



Department of Energy  
Carlsbad Field Office  
P. O. Box 3090  
Carlsbad, New Mexico 88221  
DEC 19 2012

ENTERED



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

Subject: Final Audit Report for the Argonne National Laboratory Central  
Characterization Project Recertification Audit A-12-16

Dear Mr. Kieling:

This letter transmits the Final Audit Report for Carlsbad Field Office Audit A-12-16 of the Argonne National Laboratory Central Characterization Project performing characterization and certification activities as required by Part 2, Section 2.3.2.3 of the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit. The audit was conducted August 28 – 30, 2012. The report contains the results of audit activities performed for recertification of remote-handled Summary Category Group S5000 debris waste.

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

If you have any questions please contact Mr. Randy Unger, Director of the Office of Quality Assurance, at (575) 234-7065.

Sincerely,

*J.R. Stoble for*

Jose R. Franco, Manager  
Carlsbad Field Office

Enclosure



Mr. John E. Kieling

-2-

DEC 19 2012

cc: w/Report Narrative

R. Unger, CBFO	*ED
J.R. Stroble, CBFO	ED
G. Basabilvazo, CBFO	ED
T. Morgan, CBFO	ED
M. Pinzel, CBFO	ED
C. Fesmire, CBFO	ED
S. McCauslin, CBFO	ED
D. Miehl, CBFO	ED
F. Sharif, NWP	ED
T. Reynolds, NWP	ED
E. Gulbransen, NWP/CCP	ED
M. Sensibaugh, NWP/CCP	ED
V. Cannon, NWP/CCP	ED
A. J. Fisher, NWP/CCP	ED
I. Quintana, NWP/CCP	ED
M. Walker, NWP/CCP	ED
J. Carter, NWP/CCP	ED
J. Hoff, NWP	ED
M. Mullins, NWP	ED
D. Dietzel, DOE-CH	ED
K. Joshi, DOE-CH	ED
T. Peake, EPA	ED
L. Bender, EPA	ED
E. Feltcorn, EPA	ED
R. Joglekar, EPA	ED
S. Ghose, EPA	ED
R. Lee, EPA	ED
T. Kliphuis, NMED	ED
S. Holmes, NMED	ED
R. Maestas, NMED	ED
T. Kesterson, NMED/DOE OB	ED
J. Marple, NMED/DOE OB	ED
D. Winters, DNFSB	ED
P. Gilbert, LANL-CO	ED
G. Lyshik, LANL-CO	ED
M. Mager, CTAC	ED
G. White, CTAC	ED
G. Knox, CTAC	ED
WWIS Database Administrators	ED
R. Chavez, RES	ED
W. Most, RES	ED
D. Streng, RES	ED
L. Pastorello, RES	ED
RCRA Chronology Record	ED
WIPP Operating Record	
CBFO M&RC	
CTAC File	

\*ED denotes electronic distribution

U.S. DEPARTMENT OF ENERGY  
CARLSBAD FIELD OFFICE

FINAL AUDIT REPORT

OF THE

ARGONNE NATIONAL LABORATORY  
CENTRAL CHARACTERIZATION PROJECT

FOR

WASTE CHARACTERIZATION ACTIVITIES OF REMOTE-HANDLED  
TRANSURANIC WASTE IN ACCORDANCE WITH THE HAZARDOUS  
WASTE FACILITY PERMIT

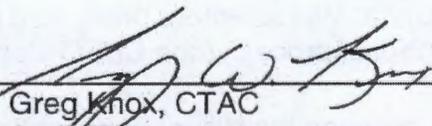
LEMONT, ILLINOIS  
AND CARLSBAD, NEW MEXICO

AUDIT NUMBER A-12-16

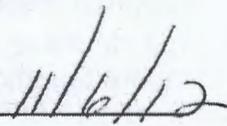
August 28 – 30, 2012



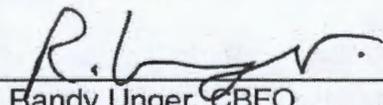
Prepared by:

  
Greg Knox, CTAC  
Audit Team Leader

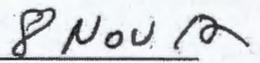
Date:



Approved by:

  
Randy Unger, CBFO  
Director, Office of Quality Assurance

Date:



## 1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Recertification Audit A-12-16 was conducted to evaluate the continued adequacy, implementation, and effectiveness of Argonne National Laboratory (ANL) transuranic (TRU) waste characterization activities performed for ANL by the Washington TRU Solutions, LLC (WTS) Central Characterization Project (CCP). Characterization and certification activities for remote-handled (RH) Summary Category Group (SCG) S5000 debris waste were reviewed and evaluated for compliance to the applicable program requirements. The activities are performed consistent with the requirements described in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), the *Remote-Handled TRU Waste Characterization Program Implementation Plan (WCPIP)*, the *CBFO Quality Assurance Program Document (QAPD)*, and the *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*.

The audit was conducted simultaneously at the ANL facility in Lemont, Illinois, and the WTS/CCP facilities in Carlsbad, New Mexico, August 28 – 30, 2012. The audit team concluded that, overall, the ANL/CCP technical procedures are adequate relative to the flow-down of requirements from the upper-tier documents. Additionally, the ANL/CCP technical areas evaluated are satisfactorily implemented and effective.

The audit team concluded that the established quality assurance (QA) program for the related activities was adequate for compliance with the *CCP Transuranic Waste Quality Assurance Characterization Project Plan (QAPjP)*, and that the associated implementing procedures were satisfactorily implemented and effective.

The audit team identified nine concerns during the audit. These nine concerns were categorized by CBFO QA as follows:

- Concern 1 relates to recommended changes and additions to Acceptable Knowledge (AK) documentation (see Recommendation 1).
- Concern 2 was identified in the Project-level Validation and Verification portion of the audit during the review of batch data reports (BDRs) and relates to the wrong forms being used during the Site Project Manager (SPM) review (see Observation 1.1).
- Concern 3 addresses the circumstance of CCP proceduralizing a characterization process that the U.S. Environmental Protection Agency (EPA) has not approved and that CCP does not currently use (see Recommendation 2).
- Concern 4 identifies that the Dimensional Measurement procedure references a non-numbered memorandum for control of process (see CBFO Corrective Action Report (CAR) 12-039).
- Concern 5 addresses discrepancies between the Visual Examination operator's documentation of the contents of a drum and the AK documentation (see Observation 1.2).

- Concern 6 identifies errors in the numbering of Headspace Gas Sampling Chain of Custody (COC) documentation (see CBFO CAR 12-040).
- Concern 7 addresses the timeframe in which CCP management signs qualification cards. This concern is related to similar issues identified during previous audits, which are documented in CBFO CAR 12-033. For this reason, Concern 7 is documented as Observation 2, and will be combined with CBFO CAR 12-033.
- Concern 8 is associated with Concern 6 in that a Nonconformance Report was not written when the COC numbering error was found. Concern 8 has been combined with Concern 6 (see CBFO CAR 12-040).
- Concern 9 identifies that the SPM review of a BDR was incomplete (see Observation 1.3).

These issues are discussed in the associated sections of the report and described in detail in sections 6.0 and 7.0.

As of October 1, 2012, the DOE WIPP Management and Operating contract has been transitioned from Washington TRU Solutions, LLC, to the Nuclear Waste Partnership LLC (NWP). Distribution and contact lists for this report have been updated as provided by NWP.

## **2.0 SCOPE AND PURPOSE**

### **2.1 Scope**

The audit team evaluated the continued adequacy, implementation, and effectiveness of the ANL/CCP RH TRU waste characterization and certification activities for RH SCG S5000 debris waste. The following elements were evaluated:

#### General Activities

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

#### Technical Activities

- Acceptable Knowledge (AK)
- Project-level Validation and Verification (V&V)
- Visual Examination (VE)
- Headspace Gas Sampling (HSG)
- Dose-to-Curie (DTC)
- Gravimetric or Dimensional Measurement
- Transportation
- WIPP Waste Information System/Waste Data System (WWIS/WDS)

### Quality Assurance Activities

The following QA elements were evaluated only to the extent needed to support the technical elements listed above.

- Control of Nonconforming Items
- Personnel Qualification and Training
- QA Records
- Sample Control
- Container Management

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

Waste Isolation Pilot Plant Hazardous Waste Facility Permit NM4890139088-TSDF

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

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

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

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

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

*CCP/ANL RH-TRU Waste Interface Document, CCP-PO-500*

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

Related technical and quality assurance implementing procedures

## **2.2 Purpose**

Audit A-12-16 was conducted to assess sustained compliance with requirements applicable to waste characterization and certification activities for RH TRU SCG S5000 debris waste and to determine if these activities are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of those requirements, and effective in achieving the desired results.

### 3.0 AUDIT TEAM, MANAGEMENT REPRESENTATIVES, AND OBSERVERS

Courtland Fesmire	Management Representative, CBFO Office of Quality Assurance
Greg Knox	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Charlie Riggs	Auditor, CTAC
Porf Martinez	Auditor, CTAC
Berry Pace	Auditor, CTAC
Rick Castillo	Auditor, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Rhett Bradford	Technical Specialist, CTAC
Paul Gomez	Technical Specialist, CTAC
Jim Oliver	Technical Specialist, CTAC
B.J. Verret	Technical Specialist, CTAC
Steve McGonagill	Technical Specialist, WTS

#### OBSERVERS

Marcus Pinzel	CBFO Office of the National TRU Program (NTP)
Ricardo Maestas	New Mexico Environment Department (NMED)
Steve Holmes	NMED
Connie Walker	NMED

### 4.0 AUDIT PARTICIPANTS

The ANL/CCP individuals involved in the audit process are identified in Attachment 1. Attachment 2 identifies the ANL/CCP personnel contacted during the audit by area. A pre-audit meeting was held at ANL in Lemont, IL, and the Skeen-Whitlock Building in Carlsbad, NM, on August 28, 2012. Daily briefings were held with ANL/CCP management and staff to discuss issues and potential deficiencies. The audit was concluded with a post-audit meeting held at ANL in Lemont, IL, and the Skeen-Whitlock Building in Carlsbad, NM, on August 30, 2012.

### 5.0 SUMMARY OF AUDIT RESULTS

#### 5.1 Program Adequacy and Implementation

The audit team concluded that, overall, the applicable ANL/CCP TRU waste characterization activities, as described in the associated implementing procedures for RH SCG S5000 debris waste, are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

Attachment 3 contains the objective evidence reviewed by the audit team. Attachment 4 contains a list of documents that were evaluated during the audit. Attachment 5

contains a list of the processes and equipment evaluated. Attachment 6 contains the revisions to the implementing procedures since Audit A-11-20.

## **5.2 General Activities**

### **5.2.1 Results of Previous Audits**

No CARs were generated during CBFO Recertification Audit A-11-20.

### **5.2.2 Changes in Programs or Operations**

Interviews with the ANL/CCP management team indicated there have been no significant changes in programs or operations since CBFO Recertification Audit A-11-20.

### **5.2.3 New Programs or Activities Being Implemented**

Interviews with the ANL/CCP management team indicated that no new programs or activities have been implemented since CBFO Recertification Audit A-11-20.

### **5.2.4 Changes in Key Personnel**

Interviews with the ANL/CCP management team indicated there have been no significant changes in key personnel since CBFO Recertification Audit A-11-20.

## **5.3 Technical Activities**

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

### **5.3.1 Acceptable Knowledge**

The audit team conducted a recertification audit for RH TRU SCG S5000 debris waste stream AERHDM, generated in the Alpha Gamma Hot Cell Facility (AGHCF) and K-Wing Hot Cells at ANL. The audit was carried out in accordance with the latest revision to the HWFP Waste Analysis Plan (WAP), the WCPIP, and the RH portion of the WAC, along with CCP implementing procedures. Objective evidence was reviewed and compiled to demonstrate compliance with each of the applicable requirements. Waste stream AERHDM originally consisted of forty-four 30-gallon drums of debris waste from the AGHCF for which CCP reviewed the VE videotapes of packaging done by ANL staff. Subsequently, the waste stream was expanded with the packaging of additional debris drums and fuel examination waste (FEW) from the AGHCF and the K-Wing Hot Cells. The audit team also examined the AK record for solidified liquid waste from the K-Wing operations that was consolidated, sampled, solidified and then included with debris drums from this facility. The AK record for all of this waste has been examined to demonstrate that it is assigned to the delineated waste stream AERHDM.

The audit team reviewed CCP-AK-ANLE-500, Rev. 10, which is the latest revision of the AK Summary Report for this waste stream, and a copy of the Waste Stream Profile Form (WSPF) and attachments, along with an applicable change notice. Additionally, numerous AK source documents were reviewed to establish support for the conclusions noted in the AK Summary Report, particularly with respect to the waste stream chemicals and hazardous waste numbers (HWNs) listed in table 3, for operations in both the AGHCF and K-Wing Hot Cells. The audit team also examined 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 Packaging, Attachment 6, along with the applicable justification memo for waste material parameter weight estimates; and the AK Container List, Attachment 8. Examples of the resolution of AK discrepancies in the AK record, a WAP-compliant AK Accuracy Report, and the most recent internal surveillance were also collected and examined along with screenshots from the Item Description Code (IDC) database and a copy of the AK Tracking Spreadsheet.

Requisite training records were reviewed for AK experts (AKEs) and SPMs based upon names identified in the reviewed documents. The WAP-required traceability exercise was performed for five of the drums that have been completely through the characterization and certification process, including three drums from three distinct HSG sampling lots. In addition to the HSG BDRs, the audit team reviewed the relevant VE BDRs and dose-to-curie data packages, including supporting data from the measurement of fuel pieces. The estimated waste material parameter weights for this stream and supporting documentation were reviewed. The reconciliation of characterization data with the AK record was completed, including a review of the AK Characterization Checklists.

The team also examined the AK record and compiled objective evidence that demonstrates compliance with the requirements of the WCPIP, as noted above. Documents reviewed included the AK Summary Report, the Radiological Characterization Technical Report CCP-AK-ANLE-501, Rev. 8, a WCPIP-compliant AK Accuracy Report, and characterization reconciliation reports, along with the examination of relevant AK source documents.

The audit team issued one Recommendation that dealt with language in the AK Summary Report that had been deleted from the latest revision of the WAP. The language still appears on the C6-3 checklist, but should be removed for clarity (see section 7.2).

The procedure reviews, field observations, and document reviews provided evidence that the applicable requirements for Acceptable Knowledge 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 Project-level Validation and Verification

The audit team verified procedures and collected objective evidence to assess the project-level and data generation-level data review process. The ability of the ANL/CCP to characterize RH SCG S5000 debris waste was evaluated.

Objective evidence for RH SCG S5000 debris waste characterization was collected as part of this assessment and utilized in the completion of HWFP C6 checklists. The objective evidence reviewed included BDRs completed through the CCP SPM review for VE and HSG sampling and analysis. The DTC objective evidence was documented on a separate CBFO checklist. In addition, procedures and objective evidence were reviewed to ensure that ANL/CCP adequately performs data reconciliation and properly prepares WSPFs.

Compliance with the characterization requirements of the WAP was demonstrated through documentation of characterization activities. The project-level data V&V process was evaluated by reviewing the following BDRs:

#### VE

ANLRHVE11014	ANLRHVE11021	ANLRHVE12001
ANLRHVE12013	ANLRHVE12014	RHANLVE100015

#### HSG Sampling and Analysis

ANHSG1201	ECL12014M	ANHSG1202
ECL12017M		

#### Dose-to-Curie and Dimensional or Gravimetric Measurement

RHANLDG11008	RHANLDG12001	RHANLDG12004
ANLRHDTC11008	ANLRHDTC12001	ANLRHDTC12005
ANLRHDTC12006	ANLE-RH-50-41	ANLE-RH-50-42
ANLE-RH-50-43	ANLE-RH-50-44	ANLE-RH-50-45
ANLE-RH-50-48	ANLE-RH-50-49	ANLE-RH-50-50
ANLE-RH-50-51	ANLE-RH-50-52	ANLE-RH-50-53

Some of the BDRs chosen for this audit and cited above have been used to demonstrate confirmation of AK, to reconcile data quality objectives (DQOs), and to evaluate waste stream lots to support the WSPF for AERHDM. Three concerns were noted during this portion of the audit. The first concern noted that Dimensional BDR RHANLDG12004 was completed by the SPM utilizing an incorrect form. The SPM used an independent technical reviewer (ITR) checklist instead of the required SPM review checklist. Although the questions on both checklists are the same, the correct checklist must be used.

A second concern noted during the review of VE BDR RHANLVE100015 was that the checklist for SPM review was incomplete. Both concerns are documented in Observation 1 (see section 7.1).

A third concern was identified during the reviews of HSG BDR ANHSG1201 and corresponding analysis BDR ECL12014M. The COC number was changed on the COC form after the initial SPM review and the documentation of re-review was not completed by the data generation-level ITR. The COC change was attached to the SPM checklist in the sampling and Environmental Chemistry Laboratory (ECL) data package. A project-level nonconformance report (NCR) was not written for the change to the COC record or for the changes sent to the laboratory for correction to the ECL Analytical Request Form. This concern is documented in CBFO CAR 12-040 (see section 6.1).

Objective evidence was reviewed to ensure project-level data V&V activities were adequately performed to support waste characterization. The quarterly repeat of data generation-level re-reviews for HSG Sampling, and VE was requested. ANL/CCP provided quarterly data for all quarters completed. The quarterly results were satisfactory. The results for the field reference sample recovery remained unchanged from the previous audit and are satisfactory.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for Project-level Validation and Verification 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 Visual Examination**

The audit team reviewed procedures CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*, and CCP-QP-002, *CCP Training and Qualification Plan*, to determine their adequacy in addressing upper-tier requirements. The review determined that the procedures adequately address requirements. CCP-TP-163, *CCP Evaluation of Waste Packaging Records for Visual Examination of Records*, was also reviewed and determined to adequately address the upper-tier documents. ANL/CCP has not performed VE of records since the previous audit, A-11-20.

ANL/CCP uses the two-operator method when performing VE characterization. The audit team interviewed VE operators and VE experts. The audit team also examined VE operational logbooks (RH-ANLE-VE-0012 and RH-ANLE-VE-013) and verified entries were logged correctly and reviewed by the Vendor Project Manager (VPM) as required. At the time of the audit, VE operations were not being performed in the K-Wing Hot Cell in Building 205 or the AGHCF in Building 212.

The audit team examined the following RH VE BDRs, generated from operations performed in the K-Wing Hot Cell and the AGHCF, to verify implementation and

compliance with the requirements for documenting VE activities, as stipulated in CCP-TP-500.

ANLRHVE11021  
ANLRHVE12007  
ANLRHVE12014

ANLRHVE12003  
ANLRHVE12008

ANLRHVE12005  
ANLRHVE12013

The team examined training records for eight VE operators/ITRs and one SPM, and confirmed the appointment of two ANL/CCP VE experts (VEEs). The team verified that VE operators, ITRs, and the SPM were appropriately qualified as required.

During the audit, two concerns were identified. The first concern identified discrepancies between the AK documents and the items listed by the VE operators as being in the drum. This concern is documented in Observation 1. The second concern was related to training issues identified during Los Alamos National Laboratory (LANL)/CCP Recertification Audit A-12-12 regarding the timeframe in which CCP management signs qualification cards. This concern is documented as Observation 2 (see section 7.1).

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

#### **5.3.4 Headspace Gas Sampling**

The audit team examined sampling BDRs ANHSG1201 and ANHSG1202 for RH samples. The BDRs were reviewed by the team for completeness, including COC, calculation of drum age criteria (DAC), temperature equilibration, and sampling BDR preparation and review performed by ANL/CCP.

The audit team reviewed documentation supporting adequate control of HSG samples provided in the sampling BDRs ANHSG1201 and ANHSG1202. Although sampling activities were not conducted during this audit, control and documentation of the sampling event is adequately maintained. Control is documented on the COC and supported through transportation of the samples to the Idaho National Laboratory (INL). A concern was noted during project-level V&V regarding the numbering of the COC documentation (see CBFO CAR 12-040, section 6.1). A temperature log was provided in the BDRs and shows the temperature was properly maintained until received by the lab facility.

Overall, the audit team concluded that the Headspace Gas Sampling activities reviewed were adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

### 5.3.5 Dose-to-Curie

The audit team assessed the continuing adequacy, implementation, and effectiveness of the DTC methodologies used at ANL by the CCP to characterize waste stream AERHDM. The audit team evaluated the actual measurement of the dose rate and the subsequent determination of required waste container data. For DTC, the dose rate is defined as the external exposure rate from gamma-ray emitting radionuclides within the waste matrix, predominately cesium-137 (Cs-137). The application of the DTC methodology at ANL to characterize RH TRU waste was previously evaluated by CBFO as part of Audit A-11-20.

Based on a review of the current revisions of CCP procedures, reports, and waste data provided prior to and during the audit, a checklist was prepared and used to evaluate the following:

- Proper development and documentation of the AK for a waste stream as documented in an Acceptable Knowledge Summary Report (a "500" report)
- Proper development, implementation, and products were produced from a Radiological Characterization Technical Report (a "501" report)
- Waste stream AERHDM is adequately addressed in a Waste Certification Plan for Title 40 Code of Federal Regulations Part 194 Compliance (a "502" report)
- Development of average radionuclide ratios through sampling and/or modeling
- Development of the relationship between the measured dose or exposure rate and the activity of Cs-137
- Measurement of the external dose or exposure rate
- Calculation of the radionuclide activities and other derived radiological quantities and associated uncertainties
- Any significant program changes or deviation since Audit A-11-20
- Results of applying the DTC method to characterize waste since Audit A-11-20
- Determination of the number of containers examined, completed BDRs, and BDRs that had been through PL review that were generated since Audit A-11-20
- 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 equipment used in the DTC since Audit A-11-20

The source of the RH waste at the ANL was the examination of fuel pins and reactor materials in the AGHCF and the K-Wing Hot Cells. Scaling factors were developed from information about these fuel pins and reactor materials. This information included the fuel's initial composition and irradiation history. The ORIGEN2.2 computer code was used to model the burn-up of nuclear fuel, including the decay and in-growth of progeny radionuclides, to arrive at a radionuclide inventory. This radionuclide inventory was used to estimate the ratios of the activities of all radionuclides present in any

appreciable quantity, and particularly any of the 10 WIPP-tracked radionuclides present, to that of Cs-137 in cases where the DTC methodology was applied.

To confirm the ORIGEN2.2 modeling results, radionuclide ratios were calculated for approximately 400 fuel pins that were also examined at the LANL using mass spectrometry. The modeled values were compared to the mass spectrometry results. Agreement between the ratios calculated using ORIGEN2.2 and those measured by mass spectrometry demonstrate that ORIGEN2.2 is an appropriate model for calculating the radionuclide ratios for irradiated fuel pins with fuel compositions and irradiation histories similar to those examined at LANL.

The DTC measurement apparatus remained in service in the Building 331 Shell for the previous year since Audit A-11-20. In this apparatus, the exposure rate, attributed entirely to Cs-137, is measured four times at a distance of 1.0 meter from the waste containers. Auditors interviewed operations personnel about the set-up and calibration of the measurement apparatus for performing DTC and reviewed calibration certification documentation as well as operations logbooks. A Thermo Electron Model RO-7 survey meter fitted with the appropriate probe (RO-7LD or RO-7BM) is used to gather high-range measurements and a Model FH 40G fitted with a FHZ 612 probe is used to gather low-range measurements. Each container is rotated 90 degrees successively between each of the four measurements. The average measured dose or exposure rate for each 30-gallon waste container and associated scaling factors are used to estimate the activity of individual radionuclides and other derived radiological quantities and associated uncertainties.

Since the previous recertification audit, nine DTC BDRs have been completed through project-level review and were reviewed by the audit team:

ANLRHDTTC11008	ANLRHDTTC11009	ANLRHDTTC11010
ANLRHDTTC12001	ANLRHDTTC12002	ANLRHDTTC12003
ANLRHDTTC12004	ANLRHDTTC12005	ANLRHDTTC12006

Overall, the audit team determined that Dose-to-Curie procedures and activities were adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired result.

### **5.3.6 Gravimetric or Dimensional Measurement**

For the application of the dimensional measurement methodology, the length of geometrically uniform RH waste is used in conjunction with a derived concentration of radiological properties expressed as a function of length to yield the required radiologic quantities.

The audit team interviewed personnel performing dimensional measurement, and examined electronic and paper copies of reports, records, and results. Two concerns were identified during the audit of the dimensional measurement method.

The first concern is in regard to activities associated with CCP-TP-513, *CCP Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of Remote-Handled Transuranic Waste*. ANL/CCP references a non-number-controlled Argonne Intra-Laboratory memorandum to define the Acceptable Difference limit criteria for differences in FEW segment lengths described in the AK and the actual length derived during the measurement at VE. A copy of a memorandum is inserted in each of the dimensional BDRs examined; however, there is no assurance provided that this is the correct memorandum. Work is required to be performed in accordance with established procedures. This concern is documented as CBFO CAR 12-039 (see section 6.1).

The second concern also relates to CCP-TP-513. CCP is approved by EPA for dimensional measurement only, not for gravimetric measurement. CCP-TP-513 provides guidance for performing both processes. To avoid confusion, CCP-TP-513 should address only the EPA-approved dimensional testing. The procedure could be revised should gravimetric measurement be approved by EPA at a later date. This concern is documented as Recommendation 2 (see section 7.2).

Since the previous recertification audit, five BDRs utilizing the dimensional measurement methodology have been completed through project-level review, and were reviewed by the audit team:

RHANLDG11008  
RHANLDG12003

RHANLDG12001  
RHANLDG12004

RHANLDG12002

Overall, RH waste characterization using the Gravimetric or Dimensional Measurement methodology, including all procedures and activities, was determined to be adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired result.

### 5.3.7 Transportation

The audit team reviewed implementing procedures WP 08-PT.13, *RH TRU 72-B Cask Uprighting Trailer Operation and Maintenance Manual*; CCP-QP-030, *CCP Written Practice for the Qualification of CCP Helium Leak Detection Personnel*; CCP-TP-055, *CCP Varian Porta-Test Leak Detector Operations*; CCP-TP-507, *CCP Shipping of Remote-Handled Transuranic Waste*; and CCP-TP-530, *CCP RH TRU Waste Certification and WWIS/WDS Data Entry*, relative to transportation activities, to determine the degree to which the procedures adequately address upper-tier requirements. The review indicated that the procedures adequately address applicable requirements.

Transportation activities at ANL are performed by the CCP Mobile Loading Unit (MLU) and are performed on an as-needed basis. All loading and transportation activities are performed by MLU personnel. The audit team conducted interviews with transportation

personnel and observed the receipt and maintenance of empty transport vessels. The audit team observed the payload preparation and container integrity for shipment AER12023. Loading of a RH 72-B shipping container was observed for shipment AER12023. The audit team also examined completed shipping documentation for ANL/CCP shipment AER12020. Material and testing equipment calibrations were verified to be in compliance with applicable procedure requirements. The audit team verified transportation personnel were trained and qualified to perform transportation activities as required. Training documentation for the Waste Certification Official and Transportation Certification Official were found to be compliant. The audit team also verified the helium leak testing of inner and outer containment vessels was compliant with applicable procedural requirements.

The maintenance log was examined and the records were found to be compliant and complete. The RH waste transportation maintenance log showed no maintenance was required for the current year. The audit team also verified the required spare parts were present and properly labeled.

Overall, the Transportation activities evaluated were determined to be adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired result.

#### **5.3.8 WIPP Waste Information System/Waste Data System**

The audit team evaluated implementation of *CCP RH TRU Waste Certification and WWIS/WDS Data Entry* for data entry using the WWIS/WDS data entry spreadsheet. The evaluation included data population of the spreadsheet, review of data entry by a Waste Certification Assistant, and waste certification by the Waste Certification Official. Record reviews included CCP data spreadsheet reports, container information summaries, pages from BDRs showing analyses values, WWIS/WDS Container Data Reports, and submittals for WWIS review/approval.

The audit team reviewed a WWIS/WDS waste certification package for RH waste. The package reviewed was for Canister AE0124, which had three internal containers (RW18883, RW18884, and RW18885). The RH WWIS/WDS waste certification package was for waste stream AERHDM.

Overall, the audit team determined that the WIPP Waste Information System/Waste Data System activities were adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired result.

## **5.4 Quality Assurance Activities**

### **5.4.1 Control of Nonconforming Items**

The audit team interviewed the resident QA engineer and selected all four ANL NCRs generated since the previous recertification audit (NCR-RHANL-2344-11, NCR-RHANL-0842-12, NCR-RHANL-1521-12, and NCR-RHANL-1522-12) to confirm that deficiencies are being appropriately documented and tracked through resolution, as required.

NCR-RHANL-1522-12 was initiated on the first day of the audit and dispositioned as "Rework," but had not yet been closed at the end of the audit.

The audit team confirmed at the time of the audit that there have been no NCRs that required reporting to the Permittee within the 7-day requirement. All NCRs were verified as being managed and tracked in the IDC and on the 2011-2012 CCP NCR Logs. Further evaluations included reviews of the RHANL NCR Log Reconciliation Reports for 2011.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for Control of Nonconforming Items 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 Personnel Qualification and Training**

The team conducted interviews with responsible personnel and reviewed implementing procedure CCP-QP-002, *CCP Training and Qualification Plan*, to determine the degree to which the procedure adequately addresses upper-tier requirements. Personnel training records associated with VE, DTC, HSG, AK, Transportation, and SPM were examined to verify implementation of associated requirements and to verify that personnel performing characterization activities are appropriately qualified. Record reviews included qualification cards, appointment letters, and other associated qualification documentation, including attendance sheets for required briefings on AK waste stream summary training for VE operators.

Personally Identifiable Information (PII) had been redacted from the documentation before being presented to the audit team.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence 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.

### 5.4.3 QA 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 procedure review included CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*; CCP-QP-008, *CCP Records Management*; and CCP-QP-028, *Records Filing, Inventorying, Scheduling, and Dispositioning*. Control of QA records was verified through review of the CCP RH (All Sites) Records Inventory and Disposition Schedule dated 8/15/11.

Additional ANL/CCP records retrieved and reviewed during the audit included BDRs and other documents to support the AK Traceability Exercise. All AK source documents for CCP-AK-ANLE-501, Rev. 8, *CCP RH TRU Radiological Characterization Technical Report for RH TRU Debris Waste from ANL-E*, were verified to be physically maintained in CCP Records.

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.

### 5.4.4 Sample Control

The audit team reviewed documentation supporting adequate control of HSG samples provided in sampling BDRs ANHSG1201 and ANHSG1202. Although sampling activities were not conducted during this audit, control and documentation of sampling events was found to be adequately maintained. Control is documented on the COC and supported through transportation of the samples to the INL. A concern was noted during project-level V&V in regard to the numbering of the COC documentation (see CBFO CAR 12-040). A temperature log was provided in the BDRs and shows the temperature was properly maintained until received by the lab facility.

The procedure reviews, field observations, and document reviews conducted provided evidence that the applicable requirements for Sample Control 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 Container Management

The audit team conducted interviews with responsible personnel and reviewed implementing procedure CCP-TP-509, *CCP Remote-Handled Transuranic Container Tracking*, relative to container management activities, to determine the degree to which procedures adequately address upper-tier requirements. Container management of RH containers processed by ANL/CCP was verified by reviewing the data-generation level container management database and by field observations of RH containers in Building

331, Radioactive Waste Storage Facility. RH containers are stored in shielded areas on level 4 of Building 331, and RH containers that have open NCRs are physically segregated in a shielded area on level 2.

The procedure reviews, field observations, and document reviews conducted provided evidence that 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 SUMMARY OF DEFICIENCIES

The audit team identified nine concerns during the audit. These concerns were classified by CBFO QA as documented in sections 6.1, 6.2, 7.1 and 7.2 (see Executive Summary).

### 6.1 Corrective Action Reports

During the audit, the audit team may identify conditions adverse to quality, as described below, and with concurrence by CBFO QA, documents such conditions on CARs.

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

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

There were two CARs generated during Audit A-12-16.

#### **CBFO CAR 12-039**

CCP-TP-513, Rev. 1, *CCP Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of Remote-Handled Transuranic Waste*, references a non-number-controlled Argonne Intra-Laboratory memorandum to define the Acceptable Difference limit criteria for differences in FEW segment lengths described in the AK and the actual length derived during the measurement at VE.

Reference: CCP-TP-513, Section 4.1.6[B] states: *IF the measured results and the AK documentation are within the Acceptable Difference limits (defined in the memo to SPM), THEN record the AK ID Number (e.g., AG ID Number) and measurements on Attachment 1.*

The procedure does not identify, nor is there documentation identifying, the specific memorandum to be used.

## **CBFO CAR 12-040**

The COC numbers for HSG sampling BDRs ANHSG1201 and ANHSG1202 were incorrect; both were numbered 0001. The COC number for ANHSG1201 was corrected only after the BDR had successfully passed both ITR and SPM reviews. The error was discovered upon the review of ANHSG1202, when the COCs were corrected to 0006 and 0007, respectively. The COC number corresponding with Environmental Chemistry Laboratory BDR ECL12014M (corresponding to the new COC 0006) was not corrected. An NCR was not generated as required by CCP procedures, which resulted in discrepancies between the ANL/CCP BDR ANHSG1201 and the corresponding ECL BDR field COC documentation.

### **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 corrected during the audit (CDA).

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 submits the concern to CBFO QA with a recommendation to categorize it as a CDA according to the following definition:

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

No CDAs were identified during the audit.

### **7.0 SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS**

During the audit, the audit team may identify potential problems or suggestions for improvement that should be communicated to the audited organization. The audit team member, in conjunction with the ATL, evaluates these conditions and classifies them as Observations or Recommendations using the following definitions.

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

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

Once a determination is made, CBFO QA, in conjunction with the ATL, categorizes the condition appropriately.

## 7.1 Observations

### Observation 1

This Observation consists of three similar instances involving CCP management inattention to detail and failure to follow established procedures as described below.

1. Although the SPM review was completed for BDR RHANLDG12004, it was completed and documented using CCP-TP-513, Attachment 3, Dimensional/ Gravimetric Independent Technical Reviewer (ITR) Checklist. The information and questions on the two checklists are the same; however, the checklists are not interchangeable.
2. During the review of BDR ANLRHVE12008, it was discovered that the VE operators listed items in the Waste Description section of Attachment 1, Visual Examination Data Form, that are not identified in the AK Summary Report (CCP-AK-ANLE-500, Rev. 10). The VE operators listed the subject items as "Clearboy" containers; however, the AK Summary Report only lists container descriptors for these containers as Chemical Waste Processing Containers (CWPCs), carboys, and liquid bulking containers (LBCs).

Additionally, the audit team found two instances of different Waste Material Parameters (WMPs) being recorded for the "Clearboy" containers on Attachment 1, Visual Examination Data Form, for container RW 48260. Further interviews with VE personnel disclosed that these containers should be listed as "Plastics (P)."

3. SPM checklist for VE BDR RHANLVE100015 was not complete. For Question 3, "Is the BDR complete (appropriately filled in forms for each container)?" neither "No" nor "Yes" was checked.

These instances reflect similar management issues identified during the recertification audit recently performed at INL/CCP (Audit A-12-13, June 11 – 14, 2012). The conditions identified during Audit A-12-13 were documented in CBFO CARs 12-026 and 12-027, which are in the process of being resolved.

Because the response, extent-of-condition evaluation, and corrective actions to address and correct this issue are being developed by CCP management, the conditions identified during the audit are being classified as Observations. The evaluation of the corrective action plans to address CARs 12-026 and 12-027 will be evaluated to ensure that they include an adequate extent-of-condition evaluation for CCP management at each host site location.

## Observation 2

During the review of the ANL/CCP qualification cards, it was identified that the SPM signature approving the operator to perform the duties of the qualification card is dated prior to the verification performed by CCP training for completion of briefings, comprehensive exams, and educational requirements. There were two instances in the objective evidence found (1 VE and 1 HSG qualification card).

This concern was previously identified during Audits A-12-15 and A-12-12, and is documented as CBFO CAR 12-033. This concern appears to be programmatic, and not just specific to ANL/CCP.

Because the response, extent-of-condition evaluation, and corrective actions to address and correct this issue are being developed by CCP management, this condition is being classified as an Observation. The evaluation of the corrective action plan to address CBFO CAR 12-033 will be evaluated to ensure that it includes an adequate extent-of-condition evaluation for CCP management at each host site location.

## **7.2 Recommendations**

The audit team offers the following recommendations to ANL/CCP. These comments identify areas that could be modified or revised to: a) address recent permit modifications, or b) provide clarity.

### Recommendation 1

The language in AK Summary Report CCP-AK-ANLE-500, Rev. 10, pages 15 and 46, that reads: "*the WIPP-WAP requires the assignment of HWNs to TRU waste streams that lack analytical evidence demonstrating that these constituents would have not exceeded the regulatory thresholds,*" should be revised to remove the reference to the WIPP WAP. This text would then be consistent with the language and intent of the WAP.

### Recommendation 2

CCP is approved by EPA for dimensional measurement only, not for gravimetric measurement. CCP-TP-513, *CCP Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of Remote-Handled Transuranic Waste*, provides guidance in performing both processes. CCP-TP-513 should address only the EPA-approved dimensional testing and be revised when gravimetric measurement is approved by EPA at a later date. The circumstance of having one procedure covering both approved and unapproved processes could lead to confusion by the performers of the procedure.

**8.0 LIST OF ATTACHMENTS**

- Attachment 1: Personnel Contacted During the Audit
- Attachment 2: Personnel Contacted During the Audit by Area
- Attachment 3: Objective Evidence
- Attachment 4: Table of Audited Documents
- Attachment 5: List of Processes and Equipment Reviewed
- Attachment 6: Procedure Revision Matrix

PERSONNEL CONTACTED DURING AUDIT A-12-16				
NAME	TITLE/ORG	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Armijo, C.	Training/CCP	X		
Beallis, P.	DTC Operator/CCP		X	
Billett, M.	Training CoOrd./CCP	X		
Dietzel, D.	Fed. Proj. Mgr./DOE-ANL			X
Fisher, A.J.	Sr. Tec. Advisor/CCP			X
Harris, M	DTC Operator/CCP		X	
Jones, L.	QAE/CCP		X	
Kirkes, C.	WCO,WCA/CCP		X	
Learndoust, S	Crane Op./Imperial Crane		X	
Mojica, T.	VPM/CCP	X	X	X
Monterry, H	NDA Operator		X	
Pancake, D.	Proj. Mgr./ANL	X		X
Pattee, S.	VEE,DTC,HSG/CCP	X	X	X
Pearcy, M.	SPM/CCP	X		
Pearcy, S.	Records Mgr./CCP	X	X	
Peters, K.	AKE/CCP	X	X	
Quintana, I.	RH PM/CCP	X	X	X
Ray, W.	P.I.C./NWM		X	
Reeves, R	PM/WTS/CCP	X	X	X
Rigby, B.	TCO-MLU/CCP		X	
Rock, C.	Prog. Mgr./ANL	X		X
Root, W.	VPM/CCP	X	X	X
Sensibaugh, M	Manager/CCP		X	

<b>PERSONNEL CONTACTED DURING AUDIT A-12-16</b>				
<b>NAME</b>	<b>TITLE/ORG</b>	<b>PRE-AUDIT MEETING</b>	<b>CONTACTED DURING AUDIT</b>	<b>POST-AUDIT MEETING</b>
Tyson, M.	Operator-MLU/CCP		X	
Watson, L.	AKE/CCP		X	
Yturalde, J.	Rec. CoOrd./CCP		X	

**PERSONNEL CONTACTED DURING THE AUDIT BY AREA**

Nonconformances	Jones, L.
Training	Billett, M.
Records	Pearcy, S. Yturralde, J.
Acceptable Knowledge	Peters, K. Quintana, I. Watson, L.
Headspace Gas Sampling	Mojica, T. Pattee, S. Root, W.
Visual Examination	Mojica, T. Pattee, S. Root, W.
WIPP Waste Information System (WWIS Data Entry)	Kirkes, C.
Waste Certification/Project Level Validation & Verification	Quintana, I.
Nondestructive Assay	Beallis, P. Monterry, H. Quintana, I. Reeves, R. Root, W. Sensibaugh, M.
Transportation	Learndoust, S Ray, W. Reeves, R. Rigby, B. Root, W. Tyson, M.

## Objective Evidence Reviewed During the Audit

The objective evidence supporting Audit A-12-16 is included in the box(es) submitted with this report. Included in the box(es) is a "Content Map" describing the location (using color coding) and identity of all required objective evidence supporting the performance of the audit.

## LISTING OF AUDITED PROCEDURES Audit A-12-16

	Document No.	Rev.	Document Title
1.	CCP-PO-001	20	CCP TRU Waste Characterization QAPjP
2.	CCP-PO-002	26	CCP Transuranic Waste Certification Plan
3.	CCP-PO-005	22	CCP Conduct Of Operations
4.	CCP-PO-006	3	CCP Conduct Of Operations Matrix
5.	CCP-PO-008	9	CCP Quality Assurance Interface With WTS QA Program
6.	CCP-PO-500	2	CCP/ANL RH TRU Waste Interface Document
7.	CCP-PO-505	1	CCP RH Transuranic Authorized Methods For Payload
8.	CCP-QP-001	7	CCP Graded Approach
9.	CCP-QP-002	32	CCP Training And Qualification Plan
10.	CCP-QP-004	10	CCP Corrective Action Management
11.	CCP-QP-005	21	CCP TRU Nonconforming Item Reporting And Control
12.	CCP-QP-006	9	CCP Corrective Action Reporting And Control
13.	CCP-QP-008	20	CCP Records Management
14.	CCP-QP-010	23	CCP Document Preparation, Approval, And Control
15.	CCP-QP-014	5	CCP Trend Analysis And Reporting
16.	CCP-QP-015	11	CCP Procurement
17.	CCP-QP-016	16	CCP Control Of Measuring And Testing Equipment
18.	CCP-QP-017	3	CCP Identification And Control Of Items
19.	CCP-QP-018	9	CCP Management Assessment
20.	CCP-QP-019	6	CCP Quality Assurance Reporting To Management
21.	CCP-QP-021	7	CCP Surveillance Program
22.	CCP-QP-022	12	CCP Software Quality Assurance Plan
23.	CCP-QP-023	3	CCP Handling, Storage And Shipping
24.	CCP-QP-026	13	CCP Inspection Control
25.	CCP-QP-027	5	CCP Test Control
26.	CCP-QP-028	14	CCP Records Filing, Inventorying, Scheduling, And Dispositioning
27.	CCP-QP-030	8	CCP Written Practice For The Qualification Of CCP Helium Leak Detection Personnel
28.	CCP-TP-001	19	CCP Project Level Data Validation And Verification
29.	CCP-TP-002	24	CCP Reconciliation Of DQOs And Reporting Characterization Data
30.	CCP-TP-003	18	CCP Data Analysis For S3000,S4000,And S5000 Characterization
31.	CCP-TP-005	24	CCP Acceptable Knowledge Documentation
32.	CCP-TP-055	4	CCP Varian Porta-Test Leak Detector Operations
33.	CCP-TP-082	8	CCP Preparing and Handling Waste Containers for HSGS
34.	CCP-TP-093	16	CCP Sampling of TRU Waste Containers
35.	CCP-TP-106	7	CCP HSGS BDR Preparation
36.	CCP-TP-162	1	CCP Random Selection of Containers for Solids and HSGS and Analysis
37.	CCP-TP-163	3	CCP Evaluation of Waste Packaging Records for VE of Records
38.	CCP-TP-500	11	CCP RH Waste VE
39.	CCP-TP-504	12	CCP D-T-C Survey Proc. for RH TRU Waste
40.	CCP-TP-505	6	CCP Removable Lid Canister Loading

**LISTING OF AUDITED PROCEDURES**  
**Audit A-12-16**

	<b>Document No.</b>	<b>Rev.</b>	<b>Document Title</b>
41.	CCP-TP-506	2	CCP Preparation of the RH TRU Waste AK Characterization Reconciliation Report
42.	CCP-TP-507	7	CCP Shipping of RH TRU Waste
43.	CCP-TP-509	3	CCP RH TRU Container Tracking
44.	CCP-TP-512	5	CCP RH Waste Sampling
45.	CCP-TP-513	1	CCP Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of RH TRU Waste
46.	CCP-TP-530	10	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
47.	WP 08-PT.13	6	RH-TRU 72-B Cask Uprighting Trailer Operation and Maintenance Manual
48.	WP 13-QA.03	19	QA Independent Assessment Program

**PROCESSES AND EQUIPMENT EVALUATED DURING ANL/CCP AUDIT A-12-16**

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
<b>PREVIOUSLY APPROVED PROCESSES OR EQUIPMENT</b>				
The following were evaluated during ANL/CCP Audit A-12-16				
8RHVE1	Visual Examination of RH Waste Records CCP-TP-500, Remote-Handled Waste Visual Examination CCP-TP-163, CCP Evaluation of Waste Packaging Records for Visual Examination of Records	Debris (S5000)	YES	YES (Records only)
8RHVE2	Visual Examination of Newly Packaged RH Waste Drums CCP-TP-500, Remote-Handled Waste Visual Examination	Debris (S5000)	YES	YES
Not Applicable	Acceptable Knowledge CCP-TP-005, CCP Acceptable Knowledge Documentation	Debris (S5000)	YES	YES
Not Applicable	Headspace Gas Sampling CCP-TP-093, CCP Sampling of TRU Waste Containers	Debris (S5000)	YES	N/A
Not Applicable	Data Verification and Validation CCP-TP-001, CCP Project Level Data Validation and Verification CCP-TP-500, Remote-Handled Waste Visual Examination CCP-TP-504, CCP Dose-to-Curie Survey Procedure for RH TRU Waste	Debris (S5000)	YES	YES

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
8RHGM1	Gravimetric or Dimensional Measurement CCP-TP-513, Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of RH TRU Waste	Debris (S5000)	N/A	YES (Dimensional Only)
8DTC1	Dose-to-Curie CCP-TP-504, CCP Dose-to-Curie Survey Procedure for RH TRU Waste	Debris (S5000)	N/A	YES
Not Applicable	Quality Assurance	N/A	N/A	YES
Not Applicable	WIPP Waste Information System (WWIS)/Waste Data System (WDS)	N/A	YES	YES

### Procedure Revision Matrix

No.	Procedure Number	Procedure Title	Revision During Last Annual Audit	Revision During Current Annual Audit	Brief Description of Procedure Changes
1	CCP-PO-001	CCP TRU Waste Characterization QAPJP	20	20	
2	CCP-PO-002	CCP Transuranic Waste Certification Plan	25	26	Revised to incorporate revision 7.1 and 7.2 of DOE/WIPP-02-3122, TRU WAC, minor editorial changes, and delete Appendix 11.
3	CCP-PO-005	CCP Conduct Of Operations	22	22	
4	CCP-PO-006	CCP Conduct Of Operations Matrix	3	3	
5	CCP-PO-008	CCP Quality Assurance Interface With WTS QA Program	9	9	
6	CCP-PO-500	CCP/ANL RH TRU Waste Interface Document	1	2	Revised to incorporate RH waste sampling and update actual work process.
7	CCP-PO-505	CCP RH Transuranic Authorized Methods For Payload	0	1	Revised to update to RH-TRAMPAC, R1, dated April 2011, U.S. NRC No. 71-9212.
8	CCP-QP-001	CCP Graded Approach	6	7	Revised to update Graded Approach Module location (note before 4.1.1), improve chronological sequence, and for miscellaneous editorial corrections.
9	CCP-QP-002	CCP Training And Qualification Plan	31	32	Revised to simplify the process for tracking waste stream Summary Training in Section 4.2. Added full requalification as an option in Section 4.1.2 [I]. Added the Training Module in Integrated Data Center (IDC) as a source of Training information to the note in Section

### Procedure Revision Matrix

					4.1. Incorporated CCP-SO-051 in Section 4.4.1[C], CCP-SO-069 in Section 4.2, and CCP-SO-078 in Section 4.1.2[F]. Expanded Section 4.1.1 to add a documented analysis of positions requiring qualification, in response to CBFO CAR 12-010.
10	CCP-QP-004	CCP Corrective Action Management	10	10	
11	CCP-QP-005	CCP TRU Nonconforming Item Reporting And Control	20	21	Revised to incorporate clarification of K-trend code designees' signature authority and other editorial changes and freeze file items.
12	CCP-QP-006	CCP Corrective Action Reporting And Control	9	9	
13	CCP-QP-008	CCP Records Management	18	20	R19: Revised to change the number of the form in the definition of retention period. Change to Section 4.8 for clarification. R20: Revised to clarify editorial changes, transmitting of records, and destruction of QA records.
14	CCP-QP-010	CCP Document Preparation, Approval, And Control	22	23	Revised Section 5.1.1 to identify the content of document record packages in response to CBFO CAR 12-011, added RH document designators in Section 2.3.1, and clarified the use of "example" forms in Section 4.6 of Attachment 1.
15	CCP-QP-014	CCP Trend Analysis And Reporting	4	5	General revision.
16	CCP-QP-015	CCP Procurement	11	11	

### Procedure Revision Matrix

17	CCP-QP-016	CCP Control Of Measuring And Testing Equipment	15	16	Revised to clarify the scope of CCP's M&TE program and the responsibilities associated with Host site provided M&TE.
18	CCP-QP-017	CCP Identification And Control Of Items	3	3	
19	CCP-QP-018	CCP Management Assessment	8	9	Revised to delete the requirement for an annual management assessment summary report, based on WTS procedure WP 15-GM1000, <i>Management Assessments</i> . Added the Performance Assurance Manager to the distribution for management assessment schedules and reports.
20	CCP-QP-019	CCP Quality Assurance Reporting To Management	6	6	
21	CCP-QP-021	CCP Surveillance Program	7	7	
22	CCP-QP-022	CCP Software Quality Assurance Plan	12	12	
23	CCP-QP-023	CCP Handling, Storage And Shipping	3	3	
24	CCP-QP-026	CCP Inspection Control	11	13	R12: Revised to address inspections of items procured using WP 15-PC3044, <i>Quality Credit Card Purchases</i> . R13: Revised to incorporate a minor change to correct the Q-Credit Card Inspection Plan number.
25	CCP-QP-027	CCP Test Control	5	5	
26	CCP-QP-028	CCP Records Filing, Inventory,	12	14	R13:

### Procedure Revision Matrix

		Scheduling, And Dispositioning			Revised to correct reference section of the procedure and remove a reference that is no longer active. R14: Revised to bring into line with the WIPP Inventory Worksheets and general editing of the procedure.
27	CCP-QP-030	CCP Written Practice For The Qualification Of CCP Helium Leak Detection Personnel	8	8	
28	CCP-TP-001	CCP Project Level Data Validation And Verification	19	19	
29	CCP-TP-002	CCP Reconciliation Of DQOs And Reporting Characterization Data	23	24	Revised to bring into line with the WIPP Inventory Worksheets and general editing of the procedure.
30	CCP-TP-003	CCP Data Analysis For S3000,S4000,And S5000 Characterization	18	18	
31	CCP-TP-005	CCP Acceptable Knowledge Documentation	22	24	R23: Revised to clarify what constitutes a record as part of the resolution to resolve CBFO CAR11-043. R24: Revised to address comments from inspectors during EPA Baseline Inspection EPA-SNL-CCP-RH-06.11-8 (June 6/8, 2011). Also revised to incorporated lessons learned from CBFO records surveillance.
32	CCP-TP-055	CCP Varian Porta-Test Leak Detector Operations	4	4	

### Procedure Revision Matrix

33	CCP-TP-082	CCP Preparing and Handling Waste Containers for HSGS	8	8	
34	CCP-TP-093	CCP Sampling of TRU Waste Containers	15	16	Deleted incorrect URL for approved filters and add SLB2 information to Packaging Configuration Table and DAC table, and other editorial changes.
35	CCP-TP-106	CCP HSGS BDR Preparation	7	7	
36	CCP-TP-162	CCP Random Selection of Containers for Solids and HSGS and Analysis	1	1	
37	CCP-TP-163	CCP Evaluation of Waste Packaging Records for VE of Records	2	3	Revised to incorporate Standing Order CCP-SO-ANLE-002.
38	CCP-TP-500	CCP RH Waste VE	11	11	
39	CCP-TP-504	CCP D-T-C Survey Proc. for RH TRU Waste	11	12	Revised to accommodate waste stream specific input required for Curie Conversion Procedure.
40	CCP-TP-505	CCP Removable Lid Canister Loading	6	6	
41	CCP-TP-506	CCP Preparation of the RH TRU Waste AK Characterization Reconciliation Report	2	2	
42	CCP-TP-507	CCP Shipping of RH TRU Waste	7	7	
43	CCP-TP-509	CCP RH TRU Container Tracking	3	3	
44	CCP-TP-512	CCP RH Waste Sampling	5	5	
45	CCP-TP-513	CCP Procedure for Documentation Package For Dimensional or	1	1	

### Procedure Revision Matrix

		Gravimetric Measurements for Radiological Characterization of RH TRU Waste			
46	CCP-TP-530	CCP RH TRU Waste Certification and WWIS/WDS Data Entry	10	10	
47	WP 08-PT.13	RH-TRU 72-B Cask Uprighting Trailer Operation and Maintenance Manual	N/A (Not in scope)	6	
48	WP 13-QA.03	Q A Independent Assessment Program	18	19	Added discussion of effectiveness reviews (Introduction). Added clarification for developing criteria for (4.3) and performing (5.0) effectiveness reviews. Deleted reference to EFCOG Contractor Guide For Performance of Effectiveness Reviews (4.3, 5.0).