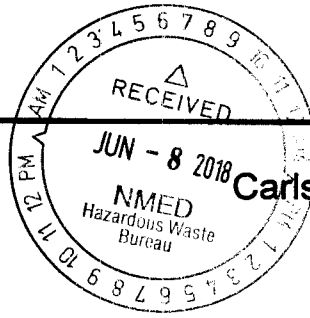


United States Government



Department of Energy

memorandum

 Carlsbad Field Office
 Carlsbad, New Mexico 88221

DATE: JUN 08 2018

REPLY TO
ATTN OF: CBFO:OQA:DSM:JM:18-1788:UFC 2300.00

SUBJECT: Interim Audit Report A-18-14, LANL/CCP TRU Waste Characterization and Recertification

TO: Mr. Douglas Hintze, EM-LA

The Carlsbad Field Office (CBFO) conducted Recertification Audit A-18-14, Los Alamos National Laboratory Central Characterization Program (LANL/CCP) Transuranic (TRU) Waste Characterization Activities, May 8 – 10, 2018. The interim audit report is attached.

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

The acceptable knowledge (AK) process implementation of Enhanced AK, as specified in DOE/WIPP-02-3122, Rev. 8, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, was evaluated by the audit team and determined to be an adequate, satisfactorily implemented, and effective process. With the exception of the real-time radiography process, batch data reports and field activities for characterizing contact-handled (CH) summary category group (SCG) S3000 solids waste were not evaluated during this audit due to inactivity for this SCG. Visual examination and flammable gas analysis processes have not performed characterization activities for CH SCG S3000 solids waste for an extended period of time and remain indeterminate for that SCG.

Two CBFO corrective action reports were issued as a result of this audit. No Corrected During Audit or Observations were identified, nor were there any Recommendations offered for management consideration during the audit.

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



Dennis Miehl
Senior Quality Assurance Specialist

Attachment



Mr. Douglas Hintze

-2-

JUN 08 2018

cc: w/attachment

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T. Groover, NWP/CCP	ED
J. Carter, NWP/CCP	ED
M. McDaniel, NWP/QA	ED
C. Tyler, NWP/QA	ED
V. Ballew, NWP/QA	ED
S. Saiz, NWP/QA	ED
A. Boyea, NWP/QA	ED
J. Walsh, EPA	ED
J. Ellis, EPA	ED
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Site Documents	ED

WWIS Database Administrators

CBFO QA File

CBFO M&RC

*ED denotes electronic distribution

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

INTERIM AUDIT REPORT

OF THE

**LOS ALAMOS NATIONAL LABORATORY
CENTRAL CHARACTERIZATION PROGRAM**

FOR

**TRU WASTE ACTIVITIES
AT
LOS ALAMOS, NEW MEXICO
and CARLSBAD, NEW MEXICO**

AUDIT NUMBER A-18-14

May 8 – 10, 2018



Prepared by: *R. Castillo*
Rick Castillo, CTAC
Audit Team Leader

Date: 6/4/18

Approved by: *M. P. Navarrete* FOR
Martin P. Navarrete, Acting Director
CBFO Office of Quality Assurance

Date: 6-8-18

1.0 EXECUTIVE SUMMARY

U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Recertification Audit A-18-14 was performed to evaluate the continued adequacy, implementation, and effectiveness of established programs for transuranic (TRU) waste characterization activities performed for the Los Alamos National Laboratory (LANL) by the Nuclear Waste Partnership LLC (NWP) Central Characterization Program (CCP). The audit team evaluated the programs, procedures, and processes for characterizing contact-handled (CH) Summary Category Groups (SCGs) S3000 solids, S4000 soils/gravel, and S5000 debris wastes, excluding wastes processed through the Waste Characterization, Reduction, and Repackaging Facility (WCRRF). Waste characterization processes for SCG S3000 waste at the WCRRF have not generated any waste characterization data. The audit was conducted relative to the requirements of the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), the *CBFO Quality Assurance Program Document (QAPD)*, the *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*, and the *Waste Isolation Pilot Plant Documented Safety Analysis (DSA)*, Chapter 18.

Audit activities were conducted at the LANL facilities in Los Alamos, New Mexico, and at the Skeen-Whitlock Building in Carlsbad, New Mexico, May 8 – 10, 2018. Overall, the audit team concluded that the LANL/CCP technical and quality assurance (QA) programs evaluated were adequately established for compliance with applicable upper-tier requirements and, in most instances, were satisfactorily implemented, and effective in achieving the desired results.

With the exception of the real-time radiography (RTR) process, batch data reports (BDRs) and field activities for characterizing CH SCG S3000 solids waste were not evaluated during this audit due to inactivity for this SCG. Visual examination (VE) and flammable gas analysis (FGA) processes have not performed characterization activities for CH SCG S3000 solids waste for an extended period of time and remain indeterminate for that SCG. VE work associated with the Off-Site Source Recovery Program (OSRP) is ongoing; however, objective evidence was not provided for review during the audit and therefore the VE process associated with OSRP implementation and effectiveness remains indeterminate. The WIPP Waste Information System (WWIS)/Waste Data System (WDS) process implementation is deemed indeterminate due to inactivity in all waste SCGs. The waste certification and characterization activities associated with the Mobile ISOCS Large Container Counter #3 (MILCC3) nondestructive assay (NDA) equipment are deemed indeterminate due to that equipment not performing characterization activities for evaluation. Accordingly, the audit team acknowledges there is a potential need for a future assessment to evaluate the processes that have been deemed indeterminate during this audit.

The audit team identified two concerns related to information not being recorded per procedural requirements. The first concern involved points of contact (POCs)/subject matter experts (SMEs) not being identified/recorded on the Acceptable Knowledge (AK) Source Document form, which resulted in the issuance of CBFO Corrective Action Report (CAR) 18-029. The second concern related to the AK Summary Report (AKSR) and revision number not being recorded in the RTR operational logbook, which resulted in the issuance of CBFO CAR 18-030. (See section 6.1.)

2.0 SCOPE AND PURPOSE

2.1 Scope

The scope of the audit included evaluations for the adequacy, implementation, and effectiveness of the technical and QA activities performed by NWP/CCP at LANL for characterization of CH SCG S3000 solids waste, CH SCG S4000 soils/gravel waste, and CH SCG S5000 debris waste. The following areas were evaluated:

General Activities

- Review of the LANL/CCP Site Interface Agreement
- Results of Previous Audits
- Changes in Programs or Operations
- New Programs or Activities Being Implemented
- Changes in Key Personnel

Quality Assurance Activities

- Nonconformances
- Personnel Qualification and Training
- Measuring and Test Equipment
- Software Version Installation
- Records

Technical Activities

- Enhanced Acceptable Knowledge (AK) (including waste certification)
- Project-Level Data Validation and Verification (PLV&V)
- Real-time Radiography (RTR)
- Visual Examination (VE), including the Off-Site Source Recovery Program (OSRP)
- Nondestructive Assay (NDA), including Performance Demonstration Program (PDP)
- Container Management
- Flammable Gas Sampling and Analysis (FGA)
- WIPP Waste Information System (WWIS)/Waste Data System (WDS)

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

- Waste Isolation Pilot Plant Hazardous Waste Facility Permit NM4890139088-TSDF
- DOE/CBFO-94-1012, *CBFO Quality Assurance Program Document (QAPD)*
- WP 13-1, *Nuclear Waste Partnership LLC Quality Assurance Program Description*
- DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*
- DOE/WIPP-07-3372, *Waste Isolation Pilot Plant Documented Safety Analysis (DSA), Chapter 18*

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

- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-012, *CCP/LANL Interface Document*
- Related technical and QA implementing procedures

2.2 Purpose

Audit A-18-14 was conducted to evaluate the adequacy and effective implementation of program requirements for the characterization and certification of CH SCGs S3000 solids, S4000 soils/gravel, and S5000 debris wastes at the LANL for compliance with applicable upper-tier requirements.

3.0 AUDITORS/TECHNICAL SPECIALISTS/MANAGEMENT REPRESENTATIVE/OBSERVERS

Dennis S. Miehl	CBFO Office of Quality Assurance Representative
Rick Castillo	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Charlie Riggs	Auditor, CTAC
Jim Schuetz	Auditor, CTAC
Ricardo Chavez	Auditor, CTAC
Joe Lopez	Auditor, CTAC
Priscilla Yanez	Auditor, CTAC
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Randy Fitzgerald	Technical Specialist, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Dustin Stegman	Technical Specialist, CTAC
Jim Vernon	Technical Specialist, CTAC
Rhett Bradford	Technical Specialist, CTAC
Paul Gomez	Technical Specialist, CTAC
Jim Oliver	Technical Specialist, CTAC
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OBSERVERS

Ricardo Maestas	New Mexico Environment Department (NMED)
David Biswell	NMED
Hernesto Tellez	NMED
Megyn McLean	NMED
Jana Dawson	NMED (Trinity Engineering, Inc.)

Kenneth Princen	Office of National TRU Program (ONTP)
Kenneth Licklitter	ONTP (CTAC)
Jeremy Shaffer	Environmental Management Los Alamos Field Office (EM-LA)
Elizabeth Churchill	EM-LA

4.0 AUDIT PARTICIPANTS

The LANL/CCP individuals involved in the audit process are identified in Attachment 1. A pre-audit meeting was held on May 8, 2018, at the Pajarito Complex in Los Alamos, New Mexico, and at the Skeen-Whitlock Building in Carlsbad, New Mexico. Daily management briefings were held to update LANL/CCP management and staff on audit progress and identified concerns. A post-audit meeting was held on May 10, 2018, at the Pajarito Complex in Los Alamos, New Mexico, and at the Skeen-Whitlock Building in Carlsbad, New Mexico.

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

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

This audit was performed to assess the capability of LANL/CCP to characterize CH SCG S3000 solids waste, CH SCG S4000 soils/gravel waste, and CH SCG S5000 debris waste for compliance with the requirements specified in the WIPP HWFP Waste Analysis Plan (WAP), the WIPP WAC, Chapter 18 of the DSA, and the CBFO QAPD. The characterization methods assessed were AK, VE, RTR, and NDA (including PDP). Other areas evaluated were data generation and PLV&V, WWIS/WDS data entry, FGA, data quality objective (DQO) reconciliation, container management, and the preparation of Waste Stream Profile Forms (WSPFs).

The audit team concluded that, based on personnel interviews, observations of operations, and review of associated documentation and records, the LANL/CCP TRU waste characterization program and activities for characterizing CH SCGs S3000 solids, CH SCG S4000 soils/gravel, and S5000 debris are adequately established, and in most instances, satisfactorily implemented and effective in achieving the desired results. With the exception of RTR, BDRs and field activities for characterizing SCG S3000 solids waste were not evaluated during this audit for all other characterization processes due to inactivity for that SCG. VE work associated with the OSRP is ongoing; however, objective evidence was not provided for review during the audit and therefore the VE process associated with OSRP implementation and effectiveness is deemed indeterminate. Further, the VE and FGA characterization processes have not been performed for SCG S3000 for an extended period of time and subsequently remain indeterminate with regard to that SCG. Lastly, the WIPP WWIS/WDS is deemed indeterminate due to inactivity in all SCGs.

5.2 General Activities

5.2.1 Results of Previous Audits

The audit team examined the results of the previous CBFO recertification audit of the LANL/CCP (A-17-17), wherein two conditions adverse to quality (CAQs), three observations, and one recommendation were identified. One CAQ resulted in the initiation of CAR 17-037, related to not attaching a standing order to a VE BDR. The other CAQ related to incorrect values being listed in a FGA BDR; however, the condition was corrected during the audit.

During the performance of this audit, the audit team verified sustained corrective actions and did not observe any similar instances to the CAQs identified during the previous recertification audit (A-17-17), suggesting that steps taken to address these issues were adequate in precluding recurrence.

5.2.2 Changes in Programs or Operations

The audit team determined through interviews with the LANL/CCP Project Manager that there were no significant changes in programs or operations since the previous recertification audit (A-17-17). Further, it was determined that the Super High Efficiency Neutron Counter (SHENC) was partially demobilized and remains at Technical Area 54 (TA-54).

5.2.3 New Programs or Activities Being Implemented

In response to the breached drum event at the WIPP in February 2014, the DOE and NWP are strengthening their programs to provide more oversight of TRU waste generator site processing/treatment activities being applied to active waste streams prior to waste being transferred to CCP for characterization, certification, and shipment. The Remediation of Nitrate Salts (RNS) campaign at the WCRRF has been completed at the LANL since the previous CBFO recertification audit (A-17-17).

The audit team learned that the MILCC3 should be available for characterization activities in the near future.

5.2.4 Changes in Key Personnel

There were no significant changes made in key personnel since the last CBFO recertification audit (A-17-17) of LANL/CCP.

5.2.5 Generator Site Technical Review

The CBFO and NWP, as WIPP HWFP co-permittees, performed Generator Site Technical Review (GSTR) LA-1-17-01, April 17 – 21, 2017, at LANL in Los Alamos, New Mexico. The GSTR Report was issued on March 8, 2018 (CBFO:ONTP:CF:RMS:17-2351:UFC 5822.00). The GSTR team disclosed they had completed their review of the program, LANL satisfactorily addressed and resolved all of

the identified issues related to the GSTR, and the GSTR completion letter was issued on May 9, 2018 (CBFO:ONTP:CF:RMS:18-0000:UFC 5900.00).

5.2.6 LANL/CCP Program Interface

The audit team evaluated the program interface established between the CCP and LANL as documented in CCP-PO-012, Rev. 16, *CCP/Los Alamos National Laboratory (LANL) Interface Document*. This document describes the interfaces, roles and responsibilities, and program requirements applicable to both organizations in support of CCP waste characterization activities at LANL. Program interface requirements evaluated included responsibilities of the LANL/CCP Project Manager (PM), Los Alamos National Security (LANS) PM, LANL Responsible Division Leaders, CCP Site Project Manager (SPM), CCP Vendor Project Manager (VPM), CCP QA Engineer, and the LANS Quality and Performance Assurance Division Leader.

LANL was undergoing a contract transition from LANS to Stoller Newport News Nuclear and BWXT Technical Services (SN3B) during the time of the audit. SN3B was awarded the Los Alamos Legacy Cleanup Contract for environmental cleanup and waste management associated with LANL's legacy operations. The audit team determined the interface agreement between CCP and LANL will be updated in the future to reflect the newly awarded contract holders (SN3B), therefore a followup assessment to evaluate the updated interface agreement is expected.

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

5.3 Quality Assurance Activities

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

5.3.1 Personnel Qualification and Training

The audit team conducted interviews and reviewed implementing procedures to determine the degree to which the procedure adequately addresses upper-tier requirements:

- CCP-QP-002, Rev. 44, *CCP Training and Qualification Plan*
- CCP-QP-041, Rev. 2, *CCP Job Needs Analysis and Design*
- CCP-QP-042, Rev. 1, *CCP Project Level Training and Qualification*
- CCP-QP-043, Rev. 1, *CCP Operations Level Training and Qualification*
- CCP-PO-047, Rev. 2, *CCP Training and Qualification Program Document*

Results of the review indicate that the procedures adequately address upper-tier requirements.

Personnel training records associated with VE (including OSRP) Operator/Independent Technical Reviewer (ITR), AK Expert (AKE), SPM, VPM, RTR Operator/ITR, NDA Operator/ITR, and FGA Operator/ITR were examined to verify implementation of associated requirements and to verify that personnel performing waste characterization activities are appropriately qualified. Record reviews included qualification cards and other pertinent qualification documentation, such as attendance sheets/briefings on newly-revised AK summaries for RTR and VE operators; appointment letters for VE experts (VEEs), and NDA expert analysts (EAs); comprehensive exams; training container documentation; and eye examinations for qualified RTR operators.

The audit team reviewed the job analysis that was performed for the Records Custodian position. The audit team determined that qualification cards have been recently updated as needed for positions that require either initial or requalification activity. Existing job needs analyses that are related to an update of qualification cards are being reviewed and revised as necessary. The audit team determined that qualification card changes and the scope of job analyses being performed are adequate with respect to the work described on the qualification card, and that analyses are being processed in accordance with procedure.

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

5.3.2 Control of Nonconforming Items

The audit team 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 adequately addresses upper-tier requirements.

The audit team interviewed the CCP/Carlsbad Project Office QA Engineer and reviewed randomly selected nonconformance reports (NCRs).

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

<u>Number</u>	<u>Revision</u>
NCR-LANL-0581-17 ²	Rev. 0

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

<u>Number</u>	<u>Revision</u>
NCR-LANL-0127-18	Rev. 1
NCR-LANL-0133-18	Rev. 1
NCR-LANL-0512-18 ⁴	Rev. 0
NCR-LANL-0168-17 ³	Rev. 0

NCR-LANL-0254-17	Rev. 2
NCR-LANL-0487-17	Rev. 0
NCR-LANL-0490-17 ¹	Rev. 0

- 1) The NCR (NCR-LANL-0490-17) was reviewed as objective evidence of recurring event resulting in issuance of WIPP Form WF17-1303 to address conditions of recurrence. NCRs included in the recurring condition are: NCR-LANL-0170-17, NCR-LANL-0487-17, NCR-LANL-0488-17, and NCR-LANL-0489-17.
- 2) The NCR (NCR-LANL-0581-17) was reviewed as objective evidence of recurring event resulting in issuance of WIPP Form WF17-1230 to address conditions of recurrence. NCRs included in the recurring condition are: NCR-LANL-0579-17 and NCR-LANL-0580-17.
- 3) The NCR (NCR-LANL-0168-17) was reviewed as objective evidence of a nonconformance first identified at the SPM level and determined to be reportable to CBFO. This NCR also identified a recurring event resulting in the issuance of WIPP Form WF17-0525 to address conditions of recurrence. NCRs included in the recurring condition are: NCR-LANL-0160-17, NCR-LANL-0162-17, NCR-LANL-0163-17, and NCR-LANL-0164-17.
- 4) The NCR (NCR-LANL-0512-18) was reviewed as objective evidence of an NCR that was voided.

The team concluded that nonconformances are being appropriately documented and tracked through resolution as required. NCRs reviewed included original and revised NCRs. The audit team verified CCP personnel are familiar with the process for reporting NCRs to the Permittee via email to CBFO within the time frame required by the Permit. One NCR was verified as being reported to the Permittee within seven days, as required by the NMED HWFP. All the NCRs examined were verified to have been entered, managed, and tracked in both the CCP Integrated Data Center (IDC) and the NCR Logs, as well as through the required reconciliation reporting mechanism. The CCP QA Engineer performed an evaluation of all NCRs written within the last 12 months and determined that there were two reportable NCRs reviewed where each NCR included four additional NCRs to identify the recurring condition. The two NCRs and their associated recurring NCRs were identified in separate WIPP Forms that were written to address the repetitive conditions. All of the NCRs reviewed were verified to have been entered, managed, resolved, and tracked in the CCP IDC NCR module.

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

5.3.3 QA Records

The audit team conducted interviews with responsible personnel and reviewed the following implementing procedures relative to the control and administration of QA records to determine the degree to which the procedures adequately address upper-tier requirements:

- CCP-PO-001, Rev. 22, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, Rev. 29, *CCP Transuranic Waste Certification Plan*
- CCP-QP-008, Rev. 26, *CCP Records Management*
- CCP-QP-028, Rev. 17, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning*

Results of the review indicate that the procedures adequately address upper-tier requirements.

The level of control for QA records was verified through review of the CH Records Inventory and Disposition Schedule (RIDS) dated July 26, 2017. The RIDS is reviewed annually, as required. Changes on the worksheet forms are adequately collected and detailed for inclusion on the next RIDS release version. The audit team determined that there is a Facility Records Custodian designated for the LANL Host Site location to administer transmittal of records to the CCP Records Center in Carlsbad, NM. The audit team evaluated a sample of transmittal forms used to document submittal of records from the LANL/CCP Host Site location to the CCP Records Center in Carlsbad. The audit team determined that the completed forms adequately described the records being transmitted, and that the transmittal process was performed in accordance with the procedure.

The audit team verified the maintenance of records in file cabinets and in the electronic system. Records that are maintained in paper copy in the CCP Records Center are placed in locked fire-resistant cabinets. Access to the file cabinets is controlled through the use of keys, and labels placed on each cabinet identifying the names of personnel approved for access to the files. Records are adequately segregated from non-record documents. Files that require control of access, such as those determined to be Unclassified Controlled Nuclear Information (UCNI), Official Use Only (OUO), Internal Use Only (IUO), and No Foreign National (NFORN) documents, are maintained on separate electronic servers where computer user access is restricted. Paper copies of these restricted access documents are stored separate from other documents. Records personnel are familiar with requirements for restricted access files and adequately control distribution. Access to electronic files and restricted files is controlled administratively in the case of physical electronic media and by use of server logon/password methods for electronic files maintained on computer servers. The audit team evaluated fire-rated storage capabilities at the Skeen-Whitlock Building in Carlsbad, NM, and determined that storage and control of access to storage cabinets is adequate.

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

5.4 Technical Activities

5.4.1 Acceptable Knowledge

The audit team conducted interviews with responsible personnel and reviewed the following implementing procedures relative to the AK process to determine the degree to which the procedures address upper-tier requirements:

- CCP-PO-001, Rev. 22, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-QP-002, Rev. 44, *CCP Training and Qualification Plan*
- CCP-QP-042, Rev. 1, *CCP Project Level Training and Qualification*
- CCP-TP-001, Rev. 22, *CCP Project Level Data Validation and Verification*
- CCP-TP-002, Rev. 27, *CCP Reconciliation of DQOs and Reporting Characterization Data*
- CCP-TP-005, Rev. 29, *CCP Acceptable Knowledge Documentation*
- CCP-TP-068, Rev. 12, *CCP Standardized Container Management*
- CCP-TP-200, Rev. 4, *Enhanced Acceptable Knowledge Review*
- WP 13-QA.03, Rev. 27, *QA Independent Assessment Program*

Results of the review indicate that the procedures adequately address upper-tier requirements.

The AK audit team evaluated the AK process for characterizing CH SCGs S3000 solids, S4000 soils/gravel, and S5000 debris wastes. The AK audit team specifically evaluated compliance with the WAP requirements listed in the C6-2 checklist along with portions of the C6-1 checklist, as well as the requirements of the WIPP WAC, and completed the associated WIPP WAC checklists. Objective evidence was reviewed and compiled to demonstrate compliance with each of the applicable requirements on these checklists. A significant portion of the audit addressed the status of Enhanced AK Products for the waste streams examined with the upper-tier requirements identified in the WIPP WAC, DOE/WIPP-02-3122, Rev. 8, Appendices H and I, and CCP-TP-005, Rev. 29.

The AK auditors reviewed the latest revision to the AK Summary Reports for four distinct waste streams representing the three respective SCGs. The AK Summary Reports and respective waste stream designations are as follows:

- AK Summary Report CCP-AK-LANL-009, Rev. 8, dated 11/5/13, for SCG S5000 debris waste stream LA-MHD03.001 and SCG S3000 solids waste stream LA-MIN05-V.001
- AK Summary Report CCP-AK-LANL-010, Rev. 6, dated 2/14/13, for SCG S4000 soils/gravel waste stream LA-MSG04.001
- AK Summary Report CCP-AK-LANL-015, Rev. 0, dated 2/14/13, for SCG S3000 solids waste stream LA-MIN06-NS.001

These AK Summary Reports were reviewed by the audit team with respect to the information that relates to specific WAP and WIPP WAC requirements. In addition, WSPFs or draft WSPFs and attachments were examined for each audited waste stream. Numerous AK source documents were reviewed to establish support for the waste stream descriptions and parameters noted in the AK summaries, including descriptions of waste processing activities, assignment of hazardous waste numbers, identification of the two most prevalent radionuclides, and the management of the containers in the waste streams.

The audit team also examined the following completed attachments from CCP-TP-005 for each waste stream: the respective AK Documentation Checklist (Attachment 1); the AK Information List (Attachment 4), the AK Hazardous Constituents List (Attachment 5), the respective AK Waste Form, Waste Material Parameters, Prohibited Items, and Packaging (Attachment 6), alongside the justification memoranda for waste material parameter weight estimates; the Radionuclides List (Attachment 7) and AK/NDA memoranda for the CH waste streams; and the Waste Containers List (Attachment 8), together with the Add-Containers documentation that demonstrates that the parameters and properties of containers added to a waste stream are examined to assure that the assignment is appropriate. The auditors also examined the AK Tracking Spreadsheet and reconciled that data with the AK Waste Containers List (Attachment 8).

WAP-compliant AK Accuracy Reports and the most recent internal audit report (I18-01, dated November 2, 2017, at Los Alamos National Laboratory) were also collected and examined. In addition, the audit team examined 17 NWP QA surveillances specific to LANL/CCP characterization activities, of which 13 were performed since the last audit. The surveillances reviewed included S17-28, S17-36, S17-42, S17-52, S17-56, S17-65, S17-66, S18-02, S18-10, S18-12, S18-19, S18-22, and S18-24. All NWP QA surveillances reviewed were found to be compliant with procedural requirements. Requisite training records were reviewed for 15 AKEs and 20 SPMs who have either participated or could potentially participate in CCP activities for LANL. The audit team also reviewed selected BDRs, discrepancy reports, and NCRs.

The AK audit team reviewed examples of discrepancies in the AK record, examined discrepancies between the AK record and characterization activities, and reviewed resultant AK re-evaluations. With regard to noncompliant waste containers, the auditors examined NCRs dealing with prohibited items and compiled objective evidence of container inspection conducted by CCP prior to receipt from the generator to assure integrity of the waste packaging. Waste Stream Characterization Checklists and

supporting data reconciling the results of the characterization activities with the corresponding information in the AK records was also examined. AK records were evaluated with regard to compliance through preparation, legibility, accuracy, review, approval, maintenance, distribution, and control.

The WAP-required traceability exercise was conducted by the audit team for a total of six waste containers from three of the four waste streams examined. There were no characterization BDRs available for the recently generated LA-MIN06-NS.001 waste packages. The containers selected provided BDRs for the RTR, VE, and NDA processes. The AK audit team also examined LANL waste container input forms, the requisite WSPFs, AK Tracking Spreadsheet data, and IDC screenshots. This additional traceability data was compiled for two containers selected from the LA-MIN06-NS.001 waste stream.

A significant share of the AK portion of this recertification audit was dedicated to the review of Enhanced AK Products for the waste streams audited. Those Enhanced AK Products include Interface Waste Management Documents List, AK Assessments, Chemical Compatibility Evaluations, Basis of Knowledge (BoK), and AK Briefings.

IWMDL

An Interface Waste Management Documents List (IWMDL) (AK Attachment 9) has been developed and maintained for two of the four waste streams audited; that is, LA-MHD03.001 and LA-MIN06-NS.001. Both IWMDLs include a current list of generator site plans, procedures, and reports associated with current waste management and packaging (e.g., waste management, waste generation, waste treatment, waste packaging, waste repackaging, waste remediation, waste stream delineation, and waste characterization procedures) that have the ability to affect waste stream characterization and certification activities. The audit team examined all procedures and processes for both IWMDLs. The auditors reviewed each revision to these procedures and processes and verified that the requisite Attachment 9 was revised in each case. Each procedure and process is documented in the AK record by a unique AK source document. In addition, the respective AK Source Document Summary provides a SPM/AKE review of the procedure, evaluates the impact of a revision on the waste stream, and documents a physical or table top review as required with the relevant generator site POC or SME, as required by CCP-TP-005. However, during the AK Source Document Summary reviews the audit team identified POCs/SMEs NOT being listed on the AK Source Document Summary forms in verification statements for several revisions to procedures listed on the IWMDL (see CAR 18-029 in section 6.1).

Several field observations of "hands on" processes were conducted by the CCP SPM and detailed information regarding the results of the observation were documented on the AK Source Document Summary. An IWMDL is not required for waste stream LA-MIN05-V.001, and is not required for waste stream LA-MSG04.001 at this time, unless future activity with related contaminated soil is performed.

AKA

AK Assessments (AKAs) have been completed and are in the AK record for three waste streams examined during the audit. The waste streams include LA-MIN05-V.001, LA-

MSG04.001, and LA-MHD03.001. The AKAs were thoroughly reviewed during this audit, including the examination of supporting AK source documents and Document Review Record (DRR) comments from CCP and generator site reviewers. Additionally, the checklists associated with the review of AKAs per procedure CCP-TP-200 were compiled and examined for each of the three waste streams audited. Finally, the lists of containers covered by the AKAs were examined and compared with data on the AK Tracking Spreadsheet. Although the list of containers addressed by the AKAs represented waste stream sub-populations stored at the Waste Control Specialists (WCS) facility in Texas, the description of historic and current waste management practices and procedures cover the entire existing waste container population for each waste stream.

CCE

For Chemical Compatibility Evaluation (CCE), completed and CBFO-approved CCE memoranda (CCEM) were examined for waste streams LA-MIN05-V.001, LA-MSG04.001, and LA-MHD03.001. The audit examined the CCEM and supporting AK source documents, the DRRs from the CCP internal review, and DRRs from the CBFO review. Additionally, Attachment 1, SPM CCEM Review Checklist, from CCP-TP-200 was examined for each CCEM. Furthermore, CBFO approval documentation was reviewed and included applicable attachments from CBFO Management Procedure 4.15, *Review of Acceptable Knowledge Documents*.

AK Briefings

The audit team discovered a new AK Summary Report (AKSR) was developed. Current CCP and WAC guidance requires that a presentation be prepared and provided to requisite CCP characterization personnel and, if applicable, generator site POCs, SMEs, and management representatives for revised or newly developed AKSRs. Attendance to the presentation is mandatory for all relevant personnel. The audit team examined a new AKSR (CCP-AK-LANL-015, Rev. 0) for waste stream LA-MIN06-NS.001. The AK audit team reviewed a copy of the briefing presentation and attendance list, and confirmed that all appropriate personnel were briefed per procedural requirements.

BoK

Basis of Knowledge Memoranda were developed by CCP, and reviewed and approved by CBFO for the sub-population of containers stored at WCS for three waste streams (LA-MIN05-V.001, LA-MSG04.001 and LA-MHD03.001). The memoranda were prepared and evaluated in accordance with DOE/WIPP-17-3585, *Basis of Knowledge for Evaluating Oxidizing Chemicals in TRU Waste Stored in the Waste Handling Building Container Storage Unit Since February 14, 2014 for a Decision to Dispose and the Los Alamos National Laboratory Type 1 Waste Stored at Waste Control Specialists for Waste Isolation Pilot Plant Acceptance*. The AK auditors examined the BoK memoranda and addenda to the memoranda demonstrating container-by-container compliance with the BoK criteria or rationale for setting the containers aside. All applicable CBFO approval documentation was also reviewed. The audit team determined that a BoK memorandum has not been developed for waste stream LA-MIN06-NS.001 at the time of the audit.

With the exception of the concern identified, the procedures reviewed and objective evidence assembled provided evidence that the applicable requirements for AK processes applied to the four waste streams representing the three SCGs examined are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

5.4.2 Project-Level Data Validation and Verification

The audit team conducted interviews with responsible personnel and reviewed the following implementing procedures relative to the PLV&V process to determine the degree to which the procedures address upper-tier requirements:

- CCP-TP-001, Rev. 22, *CCP Project Level Data Validation and Verification*
- CCP-TP-002, Rev. 27, *CCP Reconciliation of DQOs and Reporting Characterization Data*
- CCP-PO-045, Rev. 3, *CCP Waste Management Field Observation*
- CCP-TP-200, Rev. 4, *Enhanced Acceptable Knowledge Review*

Results of the review indicate that the procedures adequately address upper-tier requirements.

The audit team evaluated procedural changes associated with CCP-TP-001, *CCP Project Level Data Validation and Verification*, Rev. 22, and determined through interviews with the SPM that many of the changes occurred in the SPM's BDR review checklists. The audit team reviewed the revised checklists specific to RTR, VE, and NDA, and determined that the revision to CCP-TP-001 addressed all applicable upper-tier requirements.

The audit team evaluated the following BDRs in support of CH waste characterization activities completed at LANL to verify that PLV&V activities are performed in compliance with applicable procedural requirements:

RTR

LA-HERTR-17-0004	LA-HERTR-17-0008
LA-HERTR-17-0005	LA-HERTR-18-0006

VE

LAVE030072	LAVE550474	LAVE550516
LAVE030098	LAVE550495	LAVE550527
LAVE030118	LAVE550496	LAVE550598
LAVE030119		

NDA

2LANDA1292	2LANDA1294	3LANDA0291
2LANDA1293	2LANDA1301	4LANDA0085

The BDRs were verified to be complete and accurate, and found to be in compliance with all applicable procedural requirements.

No new WSPFs or Characterization Information Summaries (CISs) have been generated since the last CBFO recertification audit (A-17-17) of LANL/CCP, or after Revision 8 of the WAC was issued. Currently, LANL has only shipped containers from a previously certified waste stream to WIPP. The audit team reviewed the following WSPFs and Change Notices:

- Change Notice #1 for WSPF LA-MIN03-NC.001
- Change Notice #1 for WSPF LA-MIN03-NC.001
- Change Notice #1 for WSPF LA-MHD03.001
- Change Notice #2 for WSPF LA-MHD03.001
- Change Notice #1 for WSPF LA-MHD04.001
- WSPF for LA-MIN03-NC.001
- WSPF for LA-MHD03.001
- WSPF for LA-CIN01.001
- WSPF for LA-MIN02-V.001

The audit team reviewed the following CISs:

- LA-MIN03-NC.001, CIS Lot 84
- LA-MIN03-NC.001, CIS Lots 85 - 91
- LA-MIN02-V.001, CIS Lots 20 – 29
- LA-MIN02.V.001, CIS Lots 30 – 37
- LA-MHD04.001, CIS Lots 55 – 70
- LA-MHD04.001, CIS Lots 71 – 79
- LA-CIN01.001, CIS Lots 94 – 105
- LA-CIN01.001, CIS Lots 106 – 113
- LA-MHD03.001, CIS Lots 96 – 101
- LA-MHD03.001, CIS Lots 102 – 105
- LA-MHD01.001, CIS Lots 426 – 445
- LA-MHD01.001, CIS Lots 446 – 451

The audit team verified the required quarterly repeat of the DGL data by the project level for the following:

- 4th Quarter 2017 Requests and Results for VE and RTR
- 3rd Quarter 2017 Requests and Results for VE. RTR was not completed during the 3rd quarter of 2017
- 2nd Quarter 2017 Requests and Results for VE and RTR
- 1st Quarter 2018 Requests and Results for VE. The results for RTR for the 1st quarter of 2018 have not been completed yet.

The results from each quarterly package indicate there were no inconsistencies reported in the data.

The audit team completed a review of Attachment 1 (Waste Management Field Observation Planning) and Attachment 2 (Waste Management Field Observation Results) from procedure CCP-PO-045, Rev. 3. The audit team verified the attachments were completed as required and there were no inconsistencies reported in the data.

The audit team has previously evaluated CCP-TP-200 and CCP-TP-201, *Verification of Shipping Criteria and Emplacement Criteria*, in surveillances S-17-34 and S-18-21, which were specific to LANL. Additional information can be found in the associated surveillance reports. Prior to the audit, it was also noted that CCP-TP-201 was obsoleted on December 12, 2017, as the last of the waste in the WIPP Waste Handling Building had been approved for downloading into the underground and the procedure was no longer needed.

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

5.4.3 Real-time Radiography

The audit team evaluated the adequacy, implementation, and effectiveness of LANL/CCP's ability to characterize CH SCG S3000 solids, S4000 soils/gravel, and S5000 debris waste using the High Energy (HE) RTR unit.

The audit team conducted interviews with responsible personnel and reviewed the following implementing procedures relative to the RTR process to determine the degree to which the procedures address upper-tier requirements:

- CCP-PO-005, Rev. 29, *CCP Conduct of Operations*
- CCP-QP-002, Rev. 44, *CCP Training and Qualification Plan*
- CCP-QP-005, Rev. 25, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-016, Rev. 23, *CCP Control of Measuring and Testing Equipment*
- CCP-QP-043, Rev. 1, *CCP Operations Level Training and Qualification*
- CCP-TP-028, Rev. 11, *CCP Radiographic Training Container Construction*
- CCP-TP-053, Rev. 16, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*
- CCP-TP-068, Rev. 12, *CCP Standardized Container Management*
- CCP-TP-198, Rev. 8, *CCP HE-RTR Operating Procedure*

Results of the review indicate that the procedures adequately address upper-tier requirements.

The audit team observed RTR operations for the HE-RTR unit located in TA-54, Area G, Building 0578, on Wednesday, May 9, 2018. The audit team observed the examination

examination of container number 71990, SCG S3000, Waste Matrix Code-S3110, Waste Stream-LA-MIN06-NS.001. The team interviewed the operator and verified the RTR unit contained the components required by the HWFP WAP to effectively characterize waste from each CH SCG subject to the scope of the audit. The audit team observed current RTR procedures and the applicable AK summary was in use, observed the examination, and reviewed the standing orders. The audit team also reviewed the current HE-RTR unit operational logbook (CCP-CH-LANL-RTR-HEUNIT2-02) and verified logbook entries were reviewed by the VPM, as required.

During the review of the HE-RTR operational logbook (CCP-CH-LANL-RTR-HEUNIT2-02), the audit team found that the AK Summary Report and revision number were not documented in the logbook as required for characterization activities performed on 4/10/18 for BDR LA-HERTR-18-0009, 4/11/18 for BDR LA-HERTR-18-0010, and 4/16/18 for BDR LA-HERTR-18-0011 (see CAR 18-030 in section 6.1).

The audit team examined the following CH HE-RTR BDRs:

LA-HERTR-17-0004	LA-HERTR-17-0011	LA-HERTR-18-0001
LA-HERTR-17-0005	LA-HERTR-17-0012	LA-HERTR-18-0003
LA-HERTR-17-0007	LA-HERTR-17-0013	LA-HERTR-18-0005
LA-HERTR-17-0009	LA-HERTR-17-0014	LA-HERTR-18-0006
LA-HERTR-17-0010		

The BDRs were verified to be complete and accurate, and found to be in compliance with all applicable procedural requirements.

Five NCRs were identified in the 13 RTR BDRs. The NCRs were documented and dispositioned appropriately, and 3 NCRs are awaiting closure. The audit team was able to confirm through RTR operators that the containers have the NCR attached, preventing any inadvertent use of the containers. Additionally, audio/video media of selected containers were reviewed for accuracy of data recorded on RTR data sheets.

The audit team verified that RTR operators were appropriately trained and qualified as required by the HWFP WAP; CCP-QP-002, *CCP Training and Qualification Plan*; and CCP-QP-043, *CCP Operations Level Training and Qualification*. The audit team examined required RTR operator training container data and evaluation sheets, with the applicable audio/video media for two RTR operators. RTR training and qualification records reviewed included RTR Operator Level II (L) ASNT SNT-TC-1A certificates; container inventory sheets; annual eye exams (Jaeger-near acuity J-2); test and training container documentation (NDE-Training-69 and NDE-Training-78); RTR operator/ITR comprehensive examination sheets and qualification cards; and waste stream training for the associated AK summaries (CCP-AK-LANL-006, Rev. 13, for waste stream ID LA-MHD01.001). Semiannual training and requalification documentation and associated audio/video media were also evaluated and found to be compliant with applicable requirements. Observation of the training container video identified that the Training Container NDE-Training-78 was a Standard Waste Box and Training Container NDE-Training-69 was a 55-gallon drum. The three SCGs (S3000, S4000 & S5000) were represented in the video. SCG S5000 debris waste made up greater than 50% of the

volume in the container. Attachment 1 of CCP-TP-028 identified the inventory which included waste stream-specific items, prohibited items, and internal containers of various sizes into the container. RTR operators appropriately identified the container items required to meet the DQOs.

With the exception of the concern identified, the procedures reviewed, field observations, and objective evidence assembled provided evidence that the applicable requirements for RTR characterization of CH SCG S3000 solids, S4000 soils/gravel, and S5000 debris waste are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

5.4.4 Visual Examination

The audit team evaluated the adequacy, implementation, and effectiveness of LANL/CCP activities to characterize and certify CH SCG S4000 soils/gravel and S5000 debris waste using the VE characterization process, including support of the OSRP. The audit team reviewed the following CCP VE procedures to determine the degree to which they adequately address upper-tier requirements:

- CCP-QP-002, Rev. 44, *CCP Training and Qualification Plan*
- CCP-QP-043, Rev. 1, *CCP Operations Level Training and Qualification*
- CCP-TP-069, Rev. 6, *CCP Sealed Source Visual Examination and Packaging*
- CCP-TP-113, Rev. 21, *CCP Standard Contact-Handled Waste Visual Examination*

Results of the review indicate that the procedures adequately address upper-tier requirements.

During the audit, the team toured TA-55, Plutonium Facility 4 (PF-4), Room 432, and observed the VE of container number 72574 from waste stream LA-MHD01.001. The team also toured the Chemical Metallurgy Research (CMR) facility, Wing 5, and observed the VE of container number 72196 from waste stream LA-MHD03.001. OSRP work is ongoing, but no data was available for review at the time of the audit.

LANL/CCP uses the two-operator method when performing VE characterization of waste. The audit team interviewed VE operators and the VEE. Logbooks for TA-55 and CMR facilities were reviewed and verified to be in compliance with CCP-PO-005, Rev. 29, *CCP Conduct of Operations*. VE operational logbooks (CCP-CH-LANL-VE-CMR-002 and CCP-CH-LANL-VE-TA55-02) were logged correctly and reviewed by the VPM as required. The audit team also verified one container scale (serial number 103304) and four torque wrenches (serial numbers 101382, 106511, 023242, and 110086) used during VE operations were calibrated.

The audit team examined the following CH VE BDRs generated from operations performed in the TA-55 PF-4 and CMR facilities to verify implementation and compliance with the requirements for documenting VE activities, as specified in CCP-TP-113:

LAVE030073	LAVE030114	LAVE550475	LAVE550579
LAVE030080	LAVE030115	LAVE550500	LAVE550584
LAVE030089	LAVE030120	LAVE550519	LAVE550591
LAVE030097	LAVE550458	LAVE550528	LAVE550597
LAVE030110	LAVE550469	LAVE550572	

The BDRs were verified to be complete and accurate, and found to be in compliance with all applicable procedural requirements.

The audit team evaluated sustained corrective actions regarding CAR 17-037 identified in the previous CBFO recertification audit (A-17-17) of LANL/CCP. The CAR identified that during the review of VE BDR LAVE030054, container #70998, the VE operators identified items such as WypAlls, diaper paper, paper towels, Kimwipes, and cheesecloth evidencing previously absorbed liquids, requiring implementation of CCP Standing Order CCP-SO-LANL-70, Rev. 0. No objective evidence was attached to the BDR supporting the implementation of the referenced Standing Order. The audit team's evaluations determined that the CAR has been closed. No similar instances were identified during the current audit, thus evidencing sustained corrective actions to preclude recurrence of the condition.

The audit team conducted interviews with responsible personnel and examined records documenting VE of debris waste. The audit team examined training records for seven VE Operators/ITRs, and confirmed the appointment of three LANL/CCP VEEs. The audit team verified that VE operators, ITRs, and the VEE were appropriately trained and qualified, as required.

During the audit, several discussions among CBFO QA, CTAC, CCP, and NMED were conducted regarding CCP performing VE and BDRs being validated at project level prior to the containers being added to the AK Tracking Spreadsheet at LANL. Per the WIPP HWFP, Attachment C, waste characterization for newly generated TRU waste is typically performed as it is generated. CCP has chosen to use the VE characterization technique in conjunction with AK information to characterize the newly generated TRU waste. CCP performs VE prior to waste officially identified as "WIPP acceptable waste," and during the LANL packaging operations. ' VE is performed at this time due to the need to keep the radiation exposure risks to As Low As Reasonably Achievable (ALARA). CCP VE operators observe the filling of the waste container, ensuring the physical form of the waste matches its waste stream description, confirm the Waste Matrix Code, and verify the container is assigned to the correct waste stream. As a result, all waste items are identified and described, including packaging materials, and each waste item is assigned to the correct waste material parameter. This ensures that the waste container does not contain prohibited items such as ignitable, corrosive, or reactive wastes. Per CCP-TP-005, the AKE collects and evaluates container-specific documentation so the container can be added to the AK Tracking Spreadsheet. Once added to the AK Tracking Spreadsheet, the container will continue through the appropriate characterization process.

These discussions arose as the audit team was reviewing VE BDRs and recognized a known oxidizing chemical listed as part of the waste description in the LANL Waste

Compliance and Tracking System (WCATS) portion of the BDR. During the VE, the waste descriptions are verified through use of the current AK summary for that waste stream, whereas the “potential WIPP waste” will be re-evaluated by CCP AKEs for acceptability at WIPP, including the utilization of appropriate Enhanced AK process documentation. It was also noted that any waste destined for WIPP must pass the appropriate Enhanced AK processes in order to be identified as acceptable waste for WIPP. Any time a container is determined to not meet the WAC requirements; all associated records are maintained accordingly. The controls established within the CCP program are in place to address the acceptance, rejection, or find resolution to an identified issue, as applicable.

BDRs and field activities for characterizing SCG S3000 solids waste were not evaluated during this audit with regard to the area of VE due to inactivity for this SCG. Further, objective evidence was not provided for review during the audit and therefore the VE process associated with the SCG S3000 solids waste characterization implementation and effectiveness remains indeterminate. VE work associated with the OSRP is ongoing; however, objective evidence was not provided for review during the audit and therefore the VE process associated with OSRP and SCG S3000 solids waste characterization implementation and effectiveness remains indeterminate.

The procedures reviewed, field observations, and objective evidence assembled provided evidence to confirm that the applicable requirements for VE characterization of CH SCG S4000 soils/gravel and S5000 debris waste are adequately established for compliance with upper-tier requirements, effectively implemented, and satisfactory in achieving the desired results. No concerns were identified.

5.4.5 Nondestructive Assay

The audit team evaluated the adequacy, implementation, and effectiveness of the LANL/CCP NDA characterization process for SCG S3000 solids, SCG S4000 soils/gravel, and S5000 debris waste. The audit team also conducted interviews with responsible personnel and reviewed the following implementing procedures relative to the NDA process to determine the degree to which the procedures adequately address upper-tier requirements:

- CCP-TP-058, Rev. 6, *CCP NDA Performance Demonstration Program*
- CCP-TP-063, Rev. 18, *CCP Operating the High Efficiency Neutron Counter Using NDA 2000*
- CCP-TP-064, Rev. 9, *CCP Calibrating the High Efficiency Neutron Counter and the Super High Efficiency Neutron Counter Using NDA 2000*
- CCP-TP-076, Rev. 2, *CCP Operating the Mobile ISOCS Large Container Counter Using NDA 2000*
- CCP-TP-077, Rev. 2, *CCP Calibrating the Mobile ISOCS Large Container Counter Using NDA 2000*

- CCP-TP-103, Rev. 13, *CCP Data Reviewing, Validating, and Reporting Procedure for the NDA Counters at LANL Using NDA 2000*
- CCP-TP-107, Rev. 15, *CCP Operating the High Efficiency Neutron Counter #3 (HENC #3) Using NDA 2000*
- CCP-TP-108, Rev. 9, *CCP Calibrating the High Efficiency Neutron Counter #3 (HENC #3) Using NDA 2000*

Results of the review indicate that the procedures adequately address upper-tier requirements.

The audit team evaluated the following NDA equipment: High Efficiency Neutron Counter (HENC) unit #s 2 and 3 and Mobile ISOCS Large Container Counter (MILCC) unit #s 1 and 3. The HENC2 is located on Pad 10 and the MILCC1 is in Dome 54-283, both in Area G of TA-54. The HENC3 and MILCC3 are located in Building 407 of TA-55. The HENC1 and SuperHENC have both been deactivated and were not included in the scope of the audit.

Based on a review of the current revisions of LANL/CCP procedures, checklists were prepared and used to evaluate the following:

- System stability as evidenced by the implementation and effectiveness of quality control measurements and calibration verifications
- Applicability of each system's calibration and operational range to the matrix, geometry, and radionuclide content of waste assayed since the last audit
- Successful participation in the CBFO-sponsored NDA PDP
- Completed BDRs to ensure data are reported, analyzed, and reviewed as required
- Data storage and retrievability
- Personnel qualification and training for operators, SPMs, and NDA EAs
- Continued operability and condition of the HENC2 and MILCC1 at TA-54, as well as the HENC3 at TA-55 since CBFO Audit A-17-17
- Demonstrated operability of the MILCC3 at TA-55
- Operational logbooks and current software versions for all systems

The operations process and associated procedures were evaluated for the four NDA systems. The audit team witnessed characterization activities for the HENC3 unit and the start up and quality control measurement activities for the HENC2 and MILCC1; however, no characterization activities for the MILCC3 system were available for observation during the audit.

HENC #2

The HENC2 unit successfully participated in PDP cycle 24A. The HENC2 assayed containers resulting in the generation of 24 BDRs, where the following 6 BDRs were randomly selected for review:

- 2LANDA1292
- 2LANDA1293
- 2LANDA1294
- 2LANDA1301
- 2LANDA1308
- 2LANDA1314

These BDRs contained results for one, six, one, two, four, and three waste drums, respectively. The following NCRs were written against drums in these BDRs and were reviewed for adequacy and proper disposition:

- NCR-LANL-0421-17 (2LANDA1293, Drum 57342)
- NCR-LANL-0422-17 (2LANDA1294, Drum 58259)
- NCR-LANL-0493-17 (2LANDA1301, Drums 70236 and 70588)

The following documents were reviewed and provided to the audit team for evaluation:

- CCP-LANL-HENC-001, Revision 1, 5/3/2004, *CCP HENC Calibration and Validation Plan and Report*
- HENC#2-NDA-1002, Revision 3, 9/14/2007, *Calibration Report for HENC #2 including Passive Neutron and Gamma Spectrometer Calibration and Confirmation*
- LANL-NDA-1003-Lead-Lined, Revision 3, 6/3/2010, *Lead Lined Calibration Report for HENC #2 including Passive Neutron and Gamma Spectrometer*
- CI-HENC2-TMU-101, Revision 2, 4/4/2012, *Total Measurement Uncertainty for the HENC #2 with Integral Gamma Spectrometer*

The audit team determined the CCP operator received an "Ab" flag on the 121.78 keV FWHM QC parameter value for the gamma detector on 5/23/17. The system was taken out of service and NCR-LANL-0422-17 was initiated. CCP's investigation of the system showed no specific cause for the flag, so CCP suspected that electronic noise may have contributed to the slight increase in resolution. After disposition of the NCR was issued, quality control (QC) tests were performed with no flags. Shortly thereafter, calibration verification measurements were performed on 5/25/17. Since the flag only affected the gamma modality, a calibration verification of the system's gamma modality alone was performed. CCP performed one calibration verification, on 5/30/17, since the previous audit. The audit team reviewed the calibration verification and found it to be adequate.

The audit team determined that the procedures applied to the HENC #2 and the reports documenting its calibration range, operating parameters, and measurement uncertainty are adequate and address upper-tier requirements.

MILCC1

The MILCC successfully participated in PDP cycle 24A for drummed waste and B17A for boxed waste. The MILCC1 generated two BDRs (4LANDA0085 and 4LANDA0086) containing assay results for two waste boxes and one waste box, respectively.

The following documents were reviewed and provided to the audit team for evaluation:

- CI-MILCC-NDA-1006, Revision 0, 4/4/2013, *Calibration Report for the Mobile ISOCS Large Container Counter (MILCC) at Los Alamos National Laboratory Including Gamma Spectrometer Calibration and Confirmation*
- CI-MILCC-TMU-104, Revision 2, 4/2/2013, *Total Measurement Uncertainty Report for the MCS/LANL ISOCS "Box Counter"*

The audit team interviewed NDA personnel and determined that CCP performed one calibration verification, on 6/9/17, using the MILCC1 since the previous audit. The audit team determined the CCP operator received an "Ab" flag for the 122 keV FWHM parameter on Detector 2 while running the daily Gamma Instrument Check on 6/12/17. The system was taken out of service and NCR-LANL-0430-17 was initiated. Examination of the spectrum by the CCP EA determined that the detector resolution of the peak had further degraded. Based on that observation, CCP decided to replace Detector #2 with the spare detector while the system was shut down. After the spare detector (SN 8046) was installed on 6/14/17, a pole zero and an energy and shape calibration were performed. On 6/19/17, calibration verification measurements were performed. The calibration of the gamma modality was verified using Eu-152/Am-241 line sources loaded in a foam matrix drum.

While physically identical as a replacement detector, the refurbished detector specification sheet showed that detector efficiency was approximately 4% lower than the detector it replaced. Therefore, CCP performed additional verification counts using Pu source PDPI-10 in a PDP001 drum representative of daily assay characterization. The results showed that the instrument remains functional and the calibration is satisfactory.

The audit team interviewed operations personnel and observed equipment to determine that the operating procedures and governing technical reports are adequate, satisfactorily implemented, and effective.

HENC #3

The HENC #3 successfully participated in PDP cycle 24A. The HENC3 assayed containers resulting in the generation of 52 BDRs, where the following 5 BDRs were randomly selected for review:

5LANDA0068
5LANDA0076
5LANDA0090

5LANDA0098
5LANDA0106

These BDRs contained results for one, four, two, three, and three waste drums, respectively.

The following documents were reviewed and provided to the audit team for evaluation:

- *LANL HENC3 Multi-curve Efficiency Calibration Report, Revision 2, 3/10/14*
- *LANL-HENC3-NDA-101, Revision 3, 10/21/2015, Addendum to Calibration Report for the HENC3 at Los Alamos National Laboratory TA-55 Facility*
- *LANL-HENC3-TMU-101, Revision 0, 4/24/2014, Total Measurement Uncertainty for the HENC3 with Integrated Gamma Spectrometer*

The audit team interviewed NDA personnel and determined that CCP performed one calibration verification, on 7/10/17, using the HENC3 since the previous audit. The audit team determined the CCP operator received an "Ab" flag for the 964 keV FWHM on the Daily Gamma Instrument Check on 6/22/17. The system was shut down and NCR-LANL-0432-17 was initiated. CCP's examination of the system showed no external condition causing the flag; however, the examination of data by the CCP EA showed a gradual rise in resolution over time for the system. After disposition of the NCR was issued, test QC counts were performed to verify the present values. New boundary limits were calculated based on the average resolution of the previous 4 months. Since the "Ab" flag only affected the gamma modality during the Daily Instrument Check, the calibration verification of the system's gamma modality alone was performed. The calibration of the system's gamma modality was verified using Eu-152/Am-241 line sources loaded in a foam matrix drum. The results verified that the instrument remains functional and the calibration is satisfactory.

The audit team interviewed operations personnel and observed equipment to determine that the operating procedures and governing technical reports are adequate, satisfactorily implemented, and effective.

MILCC3

The MILCC3 has not participated in a PDP cycle at the time of the audit. The following documents were reviewed and provided to the audit team for evaluation:

- *CI-MILCC3-NDA-1001, Revision 0, 4/4/2018, Calibration Confirmation Report for the Mobile ISOCS Large Container Counter 3 (MILCC3) at Los Alamos National Laboratory*
- *CI-MILCC3-TMU-101, Revision 0, 4/25/2018, Los Alamos National Laboratory Mobile ISOCS Large Container Counter 3 (MILCC3) Total Measurement Uncertainty Report*

During the audit, CCP personnel reported that the calibration and total measurement uncertainty (TMU) documents for the MILCC3 will be updated in the future to address waste in Standard Waste Boxes. The audit team was able to interview operations

personnel and observe equipment on site, but was unable to verify the satisfactory and effective implementation of upper-tier requirements through the review of measurement data reported through project level review. No BDRs have been completed, and as a result, the audit team was unable to verify satisfactory implementation and effectiveness for the MILCC3 at the time of the audit. Therefore, the MILCC3 is deemed indeterminate.

NDA Summary

The audit team examined training records for NDA personnel and confirmed they were appropriately trained and qualified as required, and equipment software versions installed and used to perform NDA operations were appropriately identified and consistent with the versions listed in the CCP Software QA Program. Further, a review of NDA operational logbooks confirmed that they are completed and reviewed as required.

The MILCC3 completed satisfactory calibration and TMU documentation, although it is likely to be updated prior to or shortly after commencement of WIPP assay operations. BDRs and field activities for characterizing SCG S3000 solids waste were not evaluated during this audit with regard to the area of NDA due to inactivity for this SCG; however, the implementation of the NDA process continues to be adequate and effective.

With the exception of the MILCC3, the procedures reviewed, field observations, and objective evidence assembled provided evidence to confirm that the applicable requirements for the three NDA systems' (HENC #2, HENC #3, and MILCC1) characterization of CH SCG S3000 solids, S4000 soils/gravel, and S5000 debris waste are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No concerns were identified.

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

The audit team conducted interviews and reviewed implementing procedures relative to the WWIS/WDS data entry process to determine the degree to which the procedures adequately address upper-tier requirements. The procedures reviewed included CCP-TP-030, Rev. 36, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry*, and CCP-TP-033, Rev. 23, *CCP Shipping of CH TRU Waste*. Results of the review indicate that the procedures adequately address upper-tier requirements.

The audit team interviewed the CCP Waste Certification Manager and determined that CCP Waste Certification Officials (WCOs) are qualified to perform certification activities for CH waste. Waste Certification Assistants (WCAs) were also determined to be qualified to perform certification activities for CH waste, including WWIS/WDS data entry activities. WCOs and WCAs are qualified to perform these activities for LANL waste.

The audit team discussed the status of waste certification operations at the CCP Host site location with the Waste Certification Manager, and determined that there has been

no CH waste certification activity for LANL waste containers since last audit, including certification of OSRP containers. During interviews with the Waste Certification Manager and WCO personnel, the audit team determined that there were no unique or different aspects of the WWIS/WDS data entry and waste certification processes for LANL waste in comparison to this process implemented for waste certification at other CCP Host site locations.

The audit team determined there are currently no new WSPFs under consideration for submittal for approval for CH waste streams at LANL. The team reviewed evidence of a shipment package constructed of LANL containers within the last year. The shipment consisted of LANL containers that were certified prior to 2014. The audit team determined that shipping documentation was generated, reviewed, and approved in accordance with procedure CCP-TP-033, Rev. 23, *CCP Shipping of CH TRU Waste*. Waste characterization activities are currently on hold at the LANL Host site location. Due to activities being on hold, there was no objective evidence of WCO waste certification of LANL containers for the audit team to review during the audit. WCO personnel are familiar with the waste certification process (including the generation of new WSPFs), and have certified CH waste containers at other Host site locations. The audit team determined that procedure implementation and waste certification for containers at LANL is similar to other Host site locations. Based on the performance of CCP's waste certification at other Host site locations, the WWIS/WDS process is expected to be satisfactorily implemented and effective once activities resume. CCP WCOs will implement procedural requirements that include WWIS/WDS data entry and certification features using the IDC electronic data management system once waste certification activities resume. Implementation of CCP waste certification procedures will address Enhanced AK evaluations, as appropriate, for all containers, including those that have been previously certified.

The audit team interviewed WCO personnel regarding procedure work steps for performance of Unreviewed Safety Question Determinations (USQDs) and Material at Risk (MAR) evaluations. The audit team determined that WCO personnel have not received containers for certification that exceed the WIPP WAC PE-Ci limit requiring a USQD, and WCO personnel have not received a request from a transportation certification official for a high MAR evaluation. The audit team determined that WCO personnel are familiar with these two processes, simulations of procedure steps have been performed, and that implementation is expected to be adequate if personnel receive containers or evaluation requests.

The procedures reviewed provided evidence to confirm that the applicable requirements for WWIS/WDS are adequately established for compliance with upper-tier requirements; however, objective evidence was not provided for review during the audit and therefore the WWIS/WDS process implementation and effectiveness must be deemed indeterminate. No concerns were identified.

5.4.7 Flammable Gas Sampling and Analysis

The audit team reviewed CCP FGA implementing procedure DOE/WIPP 06-3345, Rev. 10, *Waste Isolation Pilot Plant Flammable Gas Analysis*. Results of the review indicate

that the procedure adequately addresses upper-tier requirements. The audit team also interviewed personnel and reviewed completed BDRs to verify adequacy, implementation, and effectiveness of LANL FGA activities.

The following FGA BDRs were examined:

CH BDRs:

LA17FG12007	LA17FG2005	LA17FG3005
LA18FG12001	LA18FG2005	LA18FG2013

Minimum Detection Limit (MDL) BDRs:

LA17FG2003_MDL	LA17FG3002_MDL
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Initial Calibration (ICAL) BDRs:

LA17FG2006_ICAL	LA17FG2007_ICAL	LA17FG3003_ICAL
LA17FG3004_ICAL	LA18FG12002_ICAL	LA18FG2001_ICAL
LA18FG2007_ICAL		

The BDRs were verified to be complete and accurate, and found to be in compliance with all applicable procedural requirements.

The audit team also examined training and qualification documentation for FGA operators and determined the operators were qualified and able to perform FGA operations.

The audit team observed sampling operations for CH waste containers LA00000072718 and LA00000072769 on May 9, 2018, immediately followed by sample analysis using the Agilent 6890 Series Plus FGA unit #3 in the TA-54 (Area G). No discrepancies were detected for either sampling or analysis of the CH containers observed.

The audit team verified that an ITR was performed following analytical BDR completion, and that the completed and reviewed BDR was submitted to CCP Records in accordance with CCP procedures.

The audit team evaluated sustained corrective actions regarding a condition identified and corrected during the audit (CDA) in the previous CBFO recertification audit (A-17-17) of LANL/CCP. The CDA identified that values for hydrogen and methane in the original method detection limit (MDL) spreadsheet for GC/MS (gas chromatography/mass spectrometry) Instrument #20, BDR #LA14FG2063_MDL (included in FGA BDR #s LA16FG2001 and LA17FG2002) were reported as 15,000 parts per million (ppm), rather than 1,500 ppm. In the MDL BDR, the percent recovery for these compounds was also recorded as 10.1% and 11.1%, rather than 101% and 111%. NWP/CCP initiated NCR-LANL-0167-17 and corrected the spreadsheet in the MDL BDR per CCP-QP-008 requirements during the previous audit. The audit team's evaluations determined that the NCR has been closed appropriately. No similar instances were identified during the current audit, thus evidencing sustained corrective actions to preclude recurrence of the condition.

BDRs and field activities for characterizing SCG S3000 solids waste were not evaluated during this audit with regard to the area of FGA due to inactivity for this SCG. Objective

evidence was not provided for review during the audit and therefore the FGA process associated with the SCG S3000 solids waste characterization implementation and effectiveness remains indeterminate.

The procedure reviewed, field observations, and objective evidence assembled provided evidence to confirm that the applicable requirements for FGA of CH SCG S4000 soils/gravel and S5000 debris waste are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No concerns were identified.

5.4.8 Container Management

The audit team reviewed the implementing procedure for container management (CM) activities conducted at LANL by the CCP. The audit team verified that CCP conducts CM activities only for CH waste using procedure CCP-TP-068, Rev. 12, *CCP Standardized Container Management*.

The audit team interviewed personnel and examined completed records for containers undergoing waste characterization and observed CM activities from initiating containers into the CCP characterization process to final characterization for containers LA00000072766, LA00000072015, and LA00000072050. The team also verified that CCP LANL storage of acceptable containers reasonably precluded shipment of unacceptable containers to the WIPP. It was confirmed that nonconforming containers are tagged and are segregated from the rest of the inventory in a manner consistent with ALARA (as low as reasonably achievable) standards. The audit team observed the following NCR tagged containers during field activities: S813521 (NCR-2015-422); S853851 (NCR-LANL-0141-18); LA00000057662 (NCR-LANL-0141-18); and LA00000056684 (NCR-LANL-0425-17).

The audit team verified the scale calibration used in Dome 232 is current. Scale #039054 was verified to be on the measuring and test equipment recall list, limited to 4000 pounds, and is recalled at 15-month intervals. During CM field observations, the audit team verified the CM personnel conduct inspections of the containers per procedural requirements. The associated container inspection information was recorded properly on procedure Attachment 2, Container Inspection/Weight Report, as required. The audit team examined training and qualification documentation for CM personnel and determined the personnel were currently qualified and able to perform CM operations.

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

6.0 CORRECTIVE ACTIONS, OBSERVATIONS, AND RECOMMENDATIONS

6.1 Corrective Action Reports

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

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

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

The following CARs were issued as a result of the audit.

CAR 18-029

Condition:

Points of Contact (POCs)/Subject Matter Experts (SMEs) were NOT identified on the Acceptable Knowledge Source Document Summary forms (Attachment 3) in verification statements for several revisions to procedures listed on the Interface Waste Management Document List (Attachment 9).

Requirement:

CCP-TP-005, Rev. 29, section 4.2.17 states:

IF it is determined that a new procedure or revision affects waste stream management or packaging, THEN update the interface Waste Management Documents List to include the procedure AND include the following additional verification information in the Acceptable Knowledge Source Document Summary form (see Section 4.3), as applicable:

[A] Description of activities affecting waste stream management or packaging, and

[B] Interface Waste Management Documents List POCs/SMEs contacted by the AKE to verify (walk down) the procedure.

IF it is determined that the changes in a revision to a procedure currently listed on the Interface Waste Management Documents List do NOT affect waste stream management or packaging, THEN update the Interface Waste Management Documents List to include the procedure revision AND note in the Acceptable Knowledge Source Document Summary form that the review did not identify any relevant changes to waste management from the previous revision(s). Include the identification of the POCs/SMEs and verification date on the Acceptable Knowledge Source Document Summary form (see Section 4.3).

CAR 18-030

Condition:

During review of Operational Logbook CCP-CH-LANL-RTR-HEUNIT2-02, the audit team found that the Acceptable Knowledge (AK) Summary Report and revision number were not documented in the logbook as required for characterization activities performed on 4/10/18 for Batch Data Report (BDR) LA-HERTR-18-0009, 4/11/18 for BDR LA-HERTR-18-0010, and 4/16/18 for BDR LA-RTR-18-0011.

Requirement:

CCP-PO-005, Rev. 29, section 13.2, third paragraph, states: "Minimum daily entries, when equipment is operational, shall include the following:

* * *

- Verification that the AK Summary Reports to be used for the process are current including document number and revision."

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 a minor and isolated case requiring only remedial action and therefore can be corrected during the audit.

Upon determination that the CAQ is minor and isolated, the audit team member, in conjunction with the ATL and the CBFO QA 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.

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 CAQs were corrected during the audit.

6.3 Observations

During the audit, the audit team may identify potential problems that should be communicated to the audited organization. The audit team members, in conjunction

with the ATL, evaluate these conditions and classify them as Observations using the following definition:

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

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

No Observations were identified during the audit.

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.

No Recommendations were identified during the audit.

7.0 LIST OF ATTACHMENTS

- Attachment 1: Personnel Contacted During Audit A-18-14
- Attachment 2: Summary Table of Audit Results
- Attachment 3: List of Audited Documents
- Attachment 4: Processes and Equipment Reviewed

PERSONNEL CONTACTED DURING AUDIT A-18-14				
NAME	TITLE/ORG	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Alvarado, Sylvia	VEO/LANL-CCP		X	
Baca, Ranada	CCP Records Analyst/LANL-CCP	X		X
Ballew, Veronica	QA Program/Project Integration Mgr/NWP	X		X
Barton, Tim	NDA Lead Operator/LANL-CCP	X	X	X
Billett, Michele	CCP Trng. Coordinator/NWP-CCP	X	X	
Bishop, M. Lee	TRU FCD/EM-LA	X		
Biswell, David	Observer/NMED	X	X	X
Boyko, Robert	QA Engineer/N3B	X		X
Brister, Adam	FGA Operator-SME/LANL-CCP	X	X	X
Bush, Matt	NDA Operator/LANL		X	
Cameron, Wyley	Sample Management/LANL-CCP	X	X	X
Carson, Pete	FLM/LANL-NPI-7			X
Castillo, Cindi	QA Programs Manager/CTAC	X		X
Chambers, Sherri	NDA EA/LANL-CCP	X	X	
Chavarria, Antonio	QA Engineer/NWP-CCP	X	X	X
Chism, Gary	VPM/NWP-CCP	X		X
Churchill, Liz	Observer/EM-LA	X	X	
Dawson, Jana	Observer/NMED (Contractor)	X	X	
Deines, Lex	VEO/LANL-CCP		X	
Diaz, Tammy	EPC Group Leader/LANS	X		
Elliot, Aaron	NDE Operator/LANL-CCP	X	X	X
Escarcega, Maria	VEO/LANL-CCP	X	X	X
Fisher, A.J.	Support Svs. Mgr./NWP-CCP			X
Gallegos, Adam	NDA EA/LANL-CCP	X	X	X
Griego, Stephanie	CH-TRU Ops. Director/N3B	X		
Griffin, Justin	OSRP/LANL-NEN-3	X		
Haar, Kevin	NDA Waste Characterization Assoc. Scientist/NWP-CCP	X	X	X
Hal, Christopher	Observer/EM-LA			X

PERSONNEL CONTACTED DURING AUDIT A-18-14				
NAME	TITLE/ORG	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Harvill, Joe	NDA Tech. Advisor/NWP-CCP	X	X	X
Hasselstrom, Thad	NDA/LANL-CCP (VJT)		X	
Hurtle, Jackie	LANL Coordinator/LANS-ADESH	X		X
Jagielski, Richard	FGA Lead-SME/LANL-CCP	X	X	X
Kirkes, Creta	WCO-WCA/NWP-CCP		X	
Lee, Ronnie	CCP Manager/NWP-CCP	X		X
Leroch, Matt	Regulatory Assurance Mgr./CTAC	X		X
Lickliter, Kenneth	Observer/CBFO-NTP (Contractor)	X		X
Maestas, Ricardo	Observer/NMED	X	X	X
Manzanares, Brian	VEO-VEE/LANL-CCP		X	
Martinez, Shelly	NDE CE/NWP-CCP	X	X	X
McLean, Megyn	Observer/NMED	X	X	X
Mojica, Tommy	VPM-VEE/NWP-CCP	X	X	
Moseman, Bernice	VEO/LANL-CCP		X	
Nance, Sheri	AKE/CCP (Tech Specs)	X	X	X
Nash, Adrienne	NNSA Rep/LANL NA-LA	X	X	X
Pace, Berry	Issues Mgmt Manager/NWP-CCP	X	X	X
Papp, Michael	AKE/CCP (Tech Specs)	X	X	
Paynes, J.	Representative/LANS	X		
Pearcy, Sheila	CCP Records Manager/CCP (TFE)	X	X	X
Princen, Kenneth	CBFO ONTP Asst. Manager	X		X
Pyeatt, Brandy	QA Analyst/NWP-CCP	X	X	X
Ramirez, Mike	CCP Manager/NWP-CCP	X		X
Reeves, Ron	CCP Ops Mgr/NWP-CCP	X		X
Roberts, Ben	Waste Program Director/N3B	X		X
Rodriguez, Darlene	NNSA-NA-LA Team Lead/LANL FO	X		
Santana, Luis	CCP Engineer/NWP-CCP	X		X

PERSONNEL CONTACTED DURING AUDIT A-18-14				
NAME	TITLE/ORG	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Segovia, Adam	VEE/LANL-CCP		X	
Soaterna, Carolina	SPM/NWP-CCP	X	X	X
Schoen, Jim	AKE/CCP (Tech Specs)	X	X	
Sharif, Ariana	AKE/CCP (Tech Specs)			X
Shelton, Steve	AK Scientist/LANL		X	
Simpson, Kenneth	NDE Operator/LANL-CCP	X	X	
Sterkel, Scott	NDA Operator/LANL		X	
Stewart, David	Representative/NNSA HQ	X	X	X
Tellez, Ernie	Observer/NMED	X	X	X
Thompson, James	VEE/LANL-CCP		X	
Turner, Laura	SPM/NWP-CCP	X	X	X
Wade, Daniel	Project Manager/NWP-CCP	X		X
Withowski, Ioana	OSRP-CH-SME/LANL	X		X
Yturralde, Jewell	Records Analyst/CCP (TFE)	X	X	X

**Audit A-18-14
Summary Table of Audit Results**

QA / Technical Elements	Concern Classification				QA Evaluation		Technical Evaluation
	CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness
Program Status/ Program Changes/ Interface					A	S	E
C6 General QA Elements (NCRs, Qualls & Training, Records)					A	S	E
C6 General QA Elements (WWIS/WDS)					A	I	I
Acceptable Knowledge & Waste Certification	1				A	S	E
Project Level Data V&V					A	S	E
Visual Examination					A	S	E
Visual Examination OSRP					A	I	I
Real-time Radiography	1				A	S	E
Nondestructive Assay					A	S	E
Container Mgmt/ FGA					A	S	E
TOTALS	2				A	S	E

Definitions

E = Effective

S = Satisfactory

I = Indeterminate

M = Marginal

U = Unsatisfactory

CAR = Corrective Action Report

CDA = Corrected During Audit

NE = Not Effective

Obs – Observation

Rec = Recommendation

A = Adequate

NA = Not Adequate

Audit A-18-14 LIST OF AUDITED DOCUMENTS

	Document No.	Rev.	Document Title
1.	CCP-PO-001	22	CCP Transuranic Waste Characterization Quality Assurance Project Plan
2.	CCP-PO-002	29	CCP Transuranic Waste Certification Plan
3.	CCP-PO-005	29	CCP Conduct of Operations
4.	CCP-PO-012	16	CCP/LANL Interface Document
5.	CCP-PO-045	3	CCP Waste Management Field Observation
6.	CCP-PO-047	2	CCP Training and Qualification Program Document
7.	CCP-QP-002	44	CCP Training and Qualification Plan
8.	CCP-QP-005	25	CCP TRU Nonconforming Item Reporting and Control
9.	CCP-QP-008	26	CCP Records Management
10.	CCP-QP-016	23	CCP Control of Measuring and Testing Equipment
11.	CCP-QP-028	17	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
12.	CCP-QP-041	2	CCP Job Needs Analysis and Design
13.	CCP-QP-042	1	CCP Project Level Training and Qualification
14.	CCP-QP-043	1	CCP Operations Level Training and Qualification
15.	CCP-TP-001	22	CCP Project Level Data Validation and Verification
16.	CCP-TP-002	27	CCP Reconciliation of DQOs and Reporting Characterization Data
17.	CCP-TP-005	29	CCP Acceptable Knowledge Documentation
18.	CCP-TP-028	11	CCP Radiographic Training Container Construction
19.	CCP-TP-030	36	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
20.	CCP-TP-033	23	CCP Shipping of CH TRU Waste
21.	CCP-TP-053	16	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
22.	CCP-TP-058	6	CCP NDA Performance Demonstration Program
23.	CCP-TP-063	18	CCP Operating the High Efficiency Neutron Counter Using NDA 2000
24.	CCP-TP-064	9	CCP Calibrating the High Efficiency Neutron Counter and the Super High Efficiency Neutron Counter Using NDA 2000
25.	CCP-TP-068	12	CCP Standardized Container Management
26.	CCP-TP-069	6	CCP Sealed Source Visual Examination and Packaging
27.	CCP-TP-076	2	CCP Operating the Mobile ISOCS Large Container Counter Using NDA 2000
28.	CCP-TP-077	2	CCP Calibrating the Mobile ISOCS Large Container Counter Using NDA 2000
29.	CCP-TP-103	13	CCP Data Reviewing, Validating and Reporting Procedure for the High Efficiency Neutron Counter Using NDA 2000
30.	CCP-TP-107	15	CCP Operating the High Efficiency Neutron Counter #3 (HENC #3) Using NDA 2000
31.	CCP-TP-108	9	CCP Calibrating the High Efficiency Neutron Counter #3 (HENC #3) Using NDA 2000
32.	CCP-TP-113	21	CCP Standard Contact-Handled Waste Visual Examination
33.	CCP-TP-198	8	CCP HE-RTR Operating Procedure
34.	CCP-TP-200	4	Enhanced Acceptable Knowledge Review
35.	DOE/WIPP 06-3345	10	Waste Isolation Pilot Plant Flammable Gas Analysis
36.	WP 13-QA.03	27	Quality Assurance Independent Assessment Program

Processes and Equipment Reviewed During Audit A-18-14 of the LANL/CCP

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
PREVIOUSLY APPROVED PROCESSES OR EQUIPMENT				
11HERTR3	High Energy Real-Time Radiography (HERTR) Procedures CCP-TP-053 and CCP-TP-198 Description – High Energy Real-Time Radiography (RTR) [built by VJ Technologies] 55-gallon drums and SWBs	*Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	*TBD (S3000) YES (S4000) YES (S5000)	YES
11VE1	CH Visual Examination Procedure – CCP-TP-113 Description – CH Characterization performed utilizing Visual Examination (VE) and Acceptable Knowledge (AK)	Soils/Gravel (S4000) Debris (S5000)	YES (S4000) YES (S5000)	YES
11VE2	Off-Site Source Recovery Program Procedure(s) – CCP-TP-069 and CCP-TP-101 Description – Characterization performed utilizing Visual Examination (VE) and Acceptable Knowledge (AK)	Debris (S5000)	YES	YES
N/A	Acceptable Knowledge Procedure – CCP-TP-005 Description – Acceptable Knowledge (AK)	*Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	*TBD (S3000) YES (S4000) YES (S5000)	YES
N/A	Data Verification and Validation Procedure(s) – CCP-TP-001, CCP-TP-002, CCP-TP-003, CCP-TP-103, CCP-TP-162	*Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	*TBD (S3000) YES (S4000) YES (S5000)	YES

Processes and Equipment Reviewed During Audit A-18-14 of the LANL/CCP

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
11HC2	Nondestructive Assay Procedure – CCP-TP-063, CCP-TP-064, CCP-TP-103 Description – Canberra Industries High-Efficiency Neutron Counter (HENC) mounted in a transportation container.	*Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	N/A	YES
11HC3	Nondestructive Assay Procedure – CCP-TP-107, CCP-TP-108, CCP-TP-103 Description – Canberra Industries High-Efficiency Neutron Counter (HENC) mounted in a trailer	*Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	N/A	YES
11MILCC1	Nondestructive Assay Procedure(s) – CCP-TP-076, CCP-TP-077 and CCP-TP-103 Description – Mobile In-Situ Object Counting System (ISOCS) Large Container Counter (MILCC)	*Solids (S3000) Soils/Gravel (S4000)	N/A	YES
N/A	WIPP Waste Information System/Waste Data System (WWIS/WDS) Procedure – CCP-TP-030 Description – CH TRU Waste Certification and WWIS/WDS Data Entry	*Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	YES	YES
N/A	Quality Assurance Program	*Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	N/A	YES
NEW PROCESSES OR EQUIPMENT				
11MILCC3	Nondestructive Assay Procedure(s) – CCP-TP-076, CCP-TP-077 and CCP-TP-103 Description – Mobile In-Situ Object Counting System (ISOCS) Large Container Counter (MILCC)	*Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	N/A	TBD

Processes and Equipment Reviewed During Audit A-18-14 of the LANL/CCP

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
DEACTIVATED PROCESSES OR EQUIPMENT				
11SHC1	Nondestructive Assay* Procedure – CCP-TP-059, CCP-TP-064, CCP-TP-103 Description – Super High-Efficiency Neutron Counter mounted in a trailer, SWBs	*Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	N/A	YES
* The processing activities of SCG S3000 through the Waste Characterization, Reduction, and Repackaging Facility (WCRRF) were suspended on July 16, 2014, and are currently in-process of restarting operations.				