- Continued operability and condition of the DTC equipment since the A-13-18 recertification audit

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

DTC is performed in the INTEC Facility CPP-659 area. The measurement acquisition control room (Cell 302) contains closed circuit camera control systems and display units and the readouts for the dose measurement and 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 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. Cell 302 was examined (Cell 306 was in use for RTR and dose rate measurement at the time of the audit), DTC 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, the enclosure, and shielding via closed circuit camera. CCP procedures were reviewed and operations staff were interviewed. Data acquisition and measurement data were observed and data contained in BDRs were reviewed. Technical and personnel elements of the DTC methodology were found to be adequate, satisfactory, and effective.

The audit team reviewed BDRs INLRHDTC13002, which includes 12 containers from the ID-HFEF-S5400-RH waste stream; INLRHDTC13008, which includes 9 containers from the ID-HFEF-S5400-RH waste stream; and INLRHDTC14002, which includes 18 containers from the ID-ANLE-S5000 waste stream. No concerns were identified.

The procedures reviewed, field observations, and document/record reviews provided evidence that the applicable requirements for Dose-to-Curie activities are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.4.8 Flammable Gas Analysis

The audit team evaluated INL/CCP FGA testing activities, which are implemented using procedure DOE-WIPP 06-3345, Rev. 6, *Waste Isolation Pilot Plant Flammable Gas Analysis*. The procedure was determined to be adequate in implementing flow-down requirements for this activity.

A walkthrough of the FGA drum sampling area was conducted, sampling equipment was inspected, and sampling activities were observed. FGA analytical instruments and supplies were inspected. INL/CCP uses four Hewlett-Packard GC/MS systems (Instruments 5, 6, 9, and 10) equipped with Thermal Conductivity Detectors in addition to the Mass Spectral Detectors and a sample splitter that delivers sample to both detectors. All required equipment and standards were verified to be compliant and within expiration dates.

The audit team examined Initial Calibration Reports IN13FG5030_ICAL, IN14FG6003_ICAL, IN13FG9085_ICAL, IN14FG9015_ICAL, and IN13FG10095_ICAL. All initial calibrations were confirmed to be performed in accordance with applicable procedures, and referenced in each FGA BDR.

The audit team examined Minimum Detection Limit (MDL) spreadsheets IN08FG5156_MDL, IN11FG6067_MDL, IN11FG9004_MDL, and IN13FG10014_MDL. Results were found to becorrectly calculated and the spreadsheets were referenced in each FGA BDR.

Analytical BDRs IN13FG5031, IN14FG6006, IN13FG9048, IN14FG9001, IN14FG9016, IN13FG10091, IN13FG10096, and IN14FG10015 were examined and determined to be complete and reviewed by an ITR, as required by procedure. Transmittal of the reports to CCP records was verified.

Personnel were interviewed concerning FGA operations, and operator training was verified. Use of the current revision of the FGA procedure was also verified.

INL/CCP uses instrument Logbooks for each GC/MS system. The audit team reviewed Logbook CCP-INL-HSG-UNIT9-004. Logbook entries were found to be legible and timely and were reviewed weekly as demonstrated by reviewer initials. The Logbooks included entries for equipment status, preventative maintenance, and repairs, if any. No concerns were identified.

The procedures reviewed, field observations, interviews, and document/record reviews provided evidence that the applicable requirements for Flammable Gas Analysis are

adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.4.9 Gas Generation Testing Program

The audit team evaluated INL/CCP GGT activities, including review of procedures CCP-PO-016, Rev. 6, *CCP Gas Generation Testing Quality Assurance Project Plan*; CCP-TP-083, Rev. 8, *CCP Gas Generation Testing*; and CCP-TP-138, Rev. 2, *Execution of Long-Term Objective for the Unified Flammable Gas Test Procedure*, to determine the degree to which the procedures address upper-tier requirements. The team concluded that the referenced procedures adequately address upper-tier requirements.

A walk-through of the GGT drum testing area was conducted, along with inspection of GGT analytical instruments. All required equipment and standards were verified to be in compliance with requirements. Analytical BDR IN12G901 was examined and determined to be complete and acceptable. Personnel were interviewed on operation of GGT, and operator training was verified. Use of the latest revision of the GGT procedure was verified. There have been no additions to the Long-Term Objective Report since the A-13-18 recertification audit. No concerns were identified.

The procedures reviewed, field observations, and document/record reviews provided evidence that the applicable requirements for the Gas Generation Testing Program are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.4.10 Container Management

The audit team conducted interviews with responsible personnel and reviewed implementing procedures CCP-TP-068, Rev. 11, *CCP Standardized Container Management*, and CCP-TP-509, Rev. 5, *CCP Remote-Handled Transuranic Container Tracking,* to determine the degree to which the procedures adequately address upper-tier requirements. The results of the review indicate that the referenced procedures are adequate in addressing requirements.

The procedures reviewed describe CCP management, control, and tracking of TRU waste containers during the characterization process. All labeling and physical transport of drums and other TRU waste containers are performed by AMWTP personnel and will be verified during the AMWTP Recertification Audit.

One concern was identified during the audit. CCP procedure CCP-TP-509, Rev. 5, *CCP Remote-Handled Transuranic Container Tracking*, section 4.6, VE Operations, NOTE, identifies an action step. The NOTE states, "For newly packaged waste, the containers will be added to the AKTSS after the appropriate AK Expert review is complete. Forward signed CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*, Attachment 1 to SPM with copy to the AK Expert for review and AK update."

The action steps 4.6.1 through 4.6.4 can only be followed verbatim during the processing of retrievably stored waste. Procedure CCP-QP-010, Rev. 24, *CCP Document Preparation, Approval, and Control*, section 2.14, Warnings, Cautions, and Notes, NOTE, states, "Action statements SHOULD **NOT** be placed in Warnings, Cautions, or Notes." Procedure CCP-TP-509 should be revised to include action steps on processing newly packaged waste. This condition, if not corrected, could potentially cause performance of VE on newly packaged waste that has not been added to the Acceptable Knowledge Tracking Spreadsheet (AKTSS) (see section 6.3, Observation 1).

The procedures reviewed, field observations, and document/record reviews provided evidence that, overall, the applicable requirements for Container Management are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

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 (SCAQ) – 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.

Three CBFO CARs were issued as a result of the audit.

CAR 14-044

No objective evidence was provided to document required indoctrination training/reading of CCP-HSP-013, *CCP WAGS and SGRS Health and Safety Plan*, for three NDA SGRS Operators and three NDA WAGS Operators, as required by the respective operating procedures. Also, the required indoctrination training/reading of CCP-HSP-013 is not listed on the current revisions of the NDA SGRS and NDA WAGS qualification cards. CCP-TP-019, Rev. 6, *CCP Waste Assay Gamma Spectrometer (WAGS) Operating Procedure,* section 2.2.1 states: "Personnel must have read CCP-HSP-013, *CCP Waste Assay Gamma Spectrometer (WAGS) and SWEPP Gamma-Ray Spectrometer (SGRS) Nondestructive Assay Systems Health and Safety Plan.*" CCP-TP-115, Rev. 5.1, *CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure,* section 2.2.2 states: "Personnel must have read CCP-HSP-013, *CCP Waste Assay Gamma Spectrometer (WAGS) and SWEPP Gamma-Ray Spectrometer*

(SGRS) Nondestructive Assay Systems Health and Safety Plan prior to performing this procedure."

CAR 14-046

During interviews with the RTR operator and the RTR SME, the audit team questioned which AK summary report was being used for reference during the RTR characterization scan of container FCO104A-2. The SME pointed to AK Summary Report CCP-AK-INL-580, which was opened in a three-ring binder. The audit team noted the version in the binder was revision 3; however, CCP-AK-INL-580, Rev. 4 had been issued on March 14, 2014.

CCP-QP-010, Rev. 24, *CCP Document Preparation, Approval, and Control*, section 4.2 (NOTE), states, "Approved documents must be used to ensure that tasks are performed in a consistent manner that results in achieving the quality required. At the beginning of each shift, CCP personnel will confirm the current revision of the document is being used. This revision of the document will be used throughout the shift unless a STOP WORK order is issued."

CAR 14-047

The toxicity characteristic (TC) metals arsenic, chromium, cadmium, and lead were detected through spectral analysis of blanket bricks associated with waste stream ID-EBR-S5000. Detections of these TC metals are documented in AK Source Document P838, *Casting of Blanket Bricks, Ring, Plug, and Control Rods for the Experimental Breeder Reactor.* The justification and basis for assigning or not assigning the TC hazardous waste numbers (HWNs) associated with these metals are not identified in the waste stream-specific description of CCP-AK-INL-600, *Central Characterization Program Acceptable Knowledge Summary Report for Remote-Handled Transuranic Debris From Experimental Breeder Reactor at the Idaho National Laboratory, Waste Stream ID-EBR-S5000*, Rev. 1. Neither the presence of the TC metals or results of TC HWN assignment are documented in Attachment 5 of the AK Summary Report.

CCP-TP-005, *CCP Acceptable Knowledge Documentation*, Rev. 26, section 4.4.16 states, "Review the AK information to determine if the waste is listed under 20 NMAC 4.1.200 (incorporating 40 CFR 261.30), Subpart D. If so, assign the appropriate HWNs." Section 4.4.17 states, "Review the AK information to determine if a toxicity characteristic 20 NMAC 4.1.200 (incorporating 40 CFR 261.20), Subpart C contaminant is identified and has NOT been assigned a listed HWN from step 4.4.16. Evaluate the available data and assign the toxicity characteristic HWN consistent with RCRA requirements." Section 4.4.20 states, "Include the justification and basis for steps 4.4.16 and 4.4.17 in the TRU waste stream-specific description of AK Summary Report, AND complete the Attachment 5."

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.

One deficiency, requiring remedial action only, was identified during Audit A-14-18.

CDA 1

Inconsistencies were identified between two AK Source Document Summaries (D024 and DR701) and the Source Documents themselves, from waste stream ID-SRP-S3000.

- AK Source Document D024 justified the addition of lead to the waste stream of interest. The AK Source Document Summary stated that lead would not be added.

- AK Source Document DR701 justified the assignment of hazardous waste numbers (HWNs) to waste stream ID-SRP-S3000. The AK Source Document Summary only provided a partial list of the HWNs assigned.

The AK Source Document Summaries were corrected during the audit and verified by the audit team prior to the end 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.

One Observation was identified during Audit A-14-18.

Observation 1

CCP procedure CCP-TP-509, Rev. 5, *CCP Remote-Handled Transuranic Container Tracking*, section 4.6, VE Operations, NOTE, identifies an action step rather than a "NOTE". The NOTE states, "For newly packaged waste, the containers will be added to the AKTSS after the appropriate AK Expert review is complete. Forward signed CCP-TP-500, CCP Remote-Handled Waste Visual Examination, Attachment 1 to SPM with copy to the AK Expert for review and AK update."

The action steps 4.6.1 through 4.6.4 can only be followed verbatim during the processing of retrievably stored waste. CCP Procedure CCP-QP-010, Rev. 24, *CCP Document Preparation, Approval, and Control*, section 2.14, Warnings, Cautions, and Notes, NOTE, states, "Action statements SHOULD NOT be placed in Warnings, Cautions, or Notes." CCP procedure CCP-TP-509 should be revised to include action steps on how to process newly packaged waste. This condition, if not corrected, could potentially cause performance of VE on newly packaged waste that has not been added to the AKTSS.

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 the audit.

Recommendation 1

It is recommended that AK Summary Report CCP-AK-INL-026, Rev. 0, be revised to provide clarity of the AK record, as noted in the following examples:

- Add the information of AK Source Document U571 to the contents of section 4.6.1, Table 1

- Expand the discussion of previous INL/AMWTP waste repackaging operations involving the waste streams BNINW216 and ID-RF-S3114 by describing post-treatment activities – section 7.4.2

- Show verification of the absorbents currently approved and in use to treat the sludges resulting in waste stream ID-SRP-S3000 as noted in section 5.3

- Reconcile dates for construction of Building 774 in sections 4.2.1 and 4.7.1

- Reconcile product drums estimates per drum remediated in section 5.2 with AK Source Document C701

The recommended changes were incorporated into a freeze file and will be addressed in the next revision of AK Summary Report CCP-AK-INL-026.

7.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During Audit A-14-18
Attachment 2: Summary Table of Audit Results for A-14-18
Attachment 3: Listing of Audited Documents for A-14-18
Attachment 4: Processes and Equipment Reviewed During Audit A-14-18 of the INL/CCP

PERSONNEL CONTACTED DURING AUDIT A-14-18				
NAME	**TITLE/ORG**	**PREAUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST AUDIT MEETING**
Abbott, Preston	NDA/MCS/CCP	X	X	
Ahlberg, Linda	FGA Op/CCP		X	
Allen, Randall	Audits and Assessments Manager/CTAC	X	X	
Andrews, Sway	RTR/CWI		X	
Armijo, Cheryl	Training/NTPC/CCP		X	
Bhatt, Raj	RH TRU Waste Programs/CWI	X		X
Billett, Michele	Training Coordinator/ CCP/Stoller	X	X	X
Brasier, David	NDA/CCP	X	X	
Brown, Michael R.	QA Director/CBFO	X	X	X
Carroll, Mary	DTC/CCP		X	
Christensen, Tyson	RH RTR Lead Operator (LO)/CCP	X	X	X
Cummins, Sharon	NDA Operator/CCP		X	
Davis, Chris	VE/Waste Management/ CWI		X	
Davis, Crary	NDA Operator/CCP		X	
Dial, Brent	Gamma Spec/CCP		X	
Dickes, Neil	NDA/CCP	X	X	
Dover, Dale	GGT Lead/FGA/CCP	X	X	X
Fisher, A.J.	Support Services/CCP/ NWP			X
Frost, Lisa	CH Support/CWI	X	X	X
Greenwood, Trey	AK/TechSpecs/CCP	X	X	X
Grenfell, Michael	Container Manager/ CCP/NWP	X	X	X
Grover, Luke	VEE/CH/CCP		X	
Gulbransen, Ed	Manager/CCP/NWP	X	X	X
Gyorfy, Brett	Records/CCP	X	X	X
Hernandez, Connie	WCO/NWP/CCP		X	
Hernandez, Patrick	Records Clerk/NTPC/ CCP		X	

PERSONNEL CONTACTED DURING AUDIT A-14-18				
NAME	**TITLE/ORG**	**PREAUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST AUDIT MEETING**
Holmes, Steve	Observer/New Mexico Environment Department	X		
Hood, Dale	QA Specialist/ NWP/CCP		X	
Johnsen, Tom	CH TRU STR/CWI	X		
Johnson, Carrie	AKE/CCP		X	
Jones, Laura	QA Engineer/NWP/CCP		X	
Joo, Irene	CH Operations Manager/CCP/NWP	X	X	X
Kantrowitz, Rich	SPM/NWP	X	X	X
Kerbs, Clifton	VE/CH/CCP		X	
Kirkes, Creta	WCO/NWP/CCP		X	
Klingler, Larry	Quality Assurance (QA) Engineer/NWP	X		X
LaRue, Bruce	Environmental Scientist/ID DEQ INL Oversight Program	X		
Law, Jenifer	NDA Operator/CCP		X	
Ledford, Wayne	QA Specialist/NWP	X	X	
Lee, Ronnie	Ops/CCP/NWP		X	
Maestas, Ricardo	Observer/New Mexico Environment Department	X		X
Martinez, Shelly	Cog. Engineer/ NDE / CCP	X		X
Miehls, Dennis	QA Specialist/CBFO	X	X	X
Navarrete, Martin	Sr. QA Specialist/CBFO	X		X
Nefzger, Mark	Waste Management/ CWI		X	
Parmer, Bret	Waste Management/ CWI		X	
Payanes, Jose	Document Services Manager/CCP/NTPC/ Stoller		X	X
Pearcy, Sheila	Records Manager/CCP/ NTPC/Stoller	X	X	X

PERSONNEL CONTACTED DURING AUDIT A-14-18				
NAME	**TITLE/ORG**	**PREAUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST AUDIT MEETING**
Peralta, Austin	Records Clerk/NTPC/ CCP		X	
Pimentel, Trisha	Records/CCP	X	X	X
Pinnock, David	DTC Operator/CWI		X	
Poirier, Joe	FGA Lead/CCP/NFT	X	X	X
Poole, Jeff	Vendor Project Manager (VPM)/Visual Examination Expert (VEE)/CCP/NWP	X	X	X
Pruitt, Doug	Observer/DOE-ID	X		X
Pyeatt, Brandye	SPM/CCP/NWP	X		X
Ramirez, Mike	CCP Manager/NWP	X	X	X
Remsburg, Cody	Waste Management/ CWI		X	
Sharif, Farok	NTP/NWP	X	X	
Smith, Coleman	Observer/New Mexico Environment Department	X		X
Smith, Scott	AKE/TechSpecs/CCP	X	X	X
Stallings, Andrew	Cog. Engineer/ NDE / CCP	X	X	X
Stark, Brad	VEE/CCP/IES	X	X	X
Tierney, Michael	VE/CH/CCP		X	
Triay, Ines	Observer/New Mexico Environment Department	X		X
Verlanic, Bill	P.M./CCP/NWP	X	X	X
Walker, Mak	QAE/NWP		X	X

Summary Table of Audit Results for A-14-18

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
Nondestructive Assay	1				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			1		A	S	E
Training					A	S	E
Nonconformance Reporting					A	S	E
QA Records					A	S	E
TOTALS	3	1	1	1	A	S	E

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 FOR A-14-18

	Document No.	Rev	Document 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-005	24	CCP Conduct of Operations
4.	CCP-PO-016	6	CCP Gas Generation Testing Program Quality Assurance Project Plan
5.	CCP-PO-024	14	CCP/INL Interface Document
6.	CCP-PO-501	8	CCP/INL RH TRU Waste Interface Document
7.	CCP-QP-002	37	CCP Training and Qualification Plan
8.	CCP-QP-005	24	CCP TRU Nonconforming Item Reporting and Control
9.	CCP-QP-008	22	CCP Records Management
10.	CCP-QP-016	19	CCP Control of Measuring and Test Equipment
11.	CCP-QP-017	4	CCP Identification and Control of Items
12.	CCP-QP-021	9	CCP Surveillance Program
13.	CCP-QP-022	13	CCP Software Quality Assurance Plan
14.	CCP-QP-028	15	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
15.	CCP-TP-001	21	CCP Project Level Data Validation and Verification
16.	CCP-TP-002	26	CCP Reconciliation of DQOs and Reporting Characterization Data
17.	CCP-TP-005	26	CCP Acceptable Knowledge Documentation
18.	CCP-TP-006	18	CCP Visual Examination Technique for INL Newly Generated TRU Waste Retrieved from Pits
19.	CCP-TP-010	4	CCP Waste Assay Gamma Spectrometer (WAGS) & SWEPP Gamma-Ray Spectrometer (SGRS) Calibration Procedure
20.	CCP-TP-019	6	CCP Waste Assay Gamma Spectrometer (WAGS) Operating Procedure
21.	CCP-TP-028	9	CCP Radiographic Test Drum and Training Container Construction
22.	CCP-TP-030	33	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
23.	CCP-TP-033	21	CCP Shipping of CH TRU Waste
24.	CCP-TP-058	5	CCP NDA Performance Demonstration Plan
25.	CCP-TP-068	11	CCP Standardized Container Management
26.	CCP-TP-082	10	CCP Waste Container Filter Vent Operation
27.	CCP-TP-083	8	CCP Gas Generation Testing
28.	CCP-TP-109	9	CCP Data Reviewing, Validating, and Reporting Procedure
29.	CCP-TP-113	18	CCP Standard Contact-Handled Waste Visual Examination
30.	CCP-TP-115	5.1	CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure
31.	CCP-TP-138	2	CCP Execution of Long-Term Objective for the Unified Flammable Gas Test Procedure
32.	CCP-TP-146	9	CCP SuperHENC Operating Procedure
33.	CCP-TP-148	8	CCP SuperHENC Data Reviewing, Validating and Reporting Procedure
34.	CCP-TP-163	4	CCP Evaluation of Waste Packaging Records for Visual Examination of Records
35.	CCP-TP-170	3.1	CCP SuperHENC Calibration Procedure
36.	CCP-TP-500	13	CCP Remote-Handled Waste Visual Examination
37.	CCP-TP-504	15	CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste
38.	CCP-TP-506	4	CCP Preparation of the RH TRU Waste AK Characterization Reconciliation Report
39.	CCP-TP-507	8	CCP Shipping of Remote-Handled Transuranic Waste
40.	CCP-TP-508	9	CCP RH Standard Real-Time Radiography Inspection Procedure
41.	CCP-TP-509	5	CCP Remote-Handled Transuranic Container Tracking
42.	CCP-TP-512	6	CCP Remote-Handled Waste Sampling
43.	CCP-TP-530	11	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
44.	DOE/WIPP 06-3345	6	Waste Isolation Pilot Plant Flammable Gas Analysis Procedure
45.	WP 13-QA.03	22	Quality Assurance Independent Assessment Program

Processes and Equipment Reviewed During Audit A-14-18 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) Procedure – CCP-TP-006 Description –Visual Examination Technique (VET)	Solids (S3000) Soils (S4000) Debris (S5000)	YES	YES
14RHVE1	Visual Examination Procedure – CCP-TP-500 Description - The VE of audio/video media process used for a total of 70 retrievably stored remote-handled (RH) debris waste drums	Solids (S3000) Soils (S4000) Debris (S5000)	YES	YES
14RR2	Nondestructive Examination Procedure – CCP-TP-053 Equipment – MCS RTR-5 Description – MCS Real-time Radiography (RTR) Mobile Characterization (RTR-5) System	Solids (S3000) Debris (S5000)	YES	YES
14RRH1	Nondestructive Examination Procedure – CCP-TP-508 Equipment – RTR-RTR-0659 Description – VJ Technologies, Real-time Radiography Characterization (RH-RTR-0659) System	Solids (S3000) Debris (S5000)	YES	YES
N/A	Acceptable Knowledge	Solids (S3000) Soils (S4000) Debris (S5000)	YES	YES

Processes and Equipment Reviewed During Audit A-14-18 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	Data Validation and Verification	Solids (S3000) Soils (S4000) Debris (S5000)	YES	YES
N/A	WIPP Waste Information System (WWIS)	Solids (S3000) Soils (S4000 Debris (S5000)	YES	YES
14SHC1	Nondestructive Assay Procedure – CCP-TP-146 Description – CCP Super High Efficiency Neutron Counter	Solids (S3000) Debris (S5000)	N/A	YES
14HENC1	Nondestructive Assay Procedure – CCP-TP-107 Description – CCP High Efficiency Neutron Counter	Solids (S3000) Soils (S4000) Debris (S5000)	N/A	YES
14SGRS1	Nondestructive Assay Procedure – CCP-TP-115 Description – Stored Waste Examination Pilot Plant (SWEPP) Gamma Ray Spectrometer (SGRS)	Solids (S3000) Soils (S4000) Debris (S5000)	N/A	YES
14WAGS1	Nondestructive Assay Procedure – CCP-TP-019 Description – Waste Assay Gamma Spectrometer	Solids (S3000) Soils (S4000) Debris (S5000)	N/A	YES

Processes and Equipment Reviewed During Audit A-14-18 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 Dose-rate fractional contribution of Cs-137 and Co-60 using OSPREY $La_3Br(Ce)$ gamma detector Procedure CCP-TP-504	Solids (S3000) Debris (S5000)	N/A	YES
N/A	Load Management	Solids (S3000) Soils (S4000) Debris (S5000)	N/A	YES
N/A	Quality Assurance Program	Solids (S3000) Soils (S4000) Debris (S5000)	N/A	YES