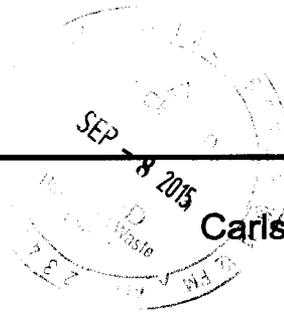


United States Government

  
Department of Energy

---

**memorandum**Carlsbad Field Office  
Carlsbad, New Mexico 88221DATE: **SEP 08 2015**REPLY TO  
ATTN OF: CBFO:QA:DSM:SG:15-0874:UFC:2300.00SUBJECT: Interim Audit Report A-15-25, SNL/CCP Characterization and Certification Activities for  
RH TRU Waste

TO: J. Todd, DOE-SNL

The Carlsbad Field Office (CBFO) conducted a certification audit of the Sandia National Laboratories Central Characterization Program (SNL/CCP) characterization and certification activities for remote-handled (RH) transuranic (TRU) waste on August 18–20, 2015. The interim audit report for Audit A-15-25 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, one CBFO corrective action report (CAR 15-062) was issued and transmitted under separate cover letter. The audit team offered two Recommendations to SNL/CCP management for consideration.

If you have any questions or comments concerning the audit report, please contact me at (575) 234-7491.

Dennis S. Miehl  
Senior Quality Assurance Specialist

Attachment

150903



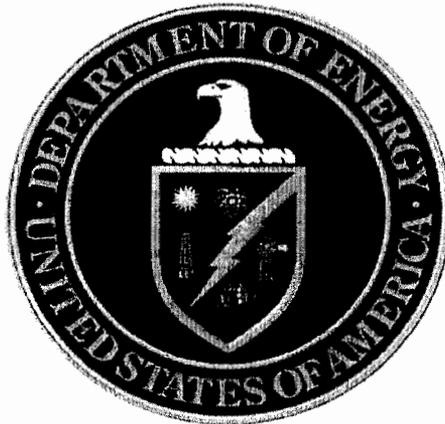
J. Todd, DOE-SNL

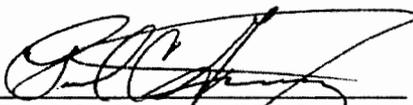
-2-

SEP 08 2015

cc: w/attachment  
D. Bryson, CBFO \*ED  
M. Brown, CBFO ED  
J.R. Stroble, CBFO ED  
M. Navarrete, CBFO ED  
G. Birge, CBFO ED  
N. Castaneda, CBFO ED  
T. Carver, CBFO ED  
S. Ross, EM-43 ED  
M. Spoerner, SNL ED  
P. Breidenbach, NWP ED  
J. Blankenhorn, NWP ED  
J. Britain, NWP ED  
F. Sharif, NWP/CCP ED  
D.E. Gulbransen, NWP/CCP ED  
R. Reeves, NWP/CCP ED  
A.J. Fisher, NWP/CCP ED  
I. Joo, NWP/CCP ED  
J. Carter, NWP/CCP ED  
V. Cannon, NWP/QA ED  
B. Allen, NWP/QA ED  
S. Punchios, NWP/QA ED  
A. Boyea, NWP/QA ED  
T. Peake, EPA ED  
L. Bender, EPA ED  
E. Feltcorn, EPA ED  
R. Joglekar, EPA ED  
J. Kieling, NMED ED  
S. Holmes, NMED ED  
R. Maestas, NMED ED  
C. Smith, NMED ED  
D. Winters, DNFSB ED  
V. Daub, CTAC ED  
R. Allen, CTAC ED  
P. Martinez, CTAC ED  
B. Pace, CTAC ED  
P. Gomez, CTAC ED  
D. Harvill, CTAC ED  
G. White, CTAC ED  
Site Documents ED  
WWIS Database Administrators ED  
CBFO QA File  
CBFO M&RC  
\*ED denotes electronic distribution

U.S. DEPARTMENT OF ENERGY  
CARLSBAD FIELD OFFICE  
INTERIM AUDIT REPORT  
OF THE  
SANDIA NATIONAL LABORATORIES  
CENTRAL CHARACTERIZATION PROGRAM  
CARLSBAD, NEW MEXICO  
AUDIT NUMBER A-15-25  
AUGUST 18 – 20, 2015  
TRU WASTE CHARACTERIZATION AND CERTIFICATION



Prepared by:   
Paul C. Gomez, CTAC  
Audit Team Leader

Date: SEPTEMBER 4, 2015

Approved by:  FOR  
Michael R. Brown, Director  
CBFO Office of Quality Assurance

Date: 9-4-15

## 1.0 EXECUTIVE SUMMARY

U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Audit A-15-25 was performed to evaluate the adequacy, implementation, and effectiveness of programs for transuranic (TRU) waste characterization activities performed for the Sandia National Laboratories (SNL) by the Nuclear Waste Partnership LLC (NWP) Central Characterization Program (CCP). The audit team evaluated the programs, procedures, and processes for characterizing remote-handled (RH) Summary Category Group (SCG) S5000 debris wastes utilizing the visual examination (VE) and dose-to-curie (DTC) processes. This audit was conducted relative to the requirements of the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), the *CBFO Quality Assurance Program Document (QAPD)*, and the *Remote-Handled TRU Waste Characterization Program Implementation Plan (WCPIP)*.

CBFO Audit A-15-25 was conducted at the Skeen-Whitlock Building in Carlsbad, New Mexico, August 18 – 20, 2015. Overall, the audit team concluded that the SNL/CCP technical and quality assurance (QA) programs evaluated were adequately established for compliance with applicable upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

Although no waste characterization activities were performed at SNL during the audit, once they resume, CBFO will evaluate these activities.

## 2.0 SCOPE AND PURPOSE

### 2.1 Scope

The following general areas were audited, as required by Attachment C6, Section C6-1 of the WIPP HWFP Waste Analysis Plan (WAP):

- Results of Previous A-14-26 Audit
- Changes in Established Programs or Operations
- New Programs or Activities Being Implemented
- Changes in Key Personnel

The following WAP-related QA elements were audited:

- Personnel Qualification and Training
- Nonconformances
- Records
- WIPP Waste Information System/Waste Data System (WWIS/WDS)

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

- Acceptable Knowledge (AK)
- Project Level Validation and Verification (V&V)
- Visual Examination (VE)

The following non-WAP-related waste characterization technical element was audited:

- Dose-to-Curie (DTC)

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

- *Quality Assurance Program Document (QAPD)*, DOE/CBFO-94-1012
- Waste Isolation Pilot Plant Hazardous Waste Facility Permit NM4890139088-TSDF
- *Remote-Handled TRU Waste Characterization Program Implementation Plan (WCPIP)*, DOE/WIPP-02-3214

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

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

## 2.2 Purpose

Audit A-15-25 was conducted to determine the degree of adequacy and effective implementation of program requirements for the characterization and certification of RH SCG S5000 debris waste at SNL. The audit team also evaluated specific QA elements relating to HWFP WAP requirements.

## 3.0 AUDIT TEAM AND OBSERVERS

### AUDITORS/TECHNICAL SPECIALISTS

Dennis Miehl	Management Representative, CBFO Office of Quality Assurance
Paul C. Gomez	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Cindi Castillo	Auditor, CTAC
Judith Stewart	Auditor, CTAC
Jim Schuetz	Auditor, CTAC
Rick Castillo	Auditor, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Porf Martinez	Technical Specialist, CTAC
Jim Oliver	Technical Specialist, CTAC

### OBSERVERS

Steve Holmes	New Mexico Environment Department (NMED)
Norma Castaneda	CBFO TRU Sites and Transportation Division

Tom Carver            CBFO TRU Sites and Transportation Division  
Herb Cruickshank    CBFO TRU Sites and Transportation Division

#### **4.0    AUDIT PARTICIPANTS**

The SNL/CCP personnel contacted during the audit are identified in Attachment 1. A pre-audit meeting was held on August 18, 2015, at the Skeen-Whitlock Building in Carlsbad, New Mexico. Daily management briefings were held to update CCP management and staff on audit progress and identified concerns. A post-audit meeting was held on August 20, 2015, at the Skeen-Whitlock Building in Carlsbad, New Mexico. Attachment 2 provides a summary of audit results, Attachment 3 lists audited documents, and Attachment 4 lists processes and equipment reviewed.

#### **5.0    SUMMARY OF AUDIT RESULTS**

##### **5.1    Program Adequacy, Implementation, and Effectiveness**

Audit A-15-25 was performed to assess the capability of SNL/CCP to characterize and certify RH SCG S5000 debris waste in compliance with the requirements specified in the WIPP HWFP WAP, the CBFO QAPD, and the WCPIP. The characterization methods assessed were VE and DTC.

The audit team concluded that, based on personnel interviews, review of continued operations, and review of associated documentation and records, the SNL/CCP TRU waste characterization program and activities for characterizing RH SCG S5000 debris waste are adequately established, satisfactorily implemented, and effective in achieving the desired results.

##### **5.2    General Activities**

###### **5.2.1    Results of Previous Audit**

The results of previous SNL/CCP Audit A-14-26 were examined. CBFO Corrective Action Report (CAR) 14-057 was initiated during that audit, which identified conditions adverse to quality regarding activities performed during VE, and documentation supporting those activities. No similar or identical conditions adverse to quality were identified by the audit team during Audit A-15-25.

The results of Audit A-14-26 were indeterminate for DTC, Project Level (V&V), and WWIS/WDS due to a nonconformance report (NCR) generated regarding a DTC batch data report (BDR) calculation error. The issue has since been resolved, the WWIS/WDS calculation errors were corrected, and the dispositioned NCR was placed into the data package.

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

No changes in programs or operations have occurred since the last audit.

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

No new programs or activities have been performed since the last audit.

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

Key personnel have not changed since the last audit.

## **5.3 Quality Assurance Activities**

### **5.3.1 Personnel Qualification and Training**

The audit team conducted interviews with responsible personnel and reviewed implementing procedure CCP-QP-002, Rev. 39, *CCP Training and Qualification Plan*, to determine the procedure's degree of adequacy in addressing upper-tier requirements. The team concluded that the procedure is satisfactory in addressing requirements.

Personnel training records associated with project management, AK, VE, and project-level V&V activities were examined to verify compliance with associated requirements and to confirm that personnel are appropriately trained and qualified. Record reviews included qualification of VE operator/Independent Technical Reviewers (ITRs); VE Expert (VEE) appointment documentation; AK Expert qualifications; and Site Project Manager (SPM) qualification cards. The audit team also reviewed the SNL RH Program List of Qualified Individuals dated June 25, 2015.

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

### **5.3.2 Nonconformances**

The audit team conducted interviews with responsible personnel and reviewed implementing procedure CCP-QP-005, Rev. 25, *CCP TRU Nonconforming Item Reporting and Control*, to determine the degree to which the procedure adequately addresses upper-tier requirements. Results of the review indicate that the procedure is satisfactory in addressing upper-tier requirements.

The audit team interviewed the CCP project office QA engineer, reviewed the RH VE Nonconformance Report Log, and reviewed the following NCRs.

NCR-RHSNL-0762-14, Rev. 0  
NCR-RHSNL-0763-14, Rev. 1  
NCR-RHSNL-0764-14, Rev. 1  
NCR-RHSNL-0765-14, Rev. 0

NCR-RHSNL-0272-15, Rev. 0  
NCR-RHSNL-0342-15, Rev. 0  
NCR-RHSNL-0343-15, Rev. 0  
NCR-RHSNL-0344-15, Rev. 0

The team concluded that deficiencies are appropriately documented and tracked through resolution as required. All the NCRs examined were verified to have been properly entered, managed, and tracked in both the CCP Integrated Data Center (IDC) and on the CCP NCR Logs.

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

### **5.3.3 Records**

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

Control of records was verified through review of the RH Records Inventory and Disposition Schedule dated June 15, 2015, and through interviews with responsible personnel.

No deficiencies regarding Records were identified during the audit. 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.

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

Procedure CCP-TP-530, Rev. 11, *CCP RH TRU Waste Certification and WWIS/WDS Data Entry*, was evaluated with respect to requirements of the CBFO QAPD, Rev. 12, section 2.1, Work Processes. The audit team determined that requirements are adequately addressed and that the procedure contains adequate flow-down of QAPD requirements related to waste data management and container certification using the WIPP WWIS/WDS.

The audit team interviewed CCP Waste Certification Officials (WCOs) and reviewed CCP training records and determined that the WCOs are qualified to perform certification activities for RH waste from SNL and all other CCP host site locations. Waste Certification Assistants (WCAs) were also verified to be qualified to perform data

management activities and WWIS/WDS data entry activities for RH waste from SNL and all other CCP host site locations.

The audit team interviewed CCP WCOs and reviewed documentation for certification of new WSPFs, waste data entry, and waste container certification performed for the SNL host site location. New WSPFs were found to be in draft status at the time of the audit. Characterization data for containers that will be used in the approval of draft WSPFs is available, but has not yet been entered in WWIS/WDS awaiting final definition of draft Container Information Summary (CIS) reports and final approval of BDRs providing container data.

Generation and approval activities for CIS reports are performed by SPMs within the IDC software database application. Completed and approved CIS reports that identify waste containers that are ready for application of waste certification activities and BDR information are available to WCO personnel in the IDC.

The audit team evaluated a sample of draft data entry packages for evidence of WWIS/WDS RH waste data entry. Draft data packages are identical to record packages and provide evidence of electronic submittal of data into the WWIS/WDS from verified spreadsheet applications that are populated with data from approved record BDRs and other measurement reports. Draft data entry packages for RH containers include CIS lists, radiation survey documentation, WDS Master Template.xls data spreadsheets, and excerpts from VE BDRs. Record packages of waste characterization using approved data are generated and submitted to records, whereas draft data packages using draft data are presented only for demonstration and evaluation of implementation of the waste certification process. The audit team determined that CCP personnel are familiar with the spreadsheet data entry process, the WSPF characterization approval process, and the waste container certification process for completion of waste certification activities using the WWIS/WDS.

The audit team evaluated WDS Master Template.xls spreadsheet and IDC software applications used for data entry, electronic verification of data, and transfer of data to the WWIS/WDS. Application of software QA and control of these software items was deemed to be adequate regarding management and approval of data and submittal of data to the WWIS/WDS.

The audit team identified no issues related to WWIS/WDS data entry and waste certification. The team found that upper-tier requirements from the CBFO QAPD adequately flow down into CCP procedures. The audit team concluded that future implementation of procedures regarding waste container certification for the SNL/CCP host site location should be satisfactory when using approved WSPFs, BDRs, and CIS reports and based on CCP personnel familiarity with and past satisfactory performance of the process. The program is anticipated to be effective regarding waste certification, with a determination of effectiveness possible once all waste information is approved and the data entry and certification processes for SNL/CCP RH waste can be fully implemented.

## **5.4 Technical Activities**

### **5.4.1 Acceptable Knowledge**

The audit team reviewed implementing procedures 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.5, *CCP Preparation of the RH TRU Waste AK Characterization Reconciliation Report*; and WP 13-QA.03, Rev. 24, *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 satisfactorily address upper-tier requirements. The following subsections describe the method used to select objective evidence, the objective evidence used to assess compliance with the HWFP and WCPIP, and the result of the assessment.

The audit team examined the AK record for RH S5000 TRU debris mixed waste stream SNL-HCF-S5400-RH, generated in the SNL Hot Cell Facility (HCF). A primary document in the review process was the AK Summary Report CCP-AK-SNL-500 Rev. 8, *CCP AK Summary Report for Sandia National Laboratories RH Hot Cell Facility TRU Waste (Debris)*. The portion of the waste stream examined during the audit included fuel fragments that were previously stored as accountable material but were later released for shipment to WIPP. In addition, a population of containers has been added to this stream that represents cleanup activities in the Auxiliary Hot Cell facility (AHCF) where all waste drum repackaging has taken place. These containers are designated as process-generated waste (PGW) containers. Also added to the inventory for this waste stream since the previous audit is a small amount of RH TRU waste from a classified experiment.

This audit was based on requirements contained in the WIPP HWFP and described in the WAP, as well as the requirements of WCPIP and the WIPP Waste Acceptance Criteria (WAC). The audit team therefore reviewed documentation to support all AK requirements, completing WCPIP checklists and the WAP C6-2 and C6-1 checklists and compiling and reviewing objective evidence to demonstrate compliance.

The objective evidence reviewed and compiled included the AK Summary Report listed above, relevant AK source documents, a draft WSPF and attachments, and BDRs for VE and DTC characterization activities. The AK source documents were reviewed to determine compliance with WAP programmatic and waste-stream-specific requirements, including justification of hazardous waste numbers, repackaging campaign details, and information regarding physical characteristics of the waste. In addition, the audit team determined that each commercial product listed in the chemical table had a referenced safety data sheet.

In addition to the AK Summary Report and other AK records, the audit team reviewed the AK Documentation Checklist, attachment 1; the AK Source Document 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, with supporting add-container memos.

Examples of the resolution of AK discrepancies in the AK record, a WAP-compliant AK Accuracy Report and the two recent internal Independent Assessment reports (I15-01 and SUR-RHSNL-01-14) related to AK were also examined. Requisite training records were reviewed for selected AK experts (AKEs) and SPMs. The WAP-required container traceability exercise was conducted for three waste containers (SNL001502, SNL001504, and SNL001705) from the available population of sixteen. Original SNL container disposal request forms or historic database information for these three containers was compiled as available, along with IDC screenshots for each container and the applicable BDRs for VE and DTC. The traceability exercise included examination of VE BDRs for documentation of daughter and granddaughter containers generated during repackaging activities as a result of issues with meeting radiological criteria. The audit team observed that the documentation accurately covered the identification of the contents of shield pots within 7-gallon containers packed in 30-gallon drums and over-packed in 55 gallon drums, with each container uniquely numbered. In addition, consistency was demonstrated for the records in the AK tracking spreadsheet and add-container memos.

Additional supporting documentation for the WCPIP requirements included a draft Characterization Reconciliation Report for shipping lot 3, a WCPIP AK Accuracy Report, and CCP-AK-SNL-501 Rev 4, *CCP RH TRU Radiological Characterization Report*, for this waste stream. Documentation from the AK record was reviewed to assure that all of the data quality objectives (DQOs) cited in the WCPIP were met. In addition, the auditors examined the AK record regarding the methods for qualification of AK information as required by the WCPIP.

The audit team issued one Recommendation regarding changes to the text of the AK Summary Report (see section 6.4).

The audit team examined training records for two AKEs, the RH Manager, and two SPMs, and reviewed BDRs, discrepancy reports, and NCRs. The team noted that for the NCRs reviewed, administrative controls had been used rather than tagging to maintain segregation of the containers due to the high radiation levels of the RH waste. The team also examined AK records for compliance with preparation, legibility, accuracy, review, approval, and maintenance requirements. Distribution, control and use of appropriate AK procedures were also reviewed.

Overall, the Acceptable Knowledge program was found to be adequate in addressing applicable requirements of the WCPIP, the WAC, and the WAP, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

#### 5.4.2 Project-level Validation and Verification

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

The audit team verified Project-level Validation and Verification activities are performed in compliance with applicable procedural requirements. The DTC BDR from A-14-26 was corrected and verified as compliant with upper-tier documents. In support of RH characterization activities completed at the Sandia National Laboratory (SNL), the team evaluated the following BDRs:

##### Visual Examination

SNLRHVE14002    SNLRHVE14003    SNLRHVE15001

##### Dose-to-Curie

SNLRHDTC14001    SNLRHDTC14002    SNLRHDTC15001

The audit team determined the BDRs reviewed meet procedural requirements.

The audit team reviewed the WSPF for waste stream SNL-HCF-S5400-RH and found it to be properly completed. The CIS evaluated for Lot 1 was found to be accurate and satisfactory in meeting the DQOs. Acceptable Knowledge Discrepancy Resolutions DR001 and DR1003 were reviewed and found to be complete. The audit team verified performance of required quarterly repeat of data-generation level V&V for 2<sup>nd</sup> Quarter 2014 VE, 3<sup>rd</sup> Quarter 2014 VE, and 1<sup>st</sup> Quarter 2015 VE.

SNL performed no RH characterization activities in the 4th quarter of 2014; therefore no data were generated.

Overall, the audit team determined that Project-level Validation and Verification procedures were adequate, and processes were effective and satisfactorily implemented.

#### 5.4.3 Table C6-4, Visual Examination Checklist

The audit team evaluated the SNL/CCP VE characterization process for newly generated RH SCG S5000 debris waste. No RH VE waste characterization activities were performed at SNL during the audit. The scope of the audit included evaluation of supporting documentation of VE waste characterization activities performed since the

previous audit. VE process compliance with WAP requirements was evaluated through review of completed VE BDRs, verification of training requirements, evaluation of NCR-RHSNL-0764-14, R1 compliance and operational logbook compliance (CCP-SN-RH-VE-003 and CCP-SN-RH-VE-004), and verification that VE records are created and maintained in accordance with procedures.

The audit team reviewed procedures CCP-TP-500, Rev. 15, *CCP Remote-Handled Waste Visual Examination*, and CCP-QP-002, Rev. 39, *CCP Training and Qualification Plan*, to determine the degree to which procedures adequately address upper-tier requirements. The results of the review indicate that the procedures satisfactorily address WAP requirements.

The audit team examined training records for four VE operators/ITRs, and confirmed the appointment of the VEE. The audit team verified that VE operators, ITRs, and the VEE were appropriately qualified. The team confirmed that current VE personnel were listed on the List of Qualified Individuals dated 6/25/15.

The audit team reviewed completed BDRs SNLRHVE14002, SNLRHVE14003, and SNLRHVE15001. No concerns were identified.

The audit team concluded that VE operations for newly generated RH SCG S5000 debris waste using CCP-TP-500, *CCP Remote-Handled Waste Visual Examination*, are adequate in meeting upper-tier requirements, and procedures are satisfactorily implemented and effective.

#### **5.4.4 Dose-to-Curie**

The audit team assessed the adequacy, implementation, and effectiveness of the DTC methodology used by SNL/ CCP to characterize RH SCG S5000 waste. No RH DTC waste characterization activities were performed at SNL during the audit.

Based on review of the current revisions of SNL/CCP procedures, technical documents, and a completed BDR provided prior to the audit, a checklist was prepared and used to evaluate:

- System stability as evidenced by the implementation and effectiveness of quality control measurements, and the use of calibrated equipment as evidenced in BDRs
- Applicability of each detector's calibration and operational range to the matrix, geometry and radionuclide content of the drums assayed
- Completed BDR to ensure data are reported and reviewed as required
- Data storage and retrievability
- Personnel qualification and training

The audit team interviewed DTC and SPM personnel and other cognizant personnel. The audit team examined electronic and paper copies of reports and records, and reviewed the following BDRs:

- SNLRHDTC14001, which includes three 55-gallon drums from the SNL-HCF-S5400-RH waste stream
- SNLRHDTC14002, which includes four 55-gallon drums from the SNL-HCF-S5400-RH waste stream
- SNLRHDTC15001, which includes sixteen 55-gallon drums from the SNL-HCF-S5400-RH waste stream

The audit team conducted interviews with a DTC operator, an ITR, an expert analyst (EA), and a radiological engineer to verify that activities conducted under their purview were technically adequate and in compliance with requirements documents and operating procedures and checklists. The audit team reviewed the following documents and objective evidence to verify implementation and effectiveness of upper-tier requirements.

- CCP-SN-RH-DTC-002 (Operations Logbook)
- Calibration Records for M&TE
- NCR-RHSNL-0272-15; NCR-RHSNL-0343-15; NCR-RHSNL-0762-14; NCR-RHSNL-0763-14, Rev. 1; NCR-RHSNL-0763-14; NCR-RHSNL-0764-14, Rev. 1; NCR-RHSNL-0764-14; and NCR-RHSNL-0765-14
- Training records for eight DCT personnel, including qualification cards for operating personnel and technical staff, and appointment letters for EAs
- CCP-TP-504, Rev. 17, *Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste*, and CCP-TP-512, Rev. 6, *CCP Remote-Handled Waste Sampling*
- CCP-AK-SNL-501, Rev. 4, *Central Characterization Program Remote-Handled Transuranic Radiological Characterization Technical Report For Sandia National Laboratory/New Mexico Hot Cell Facility Remote-Handled Transuranic Debris Waste WASTE STREAM: SNL-HCF-S5400-RH*,

One DTC-related concern regarding BDR SNLRHDTC15001 was identified during the audit. The current approved revision of the RCTR, Rev. 4, for the subject waste stream explicitly states that the revision addresses drums 1502, 1503, and 1504. For example, Figure C2-1 on page 83 in CCP-AK-SNL-501, Rev. 4, is a flow diagram for the waste characterization process that states, in part, "Calculate weighted scaling factors for the reportable radionuclides for each container." This process does not adequately describe how SNL/CCP calculates unweighted composite scaling factors for the reportable radionuclides for the composite debris containers included in SNL BDR SNLRHDTC15001, which includes drums numbered in the 1600's and 1700's. During the interview process, CCP personnel responded that the currently approved RCTR is

undergoing revision. SNL/CCP does not have a currently approved revision of the RCTR that applies to the drums included in BDR SNLRHDTTC15001.

DOEWIPP-02-3214, Rev. 3, *Remote-Handled TRU Waste Characterization Program Implementation Plan*, Section 3.2.2, TRU Waste Characterization Program Documentation, states:

“Program documents must be approved by CBFO prior to implementation . . .

These requirements apply to the following documents (program documents noted with an asterisk [\*] are not approved by CBFO:

- AK Summary Reports\* (Section 4.1)
- Certification Plans (Section 5.0)
- Radiological Characterization Technical Reports (Section 4.1)”

The audit team determined that CCP does not have a currently approved revision of the Radiological Characterization Technical Report that applies to the drums included in BDR SNLRHDTTC15001. This concern was determined to be a condition adverse to quality resulting in the issuance of CBFO Corrective Action Report (CAR) 15-062 (see section 6.1).

With the exception of the above-mentioned concern, the Dose-to-Curie activities evaluated were determined to be adequate, satisfactorily implemented, and effective.

## **6.0 CORRECTIVE ACTIONS**

### **6.1 Corrective Action Reports**

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

CAQ – Term used in reference to failures, malfunctions, deficiencies, defective items, and non-conformances.

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.

One non-WAP-related deficiency necessitating a CAR was identified during the audit, as described below.

#### **CAR 15-062**

CCP does not have a CBFO-approved revision of the RCTR that applies to the drums included in BDR SNLRHDTTC15001.

## **6.2 Deficiencies Corrected During the Audit**

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

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

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

No deficiencies were identified or corrected during Audit A-15-25.

## **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.

No Observations were identified during Audit A-15-25.

## **6.4 Recommendations**

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

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

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

The following Recommendation was presented for SNL/CCP management consideration during the audit.

**Recommendation**

The audit team recommended the following changes be made to AK Summary Report CCP-AK-SNL-500 R8 to improve clarity and correctness.

1. The document addresses the components of the waste stream to include experimental material from the HCF along with decontamination and decommissioning waste from that facility, the fuel examination waste from the experiments conducted in the HCF, and the cleanup after repackaging in the AHCF designated as PGW. Although these components are captured in the AK Summary Report, descriptions in some sections of the report are not inclusive. Language should be added for consistency.
2. In section 5.4.1.2 of the report discussing assumptions for waste material parameter weight estimates, assumption 3 should be clarified to read ...”contain 85% iron-based metal...”

**7.0 LIST OF ATTACHMENTS**

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

<b>PERSONNEL CONTACTED DURING AUDIT A-15-25</b>				
<b>NAME</b>	<b>ORG/TITLE</b>	<b>PREAUDIT MEETING</b>	<b>CONTACTED DURING AUDIT</b>	<b>POST-AUDIT MEETING</b>
Cheryl Armijo	TFE/CCP Training Records Analyst		X	
Michelle Billet	CCP Training Coordinator		X	
Michael Brown	Director of CBFO Quality Assurance Division	X		X
Norma Castaneda	CBFO NSTD Representative	X		X
Tom Carver	CBFO NSTD Representative	X		X
Herb Cruickshank	CBFO NSTD Representative	X		X
A. J. Fisher	NWP/CCP Support Services	X	X	X
Steve Holmes	NMED Observer	X		X
Laura Jones	NWP/CCP QAE		X	X
Irene Joo	NWP/CCP RH Manager	X	X	X
Richard Kantrowitz	NWP/CCP Site Project Manager	X	X	X
Creta Kirkes	NWP/CCP WCO Team Lead		X	
John Kleckner	Tech Specs/CCP Technical Specialist		X	X
Ricardo Maestas	NMED Observer	X		
Dennis Miehlis	CBFO QA Representative	X		X
Spencer Pattee	NWP/CCP VEO/VEE		X	
Sheila Percy	TFE/CCP CCP Records Manager	X	X	X
Wes Root	NWP/CCP ITR		X	
Steve Schaffer	Tech Specs/CCP AK Expert		X	X
Happy Scheel	NWP Packaging M&TE Custodian		X	
Todd Shepley	NWP/CCP DTC SME		X	

### SUMMARY OF AUDIT RESULTS

Documents	Concern Classification				QA Evaluation		Technical
	CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness
<b>Activity</b>							
Management					A	S	E
Acceptable Knowledge				1	A	S	E
Reconciliation of DQOs/WSPFs					A	S	E
Project Level V&V					A	S	E
WWIS/WDS					A	S	E
Visual Examination					A	S	E
Dose-to-Curie	1				A	S	E
Training					A	S	E
Nonconformance Reporting					A	S	E
QA Records					A	S	E
TOTALS	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

<b>TABLE OF AUDITED DOCUMENTS</b>			
<b>NUMBER</b>	<b>PROCEDURE NUMBER</b>	<b>REV</b>	<b>PROCEDURE TITLE</b>
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	26	CCP Conduct of Operations
4.	CCP-QP-002	39	CCP Training and Qualification Plan
5.	CCP-QP-005	24	CCP TRU Nonconforming Item Reporting and Control
6.	CCP-QP-008	24	CCP Records Management
7.	CCP-QP-010	25	CCP Document Preparation, Approval, and Control
8.	CCP-QP-016	20	CCP Control of Measuring and Testing Equipment
9.	CCP-QP-017	4	CCP Identification and Control of Items
10.	CCP-QP-022	16	CCP Software Quality Assurance Plan
11.	CCP-QP-028	16	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
12.	CCP-TP-001	21	CCP Project Level Data Validation and Verification
13.	CCP-TP-002	26	CCP Reconciliation of DQOs and Reporting Characterization Data
14.	CCP-TP-005	26	CCP Acceptable Knowledge Documentation
15.	CCP-TP-163	4	CCP Evaluation of Waste Packaging Records for Visual Examination of Records
16.	CCP-TP-500	15	CCP Remote-Handled Waste Visual Examination
17.	CCP TP-504	17	CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste
18.	CCP-TP-506	5	CCP Preparation of the RH TRU Waste AK Characterization Reconciliation Report
19.	CCP-TP-530	11	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
20.	WP 13-QA.03	24	Quality Assurance Independent Assessment Program
21.	WP 15-GM1002	4	Issues Management Processing of WIPP Forms

**LIST OF PROCESSES AND EQUIPMENT REVIEWED**

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by Environmental Protection Agency
<b>PROCESSES OR EQUIPMENT</b>				
20RHVE1	Visual Examination Procedure: CCP-TP-500 Description – RH Characterization performed utilizing Visual Examination (VE) and Acceptable Knowledge (AK) Procedure: CCP-TP-163 Description – CCP Evaluation of Waste Packaging Records for Visual Examination	Debris (S5000)	NO	NO
N/A	Acceptable Knowledge Procedure: CCP-TP-005 Description – CCP Acceptable Knowledge Documentation	Debris (S5000)	NO	NO
N/A	Data Validation and Verification Procedure: CCP-TP-001, CCP-TP-500, CCP-TP-504 Description – CCP Project Level Data Validation and Verification, CCP Remote-Handled Waste Visual Examination, CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste	Debris (S5000)	NO	NO
20DTC1	Dose-to-Curie Procedure: CCP-TP-504 Description – CCP Dose-to-Curie Survey Procedure for Remote-Handled transuranic Waste	Debris (S5000)	N/A	NO
N/A	Quality Assurance Program	N/A	N/A	YES
N/A	WIPP Waste Information System (WWIS)/Waste Data System (WDS)	N/A	NO	NO
<b>NEW PROCESSES OR EQUIPMENT</b>				
NONE				
<b>DEACTIVATED PROCESSES OR EQUIPMENT</b>				
NONE				