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

February 4, 2025

Mr. JohnDavid Nance, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: Transmittal of the Final Audit Report for CBFO Recertification Audit QAD-A-25-16 of the Savannah River Site/Central Characterization Program

Dear Mr. Nance:

This letter transmits the Final Audit Report for Carlsbad Field Office (CBFO) Recertification Audit QAD-A-25-16 of the Savannah River Site/Central Characterization Program processes performed to characterize and certify waste in accordance with the Waste Isolation Pilot Plant Hazardous Waste Facility Permit (HWFP). The audit was conducted November 19 – 21, 2024.

The audit team concluded that, for the evaluated areas, the procedures utilized for characterizing contact-handled transuranic (TRU) Summary Category Groups (SCGs) S3000 solids and S5000 debris wastes, and the Enhanced Acceptable Knowledge process for remote-handled TRU SCGs S3000 solids and S5000 debris wastes adequately address upper-tier requirements, except for flammable gas analysis, which was determined to be marginal, and were satisfactorily implemented and effective in achieving the desired results. The audit team identified a total of 6 concerns during the audit. None were determined to be HWFP Waste Analysis Plan (WAP)-affecting conditions adverse to quality (CAQs). The non-WAP-affecting CAQs identified resulted in the issuance of one corrective action report, and three CAQs were corrected during the audit. In addition, two Observations were identified during the audit.

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

Please contact Darren Jolley, Director, CBFO Quality Assurance Division, at (575) 234-7493, should you have any questions concerning this audit report.

Sincerely,

MARK BOLLINGER

Digitally signed by MARK BOLLINGER
Date: 2025.02.04 17:27:32 -07'00'

Mark Bollinger
Manager
Carlsbad Field Office

Enclosure

CBFO:QAD:DMJ:SV:25-0037

cc: w/enclosure

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*ED denotes electronic distribution

U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

FINAL AUDIT REPORT

OF THE

SAVANNAH RIVER SITE
CENTRAL CHARACTERIZATION PROGRAM

FOR

TRANSURANIC WASTE CHARACTERIZATION AND CERTIFICATION ACTIVITIES IN THE E-AREA AND K-AREA

AT

AIKEN, SOUTH CAROLINA, and CARLSBAD, NEW MEXICO

AUDIT NUMBER QAD-A-25-16

NOVEMBER 19 – 21, 2024

Prepared by: Dustin Stegman Digitally signed by Dustin Stegman Date: 2025.02.04 13:11:19 -07'00'

Dustin Stegman, CTAC
Audit Team Leader

Concurred by: DARREN JOLLEY Digitally signed by DARREN JOLLEY Date: 2025.02.04 13:55:31 -07'00'

Darren Jolley, Director
CBFO Quality Assurance Lead

Approved by: DARREN JOLLEY Digitally signed by DARREN JOLLEY Date: 2025.02.04 13:55:54 -07'00'

Darren Jolley, Director
CBFO Quality Assurance Division

1.0 EXECUTIVE SUMMARY

United States Department of Energy (DOE) Carlsbad Field Office (CBFO) Recertification Audit QAD-A-25-16 was performed to evaluate the adequacy, implementation, and effectiveness of transuranic (TRU) waste characterization activities performed at the Savannah River Site (SRS) E-Area and K-Area by the Salado Isolation Mining Contractors (SIMCO) Central Characterization Program (CCP). The audit team evaluated the programs, procedures, and processes for characterizing and certifying contact-handled (CH) TRU Summary Category Groups (SCGs) S5000 debris and S3000 solids waste. The audit team also evaluated the Enhanced Acceptable Knowledge (EAK) process for remote-handled (RH) TRU SCGs S3000 solids and S5000 debris waste. The audit was conducted relative to the requirements of the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), the *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WIPP WAC), the *CBFO Quality Assurance Program Document* (QAPD), and the *Waste Isolation Pilot Plant Documented Safety Analysis* (DSA), Chapter 18.

Audit team members traveled to the SRS in Aiken, SC, to perform the audit on November 19 - 21, 2024. In addition, some audit activities were conducted remotely at the Skeen-Whitlock Building in Carlsbad, NM, and via teleconference.

The audit team concluded the SRS/CCP TRU waste characterization program procedures for characterizing CH and RH TRU SCGs S3000 solids and S5000 debris wastes adequately address upper-tier requirements, except for the flammable gas analysis process, which was marginal. The processes for characterizing CH TRU SCGs S3000 solids and S5000 debris waste, and the EAK process for characterization of RH TRU SCGs S3000 solids and S5000 debris waste were satisfactorily implemented and effective in achieving the desired results.

A total of six concerns were identified during the audit, with none considered WIPP HWFP Waste Analysis Plan (WAP)-affecting conditions adverse to quality (CAQs). Four non-WAP-affecting CAQs were identified. A corrective action report (CAR) was issued for one of these CAQs (see section 6.1.2) and the other three were corrected during the audit (CDA) (see section 6.2.2). Two non-WAP-affecting Observations were identified during the audit (see section 6.3.2).

2.0 SCOPE AND PURPOSE

2.1 Scope

The audit team evaluated the continued adequacy, implementation, and effectiveness of the technical and quality assurance (QA) activities performed by SIMCO CCP at the SRS for characterization of CH TRU SCGs S3000 solids and S5000 debris wastes. The audit also evaluated the EAK process for RH TRU SCGs S3000 solids and S5000 debris waste.

Some audit activities were conducted by the audit team at the SRS in Aiken, SC, with other team members working remotely via teleconference, or in Carlsbad, NM, at the Skeen-Whitlock Building.

Transportation, visual examination, and dose-to-curie (DTC) activities were not included in the scope of this audit. A list of the equipment and processes evaluated is included in Attachment 6 to this report.

The following areas were evaluated during the audit:

General Activities

- Results of Previous Audits
- Changes in Programs or Operations
- New Programs or Activities Being Implemented
- Changes in Key Personnel
- Generator Site Technical Review (GSTR)

WAP-Related QA Activities

- Quality Improvement/Nonconformances
- Personnel Qualification and Training
- Records

Non-WAP-Related QA Activities

- SRS/CCP Program Interface
- QA Program/Performance & Organization
- Measuring and Test Equipment (M&TE)*
- Graded Approach*
- Trending and Metrics & Contractor Assurance System (CAS) Reporting*
- Document Control*
- Software Version Installation*

* These QA activity evaluations do not have their own respective sections, but they are integrated throughout the report where applicable.

WAP-Related Technical Activities

- Acceptable Knowledge (AK)
- Project-Level Data Validation and Verification (PL V&V)
- Real-time Radiography (RTR)
- WIPP Waste Information System (WWIS)/Waste Data System (WDS)
- Transportation – Hazardous Waste Manifest (C6-1 #s 72 & 73)

Non-WAP-Related Technical Activities

- Nondestructive Assay (NDA), including Performance Demonstration Program (PDP)
- Container Management (CM)
- Flammable Gas Analysis (FGA)

Evaluation of the overall program adequacy, implementation, and effectiveness of SIMCO CCP documents will be based on the current revisions of the following documents:

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

Programmatic and technical checklists will be developed from the current revisions 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-004, *CCP/SRS Interface Document*
- CCP-PO-043, *CCP Interface Document Preparation*
- Related CCP QA and technical implementing procedures

2.2 Purpose

Carlsbad Field Office Audit QAD-A-25-16 was conducted to evaluate the adequacy and effective implementation of program requirements for the characterization and certification of CH TRU SCGs S3000 solids and S5000 debris waste at the SRS, as performed by SIMCO/CCP, for compliance with applicable upper-tier requirements. The audit also evaluated the EAK process for RH TRU SCGs S3000 solids and S5000 debris waste and specific QA elements in accordance with the WIPP HWFP WAP requirements.

3.0 AUDIT TEAM, CBFO QA LEAD, TECHNICAL SPECIALISTS, AND OBSERVERS

Darren Jolley*	CBFO Quality Assurance Division (QAD) Director QA Lead (QAL), CBFO
Dustin Stegman*	Audit Team Leader (ATL), CBFO Technical Assistance Contract (CTAC)
Priscilla Hinojos	Auditor, CTAC (C6 QA, Training & Records)
Laura Jones	Auditor, CTAC (C6 QA, Nonconformance Reports [NCRs], WWIS/WDS)
Jennifer Buckman	Auditor-in-Training (AIT), CTAC (C6 QA, NCRs, WWIS/WDS)
Priscilla Patterson	AIT, CTAC (C6 QA, Training & Records)
Maria Escarcega	Auditor, CTAC (AK QA)
Michael Collins*	Auditor, CTAC (RTR QA)
Wayne Ledford*	Auditor, CTAC (NDA QA)
Carl Wilkey*	Auditor, CTAC (Interface, QA Program & Organization, GSTR)
Gary Chism*	AIT, CTAC (Interface, QA Program & Organization, GSTR)
Paul Gomez*	Auditor, CTAC (PL V&V)
Richard Blauvelt	Technical Specialist, CTAC (AK)
Randy Fitzgerald	Technical Specialist, CTAC (AK)
Dale Dover*	Technical Specialist, CTAC (FGA, CM)
Eric Lyles*	Technical Specialist, CTAC (RTR)
Jim Oliver*	Technical Specialist, CTAC (NDA/PDP)

*Indicates audit team members who conducted evaluations at the SRS.

OBSERVERS

Craig Simmons	CBFO Office of the National TRU Program (ONTP)
Ricardo Maestas	New Mexico Environment Department (NMED)
Megan McLean	NMED
Alexis Donahue	NMED
Bob Thielke	Trinity Engineering, Contractor to the NMED

4.0 AUDIT MEETING ATTENDEES AND PERSONNEL CONTACTED

The audit meeting attendees and personnel contacted during the audit are identified in Attachment 1. A pre-audit meeting was held on November 19, 2024, at SRS K-Area and via teleconference. Daily management briefings were held November 20 and 21 to update SRS/CCP management and staff on audit progress and any identified concerns. The audit was concluded with a post-audit meeting held on November 21, 2024, at the SRS E-Area, and via teleconference. Attachment 2 lists the SRS/CCP personnel contacted during the audit by subject area. Attachment 3 contains a summary table of

audit results. Attachment 4 identifies the WAP-related objective evidence compiled (provided in boxes). Attachment 5 lists the audited procedures. Attachment 6 contains a summary of the processes and equipment evaluated.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

The audit was performed to assess the capability of the SRS/CCP to characterize CH TRU SCGs S5000 debris and S3000 solids waste from E-Area and K-Area at the SRS for compliance with the requirements specified in the WIPP HWFP WAP, the WIPP WAC, Chapter 18, of the WIPP DSA, and the CBFO QAPD. The characterization methods assessed were AK, PL, RTR, NDA, FGA, WWIS/WDS data entry, data quality objective (DQO) reconciliation, and CM. The audit also evaluated the EAK process for RH TRU SCGs S3000 solids and S5000 debris waste.

The audit team was able to conclude, through personnel interviews and review of associated documentation and records, the SRS/CCP TRU waste characterization program and activities applied to CH TRU SCGs S5000 debris and S3000 solids waste in the SRS E-Area and K-Area, along with the EAK process for RH TRU SCGs S3000 and S5000 waste from E-Area, adequately address upper-tier requirements, except for the FGA process, which was marginal.

The processes utilized for characterizing CH TRU SCGs S5000 debris and S3000 solids waste and the EAK process for RH TRU SCGs S3000 and S5000 wastes at the SRS were satisfactorily implemented and effective in achieving the desired results.

5.2 General Activities (non-WAP-related)

5.2.1 Results of Previous Audits

The audit team examined the results of the previous CBFO Recertification Audit (QAD-A-24-03) of the SRS/CCP waste characterization activities at the SRS (E-Area and K-Area), wherein 15 concerns were identified. None of the concerns were considered WAP-affecting. Nine of the 15 concerns were CAQs, resulting in the issuance of four CARs (24-006, 24-007, 24-008, and 24-009) and five CDAs. Two Observations were identified; three concerns were classified as Recommendations and were offered to management for consideration. One Strength was presented as a good practice.

During this audit, the audit team verified sustained corrective actions related to the CAQs identified during the previous recertification audit (QAD-A-24-03) and did not find any similar instances. The audit team verified the implemented corrective actions were adequate in precluding recurrence.

5.2.2 Changes in Programs or Operations

The audit team determined through an interview with the CCP Site Project Manager (SPM) that no changes in programs or operations were being implemented at the SRS since the previous recertification audit (QAD-A-24-03).

5.2.3 New Programs or Activities Being Implemented

The audit team determined through an interview with the CCP SPM that no innovative programs or activities were being implemented at the SRS since the previous recertification audit (QAD-A-24-03).

5.2.4 Changes in Key Personnel

The audit team determined through an interview with the CCP SPM that changes in key personnel since the previous audit consisted of appointment of a new Lead CCP SPM and a backup CCP SPM for the SRS.

5.2.5 Generator Site Technical Review

The CBFO and Nuclear Waste Partnership LLC, the previous WIPP management and operating contractor (currently SIMCO), as WIPP HWFP co-permittees, performed GSTR-SR-2-21-01 at the SRS. The GSTR Final Report was issued on April 20, 2022, and transmitted by letter (CBFO:ONTPWCD:DF:VV:21-1059:UFC 5900.00). The GSTR team completed their review of the program and found that SRS satisfactorily addressed and resolved all the five identified issues related to the GSTR, and the GSTR closure letter was issued on August 11, 2022, and transmitted by letter (CBFO:ONTPWCD:DB:LM:22-0945:UFC 5900.00).

No GSTRs are on the tentative schedule for the near future.

5.3 WAP-Related Quality Assurance Activities

The audit team evaluated the QA elements for personnel qualification and training, control of nonconformances, and records for compliance with requirements applicable to 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 the following implementing documents and procedures to determine the degree to which they adequately address upper-tier requirements:

- CCP-PO-047, Rev. 4, *CCP Training and Qualification Program Document*

- CCP-QP-002, Rev. 49, *CCP Training and Qualification Plan*
- CCP-QP-041, Rev. 6, *CCP Job Needs Analysis and Design*
- CCP-QP-042, Rev. 4, *CCP Project Level Training and Qualification*
- CCP-QP-043, Rev. 7, *CCP Operations Level Training and Qualification*

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

Personnel training records associated with AK and SPMs were examined to verify implementation of associated requirements. The audit team verified personnel performing waste characterization and certification activities are appropriately qualified.

Records reviews included an evaluation of the SRS/CCP List of Qualified Individuals (LOQI) dated September 30, 2024. Other record reviews included qualification cards and pertinent supporting qualification documentation, such as appointment letters for subject matter experts (SMEs) and expert analysts (EAs), and eye examinations for RTR operators.

The procedures reviewed and objective evidence assembled provided evidence 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 WAP-affecting or non-WAP-affecting concerns in the area of personnel qualification and training were identified.

5.3.2 Control of Nonconforming Items

The audit team reviewed CCP-QP-005, Rev. 29, *CCP TRU Nonconforming Item Reporting and Control,* to determine if the procedure adequately addresses upper-tier requirements. Results of the review indicate the procedure adequately addresses upper-tier requirements.

The audit team interviewed CCP QA personnel and reviewed randomly selected samples of nonconformance reports (NCRs).

The following closed NCRs were reviewed:

NCR Number	Revision
NCR-SRS-0052-24	Rev. 0
NCR-SRS-0053-24	Rev. 0
NCR-SRS-0055-24	Rev. 2
NCR-SRS-0061-24	Rev. 0
NCR-SRS-0062-24	Rev. 1

NCR-SRS-0063-24	Rev. 1
NCR-SRS-0064-24	Rev. 1
NCR-SRS-0065-24	Rev. 1
NCR-SRS-0070-24	Rev. 1
NCR-SRS-0074-24	Rev. 1
NCR-SRS-0077-24	Rev. 0
NCR-SRS-0081-24	Rev. 0
NCR-SRS-0082-24	Rev. 0
NCR-SRS-0083-24	Rev. 1
NCR-SRS-0084-24	Rev. 0
NCR-SRS-0172-23	Rev. 1
NCR-SRS-0498-23	Rev. 1
NCR-SRS-0500-23	Rev. 0

The audit team verified CCP personnel are familiar with the process for reporting NCRs to the Permittees via email to the CBFO within the time frame required by the Permit. The audit team reviewed a sample of NCRs and determined there was one NCR (NCR-SRS-0498-23, Rev. 1) generated at the site project management level within the last 12 months that required reporting to the Permittee. The audit team concluded NCRs are appropriately documented and tracked through resolution in accordance with CCP-QP-005, and applicable supporting documentation is contained in the records package. The NCRs examined were verified to have been entered, managed, and tracked in the NCR log/module within the CCP Integrated Data Center (IDC).

The procedure reviewed and objective evidence assembled provided evidence the applicable requirements for nonconformances are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No WAP-affecting or non-WAP-affecting concerns in the area of nonconformances 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. 24, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-QP-008, Rev. 30, *CCP Records Management*

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

The level of control for QA records was verified through review of the SIMCO CCP CH & RH (All Sites) Records Inventory and Disposition Schedule (RIDS) dated April 4, 2024, and the SIMCO CCP General RIDS dated April 4, 2024. The audit team also verified the RIDS are reviewed annually by the CCP Records Program Manager, as required, and a Facility Records Custodian has been designated for the SRS Host Site location to administer transmittal of records to the CCP Records Center in Carlsbad, NM.

The audit team verified the maintenance of records in file cabinets and in the electronic system stored on the WIPP server. Records that are maintained in paper format in the CCP Records Center are placed in locked fire-resistant cabinets. Access to the file cabinets is controlled using keys, and labels affixed to the file cabinets list the names of personnel approved to access the files. Files are adequately organized and maintained in both paper and electronic file systems. 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 separately from other documents. Records personnel are familiar with requirements for restricted-access files and adequately control distribution. Access to electronic files and restricted-access 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 procedures reviewed and objective evidence assembled provided evidence the applicable requirements for QA records are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No WAP-affecting or non-WAP-affecting concerns in the area of QA records were identified.

5.4 Non-WAP-Related Quality Assurance Activities

Each non-WAP-related QA area audited is discussed in detail in the following sections. The method used to select objective evidence (OE) is discussed; the OE used to assess compliance with the CBFO QAPD, WIPP WAC, or WIPP DSA, as applicable, is cited briefly; and the result of the assessment is provided.

5.4.1 CCP/SRS Program Interface

The audit team evaluated the program interface documentation established between the CCP and the SRS, as described in CCP-PO-004, Rev. 41, *CCP/SRS Interface Document*. The team performed an adequacy review of CCP-PO-004 to verify it contains the flow-down requirements from CCP-PO-043, Rev. 2, *CCP Interface Document Preparation*.

CCP-PO-004 describes the interfaces, roles and responsibilities, and program requirements applicable to organizations in support of waste characterization activities performed by the CCP at SRS E-Area and K-Area.

Interviews were conducted with the CCP/SRS SPM, the Vendor Project Manager (VPM), and the CCP Host Site Operations Manager, and records applicable to the interface agreements were evaluated. The audit team reviewed production reports, operational logbook entries, management assessment (MA) reports, SRS QA surveillance reports, M&TE records, Interface Waste Management Documents Lists (IWMDLs), CCP and host-site training documentation, container management documentation, sealed radioactive source correspondence, Acceptable Knowledge Summary Reports (AKSRs), Acceptable Knowledge Assessments (AKAs), batch data reports (BDRs), SIMCO QA surveillance reports of waste characterization activities at the SRS, and other documentation required by the interface agreement. The audit team also verified that CCP personnel performing work at the SRS have been trained to the current revision (11) of the WIPP WAC.

The audit team reviewed the following MA reports related to CCP activities at the SRS:

- MA-CCP-0008-24 was performed August 5 – 8, 2024. This assessment evaluated the degree of compliance with established procedures for performing CH Payload Assembly, CH Packaging Operations and Transportation Certification activities. All observed attributes met the requirements driven by the documents listed above. The pre-job brief was conducted prior to the start of CH Packaging operations, and all the programmatic requirements were covered thoroughly, such as: applicable procedures and revisions, equipment inspection, roles and responsibilities, Radiation Work Permit, dosimetry, housekeeping, training, effective hoisting and rigging communication. The evolution observed was for the loading and shipment of SRS Standard Waste Box SWD12275 which required additional radiological controls found in CCP-SO-SRS-086. After executing the direction in the standing order, the filter was processed by SRS Radiation Control personnel and Transuranic contamination was identified. All work on HalfPACT 511 was stopped, and all equipment was placed in a safe configuration. As a result of the assessment, no deficiencies, no recommendations, no programmatic strengths, and no observations were identified.

- MA-CCP-0009-23 was initiated on July 6, 2023. This assessment was performed to assess the accuracy and adequacy of CCP operated equipment’s physical spare-part inventories and associated records. This assessment involves an in-person walk down of the physical spare part inventory with operator of each unit. The Configuration Management Engineer reviewed the list while an operator verified each part in the physical inventory. As a result of the assessment, one deficiency, one recommendation, on programmatic strength, and two observations were identified. These were

entered into the issues management system. (WIPP-ISSUE-23-2048, WIPP-ISSUE-23-2050, WIPP-ISSUE-23-2051, WIPP-ISSUE-23-2052)

- MA-CCP-0015-23 was initiated on December 20, 2023. This MA evaluated the effectiveness of IDC tracking the standing orders and operator aids. The following areas were reviewed and evaluated: IDC entry and tracking of Standing Orders and Operator Aids. As a result of the assessment, one deficiency, no recommendations, no programmatic strengths, and no observations were identified. The deficiency was entered into the issues management system. (WIPP-ISSUE-23-2072)

The audit team verified the MA-identified conditions were entered into the Integrated Issues Management System for tracking purposes and were referenced with Issue Notice numbers within the reports.

The audit team verified SIMCO QA conducts periodic QA surveillances to assess compliance with applicable WIPP requirements. The audit team evaluated the SIMCO QA Fiscal Year 2024-2025 Independent Assessment Schedule. The audit team also reviewed the following SIMCO QA surveillance reports for CCP/SRS-related surveillances performed in 2024:

- SIMCO QA Surveillance Report S24-31, *CCP Conduct of Operations at SRS*, performed March 6 through April 08, 2024. The surveillance verified effective implementation of CCP-PO-005, *Conduct of Operations*, requirements during characterization operations at SRS. The results of this surveillance verified that CCP-PO-005 is being effectively implemented. As a result of the surveillance, there were no findings, no CDAs, and no observations identified.

- SIMCO QA Surveillance Report S24-33, *CP FGA at the SRS*, performed April 16 – 30, 2024. The surveillance verified the program compliance of CCP FGA operations and procedure implementation at SRS. The evaluation was conducted through a field review of daily operations, interviews, and a review of related documentation. As a result of the surveillance, there were no findings, no CDAs, and no observations identified.

- SIMCO QA Surveillance Report S24-34, *CCP NCR Hold Tag Maintenance at SRS*, performed April 16 – 30, 2024. The surveillance evaluated the effective implementation of CCP-QP-005 requirements concerning the CCP NCR hold tags used to identify nonconforming containers at SRS. The surveillance activities conducted included personnel interviews, review of NCR data in the IDC and a walkdown of the container storage in both K-area and E-area to determine effective implementation of NCR hold tag requirements. As a result of the surveillance, there was one finding, one CDA, and no observations.

- SIMCO QA Surveillance Report S24-42, *SRS CCP NDA Operations*, on August 12 – 26, 2024. The surveillance evaluated the effective

implementation of the CCP NDA operations consisting of a field review, interviews, and a review of documentation. As a result of this surveillance, there were no findings, no CDAs, and no observations.

- SIMCO QA Surveillance Report S24-23, *SRS Container Management (CM)*, performed August 12 – 26, 2024. The surveillance evaluated the effective implementation of the CCP CM process at the SRS, K Area. Evaluation of Container management included a field review, review of documentation, and personnel interviews. As a result of the surveillance, there were no findings, no CDAs, and no observations identified.

The audit team verified SRS QA personnel conducted a surveillance to ensure CCP work is performed in accordance with CCP procedures by reviewing the following surveillance reports:

- Surveillance 2024-SUR-29-002, *Real-Time Radiography for CCP*, performed March 12 – 21, 2024. The surveillance verified the process of the CCP's RTR operations in K-Area Complex, Criticality Controlled Overpack (CCO) Building 163-70K. The evaluation included a review of recorded documentation, interviews, and observance of field examination of the CCP's RTR Operations. As a result of this surveillance, there were no findings identified.

- Surveillance 2024-SUR-29-0005, *Nonconformance Reporting Process for the Central Characterization Program*, performed October 7 – 22, 2024. The surveillance verified the NCR process for the CCP in the K-Area Complex. The evaluation included a review of documentation, interviews, and field walkdowns to observe open NCR conditions. As a result of this surveillance, there were no findings identified.

The procedures reviewed and objective evidence assembled provided evidence the applicable requirements for the interface agreements between SRS and CCP organizations are adequately established, meet upper-tier requirements, are satisfactorily implemented, and are effective in achieving the desired results. No non-WAP-affecting concerns in the area of SRS/CCP program interface were identified.

5.4.2 Organization and QA Program

The audit team reviewed the following documents and implementing procedures to ensure they adequately address the applicable requirements of the CBFO QAPD for SRS/CCP-related activities:

- WP 13-1, Rev. 44, *Waste Isolation Pilot Plant Quality Assurance Program Description*
- WP 13-QA.03, Rev. 35, *Quality Assurance Independent Assessment Program*
- CCP-PO-001, Rev. 24, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*

- CCP-PO-002, Rev. 33, *CCP Transuranic Waste Certification Plan*

The CBFO performs an annual audit of the CCP for all waste generator sites to verify the overall adequacy, implementation, and effectiveness of SIMCO CCP's QA program for activities in support of WIPP in accordance with requirements of the CBFO QAPD. The evaluation includes a review of QA-related plans, procedures and documents, and records demonstrating the performance of quality-affecting activities associated with the characterization and certification of TRU waste, including those at the SRS. The last CCP QA All-Sites Audit (QAD-A-24-11) was conducted by the CBFO on April 30 – May 2, 2024. Three concerns were identified, two of which were determined to be CAQs and resulted in the issuance of CARs 24-030 and 24-031. The third concern was classified as an Observation.

During this audit, the team did not observe any similar instances to the CAQs identified, suggesting that steps taken to address the issues were adequate in precluding recurrence.

The audit team interviewed SIMCO QA management and CCP QA personnel and reviewed documentation, including SIMCO's QA organizational chart. Interviews with QA management were conducted to ensure the independence of the QA organization, to verify the organization has direct access to responsible management at a level where appropriate action could be effective, and to confirm its independence from cost and schedule considerations.

The overall SIMCO QA program description is contained in WP 13-1. QA program requirements specifically applicable to CCP-related activities are contained in CCP-PO-001, section C5 and Attachment 1, and in CCP-PO-002, section 4.0.

The audit team reviewed the methods for tracking and performing trend analysis of problem areas. Each CCP site, most with a resident QA engineer, provides trend information that is verified and signed by the QA program manager. The site- generated data is rolled up and reported to management. Semiannual CCP QA trend reports were provided to the SPMs and the CBFO during the semiannual periods of July 1, 2023, through December 31, 2023, and January 1, 2024, through June 30, 2024. Verification and review of the reports indicated all relevant information for QA activities during these periods was reported in accordance with implementing procedures.

The organization and QA program activities were determined to be adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results in accordance with requirements in the CBFO QAPD. No non-WAP-affecting concerns in the area of organization and QA program activities were identified.

5.5 WAP-Related Technical Activities

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

5.5.1 Table C6-1, WAP Checklist

The C6-1, *WAP Checklist,* addresses general program requirements from an overall management perspective. The general requirements checklist addresses both technical requirements and specific WIPP HWFP WAP-related QA programmatic requirements that, when collectively implemented, ensure effective overall management of TRU waste characterization activities. Requirements are integrated into controlled documents to ensure the waste characterization strategy as defined in the WAP. This is accomplished and documented in accordance with controlled processes and procedures.

Technical elements evaluated for waste characterization activities consisted of AK, PL V&V, RTR, NDA, FGA, CM, and WWIS/WDS. Objective evidence was selected and reviewed to evaluate the implementation of the associated waste characterization activities. Batch data reports, sampling records, and personnel qualification and training documentation were included in the evaluation. Each characterization process involves:

- Collecting raw data
- Collecting QA/quality control (QC) samples or information
- Reducing the data to a useable format, including a standard report
- Review of the report by the data generation facility and the site project office
- Comparing the data against program DQOs
- Reporting the final waste characterization information to WIPP

The flow of data from the point of generation to inclusion in the waste stream profile form (WSPF) was reviewed to ensure all applicable requirements were captured in the site operating procedures for the SRS E-Area. The specific procedures audited, and the OE reviewed are described in the following sections.

Through documentation and interviews conducted during the audit, SRS/CCP demonstrated compliance with the waste characterization requirements of the HWFP WAP.

Project-Level Data Validation and Verification (PL V&V)

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

- CCP-QP-042, Rev. 4, *CCP Project Level Training and Qualification*
- CCP-TP-001, Rev. 25, *CCP Project Level Data Validation and Verification*
- CCP-TP-002, Rev. 30, *CCP Reconciliation of DQOs and Reporting Characterization Data*
- CCP-TP-005, Rev. 34, *CCP Acceptable Knowledge Documentation*

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

The audit team verified the SPM who conducted work for SRS/CCP at the SRS E-Area and K-Area was appropriately trained and qualified as required by CCP-QP-042.

The audit team evaluated the following BDRs in support of waste characterization activities completed at the SRS E-Area and K-Area to verify PL V&V activities are performed in compliance with applicable procedural requirements:

RTR

- SR-RTR2-23-0003
- SR-RTR8-23-0118
- SR-RTR8-23-0131
- SR-RTR8-24-0001
- SR-RTR8-24-0014
- SR-RTR8-24-0020
- SR-RTR8-24-0038
- SR-RTR8-24-0044
- SR-RTR8-24-0051

NDA

- SR-HENC4-0185
- SR-HENC4-0277
- SR-HENC5-0299
- SR-HENC5-0271
- SR-HENC5-0284
- SR-HENC5-0245
- SR-MILCC6-0061
- SR-MILCC6-0062

The BDRs were verified to be complete and accurate and were found to follow all applicable procedural requirements.

The audit team verified waste stream summary reports for:

- CP:22:01328 - Transmittal of Savannah River Site Waste Stream Profile Form for Waste Stream SR-KAC-PUOX for CCP-AK-SRS-23

The audit team verified Characterization Information Summaries (CISs) for:

- CP:23:01338 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#35
- CP:23:01361 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#36
- CP:24:01037 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#37
- CP:24:01064 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#38
- CP:24:01086 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#39
- CP:24:01101 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#40
- CP:24:01098 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#41
- CP:24:01106 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#42
- CP:24:01105 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#43
- CP:24:01110 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#44
- CP:24:01116 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#45
- CP:24:01118 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#46
- CP:24:01128 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#47
- CP:24:01133 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#48
- CP:24:01139 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#49
- CP:24:01146 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#50
- CP:24:01168 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#51
- CP:24:01179 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#52

- CP:24:01190 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#53
- CP:24:01212 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#54
- CP:24:01234 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#55
- CP:24:01255 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#56
- CP:24:01259 - Transmittal of Savannah River Site Characterization Information Summary SR-KAC-PuOX Lot#57

The audit team verified the discrepancy resolutions for waste streams:

- DR167
- DR168
- DR169
- DR170
- DR171
- DR172
- DR173
- DR174

The audit team verified the quarterly repeat information of the data generation level (DGL) data by the project level:

- CP:24:01043 - Request of 4th Q 2023 RTR Quarterly Request of DGL Review, Validation and Verification at the SRS
- CP:24:01084 - Results of 4th Quarter 2023 RTR Quarterly Request
- CP:24:01115 - Request of 1st Q 2024 RTR Quarterly Request of DGL Review, Validation and Verification at the SRS
- CP:24:01154 - Results of 1st Quarter 2024 RTR Quarterly Request
- CP:24:01196 - Request of 2nd Q 2024 RTR Quarterly Request of DGL Review, Validation and Verification at the SRS
- CP:24:01275 - Results of 2nd Q 2024 RTR Quarterly Request
- CP:24:01276 - Request of 3rd Q 2024 RTR Quarterly Request of DGL Review, Validation and Verification at the SRS

The procedures reviewed and OE assembled and evaluated during the audit provided evidence the applicable requirements for PL V&V activities are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and are determined effective in achieving the desired results. No WAP-affecting or non-WAP-affecting concerns in the area of PL V&V were identified.

WIPP Waste Information System/Waste Data System

The audit team conducted interviews with responsible personnel and reviewed implementing procedure CCP-TP-030, Rev. 41, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry*, relative to the WWIS/WDS data entry process to determine the degree to which the procedure adequately addresses upper-tier requirements.

Results of the review indicate the procedure adequately addresses upper-tier requirements.

The audit team evaluated the implementation of the WWIS/WDS data entry procedure for electronic population of data, manual update of data, and electronic transfer of data from the IDC software database to the WWIS/WDS. Records reviewed included CISs, pages from BDRs showing analyses values in the IDC, WWIS/WDS Waste Container Data Reports, and submittals for WWIS/WDS review/approval. Records for data entry of CH waste characterization and certification data were also reviewed.

The audit team reviewed waste characterization case files for the following six CH containers:

- CLAB160014 – SR-W026-772F-HET, LOT 127
- HC020011 – SR-W027-221H-HEPA, LOT 29
- KDB1601107 – SR-KAC-PuOx, LOT 55
- KDB22001037 – SR-KAC-PuOx, LOT 39
- SDD076239 – SR-SDD-HOM-A, LOT 3
- SR123429A – SR-W027-FB-PRE86-C, LOT 192

The SRS CH waste containers listed above were certified under the current procedural process from CCP-TP-030, which provides certification for using modules of the IDC. The audit team determined the IDC processes for CH waste container certification were performed in accordance with the appropriate procedure.

The audit team interviewed the CCP Lead Waste Certification Official (WCO) regarding procedure work steps for performance of Unreviewed Safety Question Determinations (USQDs) and Material at Risk (MAR) evaluations. The audit team determined WCO personnel have not received containers for certification that exceed the WIPP WAC PE-Ci (Plutonium-Equivalent Curie) limit requiring a USQD. The WCO personnel received a request from a Transportation Certification Official for a MAR evaluation. Material at Risk Evaluation 23-023 was completed for shipment SR230008. The MAR override for assemblies in shipment SR230008 was applied in the WDS, as required by the procedure.

There has been no characterization or certification activity performed for RH waste containers at the SRS host site location and there have been no shipments of RH waste since the last shipment in 2012.

The audit team reviewed procedure CCP-TP-033, Rev. 26, *CCP Shipping of CH TRU Waste,* and ten CCP CH shipping records packages for shipments SR230023, SR230027, SR230028, SR240002, SR240005, SR240009, SR240016, SR240021, SR240029, and SR240039 to ensure the U.S. Environmental Protection Agency (EPA) Hazardous Waste Manifest (HWM) was completed prior to shipping the waste to WIPP.

The audit team interviewed the CCP Transportation Certification Official, who ensures all manifests and shipping papers are correct as required. The audit team verified the HWM contained the waste generator site name and EPA ID, site contact name and phone number, quantity of waste, Hazardous Waste Numbers (HWNs) for each line item, the listing of all container identification numbers, and the signature of the authorized waste generator site representative. It was further determined the waste stream identification number, hazardous waste numbers, certification data, and shipping date were included in the shipment records.

The procedures reviewed and objective evidence assembled provided evidence the applicable requirements for WWIS/WDS data entry are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No WAP-affecting or non-WAP-affecting concerns in the area of WWIS/WDS were identified.

5.5.2 Table C6-2, Acceptable Knowledge Checklist

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

- CCP-PO-001, Rev. 24, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-QP-002, Rev. 49, *CCP Training and Qualification Plan*
- CCP-QP-005, Rev. 29, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, Rev. 30, *CCP Records Management*
- CCP-QP-010, Rev. 37, *CCP Document Preparation, Approval, and Control*
- CCP-QP-042, Rev. 4, *CCP Project Level Training and Qualification*
- CCP-TP-001, Rev. 25, *CCP Project Level Data Validation and Verification*
- CCP-TP-002, Rev. 30, *CCP Reconciliation of DQOs and Reporting Characterization Data*
- CCP-TP-005, Rev. 34, *CCP Acceptable Knowledge Documentation*
- CCP-TP-200, Rev. 8, *Enhanced Acceptable Knowledge Review*
- WP 13-QA.03, Rev. 35, *QA Independent Assessment Program*

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

The scope of this recertification audit for the SRS E-Area and K-Area is focused on examination of the AK record for TRU waste streams from the CH SCGs and the RH SCGs for which the SRS is certified. Those SCGs are CH S5000 debris, CH S3000

solids, RH S5000 debris, and RH S3000 solids. The SRS is also certified for SCG CH S4000 soils/gravel. There is only one waste stream, SR-MD-SOIL, that represents contaminated soil, primarily from underground pipe leaks, and it is described in AK Summary Report (AKSR) CCP-AK-SRS-8, Rev. 9. This waste stream was examined during the FY 2022 audit. There are ten waste containers ready to ship, but the certification letter has not been completed. Therefore, this waste stream was not included in the audit scope of this audit.

The SCGs S5000 debris and S3000 solids E-Area waste streams selected by the AK audit team were SR-W027-221H-HET-C and SR-W027-221H-HOM, respectively. Both waste streams are described in AKSR CCP-AK-SRS-4, Rev. 17. The HET-C waste stream is generated from activities in the H Canyon and H Boxline (HBL) facilities. Those activities included processing plutonium and uranium scrap metal, decontamination and decommissioning activities, and maintenance and the repackaging of Berl saddles from H Canyon activities. Future generation is expected. The HOM waste stream is a small volume waste stream that was generated from June 1974 to July 2011. Containers in this waste stream were generated through the solidification/absorption of liquids and sludges, primarily associated with maintenance and housekeeping operations. No future generation is projected. AK Summary Report CCP-AK-SRS-4, Rev. 17, Section 8.2, *Waste Stream Volume and Period of Generation*, states that waste stream SR-W027-221-HET-C includes 495 55-gallon drums and 7 Standard Waste Boxes (SWBs). However, Section 4.2.1, *Types and Quantity of TRU Waste Generated*, states that for this waste stream there are 452 containers. Attachment 8 - *Waste Containers List*, coincides with this number of containers. (See CDA-3 in section 6.2.2.)

The K-Area CH SCG S5000 debris waste stream examined completely was SR-KAC-PuOx, as described in AKSR CCP-AK-SRS-23, Rev. 1. This waste stream is a down blend of plutonium oxide with an adulterant prior to disposal at WIPP. The adulterant is added to make it difficult to recover plutonium. This waste stream has been examined in previous recertification audits and was thoroughly reexamined by the AK auditors during this audit. The E-Area RH SCGs S5000 debris and S3000 solids waste streams examined include the SR-RH-221H.02 debris waste stream described in AKSR CCP-AK-SRS-600, Rev. 2, and waste stream SR-BCLDP.003-Hydraulic Sludge and Debris described in AKSR CCP-AK-SRS-530, Rev. 1. The SCG S5000 debris stream was generated from the packaging of Berl saddles from the H Canyon dissolver off-gas system. The RH SCG S3000 solids waste stream was generated from clean-up of hydraulic fluid and other materials during decommissioning of the Battelle Columbus Laboratories at West Jefferson, OH.

The audit was conducted in accordance with the latest revision of the WIPP HWFP WAP, DOE/WIPP-02-3214, *RH TRU Waste Characterization Program Implementation Plan,* Rev. 4 (WCPIP), and the WIPP WAC (DOE/WIPP-02-3122), along with relevant CCP implementing procedures. A review of available EAK products as described in Appendix H of the WAC was conducted. Checklists included WAP-driven C6-1 and C6-2 checklists and applicable WCPIP checklists. These checklists will be populated

with OE reviewed and compiled to demonstrate compliance with each of the applicable requirements.

The above-mentioned five AKSRs were reviewed by the audit team with respect to the information that relates to specific WIPP HWFP WAP and WIPP WAC requirements. They were examined along with relevant AK Source Documents to verify support for the waste stream description and relevant WIPP HWFP WAP- and WIPP WAC-required parameters, including description of waste processing activities, assignment of HWNs, identification of the two most prevalent radionuclides, and waste stream volume and period of generation. Furthermore, the auditors examined the most current and available WSPFs and attachments.

The audit team also examined the following completed AK attachments from CCP-TP-005 for all five waste streams:

- Attachment 1- AK Documentation Checklist
- Attachment 4- AK Information List
- Attachment 5- AK Hazardous Constituents
- Attachment 6- AK Waste Form, Waste Material Parameters, Prohibited Items, and Packaging along with the justification memos for waste material parameter weight estimates
- Attachment 7- Radionuclides along with AK/NDA memo for the CH waste streams
- Attachment 8- Waste Containers List along with supporting waste stream container evaluation memos that demonstrate that the parameters and properties of containers provided by the generator to be added to a waste stream have been examined to ensure the assignment is appropriate.

The AK audit team reviewed examples of discrepancies in the AK record and the resolution of those discrepancies, along with discrepancy resolutions at waste characterization, and the requisite AK reevaluation forms to demonstrate the CCP has adequate procedures in place to address relevant requirements. Examples of NCRs dealing with prohibited items identified during waste characterization were examined and compiled as OE. The latest AK accuracy reports were also examined and compiled as OE. In addition, the AK audit team examined waste stream characterization checklists and CISs, as available, for each waste stream.

The WAP-required traceability exercise was conducted by the audit team for a total of nine waste containers selected from the five waste streams examined. It is noted there was only one SR-BCLDP.003 drum available for review. For the nine containers selected, the auditors examined BDRs for RTR, NDA, and DTC. Additional traceability documentation was collected through IDC database screenshots, the AK Tracking Spreadsheet data, the AK Waste Container Lists, Add Container Memos, and SRS waste container input forms completed by the waste generators.

The audit team identified one concern regarding an incorrect statement in several Waste Stream Container Evaluation Memoranda. Additional information regarding this concern is discussed below.

The audit team reviewed training records for seven acceptable knowledge experts (AKEs) and three SPMs who currently participate in waste characterization activities for SRS/CCP. The audit team reviewed BDRs, AK Accuracy Reports, Basis of Knowledge (BOK), Chemical Compatibility Evaluations (CCEs), and Discrepancy Resolutions. The audit team examined the handling of AK records for compliance with preparation, legibility, accuracy, review, approval, and maintenance requirements. The distribution, control, and use of appropriate AK procedures were reviewed. Two external assessments that were performed at SRS in the past 12 months were reviewed: 2024-SUR-29-002, *Real Time Radiography Operations for CCP*, and 2024-SUR-29-005, *Nonconformance Reporting Process for the Central Characterization Program*. Five internal assessments were performed: S24-42, *SRS CCP NDA Operations*, S24-43, *SRS Container Management*, S24-34, *CCP Hold Tag Maintenance at SRS*, S24-33, *CCP FGA at SRS*, and S24-31, *CCP SRS Conduct of Operations*. One QA Audit, I24-01, *CCP QA at Los Alamos National Laboratory (LANL)*, Quality Assurance Audit, evaluated the adequacy and effective implementation of the CCP QA program throughout the complex. Management Assessment MA-CCP-0004-24, *CCP Enhanced AK: IWMDL*, was conducted to evaluate the degree of compliance with established procedures for implementing the IWMDL requirements of the AK process. One Observation was found during this assessment and is being tracked in WIPP-ISSUE-24-1027. There was also one Recommendation that is being tracked by WIPP-ISSUE-24-1028. A programmatic Strength was noted during this assessment as well. These internal and external assessments show that the SRS/CCP AK program is continuously monitored for quality improvements.

Enhanced Acceptable Knowledge Products (EAKPs)

The following EAKP documents for the waste streams were reviewed during the audit:

IWMDL

The IWMDL process was initiated by the CCP for waste stream SR-KAC-PuOx in 2021 and has been maintained since then. During this audit, a thorough review of all new IWMDLs (AK attachment 9) and supporting AK Source Document Summaries (AK attachment 3) was conducted. The audit team identified the following three concerns:

- AKE is not reviewing procedure revisions for potential impacts to waste stream management and packaging. (See CDA-2 in section 6.2.2.)

- Two instances of CCP AKE's review of procedure revision greater than 60 days after the approval date of the procedure revision. (See Observation-2 in section 6.3.2.)

- The initial IWMDL for the PuOx waste stream, which was signed on 8/10/2021. The Waste Stream Container Evaluation Memorandum (WSCEM) was issued on 7/2/2021, and the subsequent Addendum 1 was issued on 7/27/2021; therefore, the criticality control overpacks (CCOs) listed in the initial WSCEM and Addendum 1 were packaged prior to the development of an IWMDL. However, an IWMDL was developed for CCOs listed in the WSCEM, Addendum 2, dated 10/15/2021, through Addendum 86, dated 10/30/2024; therefore, the incorrect statement was included in 84 WSCEM addenda issued over a 3-year time frame. (See CAR 25-003 in section 6.1.2.)

AKA

The following AKAs were reviewed:

- AKA011 and addenda for waste stream SR-W027-221H-HET-C
- AKA12 for waste stream SR-W027-221H-HOM
- AKA34 for waste stream SR-RH-221H.02
- AKA28 for waste stream SR-KAC-PuOx, which included Rev. 0 and 24 addenda as containers were added to this waste stream

The AK auditors reviewed the AKA contents, including historic waste management processes and procedures, current remediation and repackaging waste management practices and procedures, and a list of applicable absorbents. The AK auditors also reviewed a detailed description of the contents of each waste container bound by the AKAs. The auditors also examined comments from the internal CCP and generator site reviews and the CCP-TP-200, *Open Acceptable Knowledge Evaluation Software (OAKES)*, checklist for the AKAs, as applicable. Currently, there are no EAKPs for RH waste stream SR-BCLDP.003.

CCE

The following three CCEs were reviewed:

- CCE03 which covers SR-W027-221H-HET-C and SR-W027-221H-HOM waste streams
- CCE15 which addresses waste stream SR-RH-221H.02
- CCE14 which addresses waste stream SR-KAC-PuOx

The audit team conducted a detailed examination or reexamination of the CCEs, which included consolidated material input entries, technical evaluations, waste materials and chemicals of concern, and insignificant trace chemicals. The audit team also reviewed and compiled OE document review records from internal and CBFO reviews and the CBFO approval letter. In addition, a copy of the CCP-TP-200 OAKES checklist for the CCEs was examined.

BOK

For the waste streams reviewed with EAKP, the following BOK memos were reviewed and determined to be compliant:

- BOK11 - an exempt memo for waste stream SR-W027-221H-HET-C that documents and validates the absence of oxidizing chemicals in the waste containers and the absence of rags/wipes that may have come in contact with oxidizing chemicals.
- BOK17 and addenda - a memo for subpopulations of SR-W027-221H-HET-C that applies to the requirements of DOE/WIPP-17-3589, Rev. 1, Basis of Knowledge for Evaluating Oxidizing Chemicals in TRU Waste, to demonstrate compliance.
- BOK48 - a memo for waste stream SR-W027-221H-HOM that documents the absence of oxidizing chemicals in 2 of the 4-drum population. A BOK memo for the remaining drums is pending.
- BOK45 - applies the BOK procedure to the 15-drum population of waste stream SR-RH-221H.02, with all passing.
- BOK42 - provides the documentation for considering all waste containers for waste stream SR-KAC-PuOx are exempt from the BOK criteria.

AK Briefings

When an AKSR is issued or revised, an instructive presentation is prepared and provided to requisite CCP waste characterization staff and appropriate generator site personnel. The AK briefing and attendance list generated for Rev. 17, of CCP-AK-SRS-4 were examined by the AK auditors and compiled as OE.

With the exception of the three non-WAP-affecting concerns identified above, the procedures reviewed, and OE assembled and evaluated provided evidence the applicable requirements for AK are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No WAP-affecting concerns were identified.

5.5.3 Table C6-3, Radiography Checklist

The audit team evaluated the adequacy, implementation, and effectiveness of the SRS/CCP RTR waste characterization process for CH SCG S5000 debris waste using the RTR Unit 8 in K-Area and for SCGs S3000 solids and S5000 debris waste using the RTR Unit 2 in E-Area.

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

- CCP-PO-005, Rev. 34, *CCP Conduct of Operations*
- CCP-QP-002, Rev. 49, *CCP Training and Qualification Plan*
- CCP-QP-043, Rev. 7, *CCP Operations Level Training and Qualification*
- CCP-TP-021, Rev. 0, *CCP Real-Time Radiography #8 Operating Procedure*
- CCP-TP-028, Rev. 16, *CCP Radiographic Training Container Assembly*
- CCP-TP-053, Rev. 19, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*
- CCP-TP-079, Rev. 3, *CCP Real-Time Radiography #2 Operating Procedure*

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

K-Area

The audit team examined the following CH RTR BDRs generated from operations performed using the RTR Unit 8 to verify implementation and compliance with the requirements for documenting RTR activities, as specified in CCP-TP-053:

- SR-RTR8-23-0117
- SR-RTR8-23-0118
- SR-RTR8-22-0119
- SR-RTR8-23-0120
- SR-RTR8-23-0123
- SR-RTR8-23-0125
- SR-RTR8-23-0131
- SR-RTR8-23-0132
- SR-RTR8-23-0133
- SR-RTR8-24-0001
- SR-RTR8-24-0002
- SR-RTR8-24-0005
- SR-RTR8-24-0012
- SR-RTR8-24-0018
- SR-RTR8-24-0042
- SR-RTR8-24-0049
- SR-RTR8-24-0050
- SR-RTR8-24-0051

The BDRs were verified to be complete and accurate, and found to be in compliance with all applicable procedural requirements. The corresponding videos for the containers within the BDRs were reviewed and compared to the applicable AK. All containers evaluated were found to match the waste stream description and the waste matrix code as determined by CCP-AK-SRS-23, Rev. 1.

The audit team observed RTR field operations for RTR Unit 8 in K-Area, located in Building 163-70K. The audit team interviewed the RTR operators, reviewed CCP operator aids, standing orders, and verified the availability of the applicable current AKSR and RTR operating procedures. The audit team also verified that RTR operators

received waste stream-specific AK summary briefings. The audit team examined CH RTR Unit 8 operational logbooks CCP-CH-SRS-NDE-RTR8-05 for 2023 and CCP-CH-SRS-NDE-RTR8-06 for 2024 and verified logbook entries were logged correctly and reviewed by the VPM as required. The audit team observed the image (lines/pair) test for BDR SR-RTR8-24-0081 and the RTR characterization scan on container KDB24006616 from the CH SCG S5000 debris waste stream using CCP-AK-SRS-23, Rev. 1. The audit team 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 reviewed one operator aid (QA-SRS-RTR-01, Rev. 1) and four standing orders (CCP-SO-SRS-077, Rev. 0, CCP-SO-SRS-084, Rev. 0, CCP-SO-172, Rev. 1, CCP-SO-166, Rev. 0).

E-Area

The audit team examined the following CH RTR BDR generated from operations performed using the RTR Unit 2 to verify implementation and compliance with the requirements for documenting RTR activities, as specified in CCP-TP-053.

- SR-RTR2-23-0003

The BDR was verified to be complete and accurate, and found to be in compliance with all applicable procedural requirements. The corresponding video for the containers within the BDR was reviewed and compared to the applicable AK. All containers evaluated were found to match the waste stream description and the waste matrix code as determined by CCP-AK-SRS-7, Rev. 10.

The audit team observed RTR field operations for RTR Unit 2 in E-Area, located at SRS-SWMF-TRU-PAD 4 in Building 660-4E. The audit team interviewed the RTR operators, reviewed one CCP operator aid (OA160, Rev. 1), three standing orders (CCP-SO-166, Rev. 0, CCP-SO-SRS-080, Rev. 0, CCP-SO-SO-SRS-085, Rev. 1), and verified the availability of the applicable current AKSR and RTR operating procedures. The audit team also verified that RTR operators received waste stream-specific AK summary briefings. The audit team examined CH RTR Unit 2 operational logbooks CCP-CH-SRS-NDE-RTR2-03 for 2023 and CCP-CH-SRS-NDE-RTR2-04 for 2024 and verified logbook entries were logged correctly and reviewed by the VPM as required. The audit team verified the startup of the unit utilizes procedure CCP-TP-079, Rev. 3, *CCP Real-Time Radiography #2 Operating Procedure*, for unit 2. The audit team observed the image (lines/pair) test from BDR SR-RTR2-24-0006 and the RTR characterization scan on container 773A190003 from the CH SCG S5000 debris waste stream using SR-W027-773A-HET from the AKSR, CCP-AK-SRS-7, Rev 10. The audit team 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.

During the review of RTR Operational Logbooks CCP-CH-SRS-NDE-RTR2-03 and CCP-CH-SRS-NDE-RTR8-05, the audit team observed inconsistencies in CCP-PO-005, Section 10.1, wording as to how all personnel attending a pre-job briefing are

documented in the applicable operational logbook when maintenance is performed; i.e., a list of all personnel attending the briefing is not being logged. (See Observation-1 in section 6.3.2.)

The audit team verified RTR operators were appropriately trained and qualified as required by the HWFP WAP, CCP-QP-002, and CCP-QP-043. The audit team examined required RTR operator training container data and evaluation sheets, with the applicable audio/video media, for seven RTR operators, including the four qualified RTR SMEs. The RTR training and qualification records reviewed included operator/independent technical reviewer (ITR) qualification cards, ASNT-SNT-TC-1A nondestructive examination (NDE) certificates, container inventory sheets (as required by CCP-TP-028, Attachment 1), RTR data forms generated from applicable training containers and associated graded forms (CCP-QP-043, Attachment 2), annual eye exams, RTR 101 exams, and waste stream training for the applicable AKSRs.

During the review of NDE-Training-190, the audit team noted the RTR operator did not identify the Button Batteries in (OM) Other Metals on the audio/video recording or document the waste material parameter and waste material parameter weight on attachment 6 from CCP-TP-053 correctly, and Non-DQO item discrepancies were not identified on attachment 2 from CCP-QP-043, block 7, Discrepancies (Non-DQO items, unacceptable estimated container size or liquid amount), and not documented by the NDE cognizant engineer. (See CDA-1 in section 6.2.2.)

With the exception of the two non-WAP-affecting concerns identified above, the procedures reviewed, and objective evidence assembled and evaluated provided evidence that the applicable requirements for RTR waste characterization in E-Area and K-Area are adequately established for compliance with upper-tier requirements, satisfactorily implemented as evaluated, and effective in achieving the desired results. No WAP-affecting concerns in the area of RTR were identified.

5.5.4 Table C6-4, Visual Examination Checklist

The audit team conducted interviews with responsible personnel and verified no waste characterization field activities for visual examinations have been performed by SRS/CCP in the SRS E-Area and K-Area. Visual examination is not applicable to the scope of this audit.

5.6 Non-WAP-related Technical Activities

Each non-WAP-related technical area audited is discussed in detail in the following sections. The method used to select OE is discussed; the OE used to assess compliance with the CBFO QAPD, WIPP WAC, or WIPP DSA, as applicable, is cited briefly; and the result of the assessment is provided.

5.6.1 Nondestructive Assay

NDA – E-Area Recertification

The audit team evaluated the adequacy, implementation, and effectiveness of the SRS/CCP NDA characterization process for CH TRU SCG S5000 debris wastes through review of OE, interviews with cognizant personnel, and onsite observation of waste characterization NDA activities. The CBFO previously audited the NDA activities in E-Area using the Mobile ISOCS Large Container Counter (MILCC6) during Audit QAD-A-24-03 in October 2023. The audit team conducted interviews with responsible personnel and reviewed the following implementing procedures relative to the MILCC6 NDA process to determine if the procedures adequately address upper-tier requirements:

- CP-TP-048, Rev. 19, *CCP NDA System Data Reviewing, Validating, and Reporting Procedure*
- CCP-TP-058, Rev. 8, *CCP NDA Performance Demonstration Program*
- CCP-QP-022, Rev. 21, *CCP Software Quality Assurance Plan*
- CCP-TP-076, Rev. 7, *CCP Operating the Mobile ISOCS Large Container Counter Using NDA* 2000
- CCP-TP-077, Rev. 5, *CCP Calibrating the Mobile ISOCS Large Container Counter Using NDA 2000*

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

The audit team evaluated NDA equipment. Mobile ISOCS Large Container Counter unit #6 (MILCC6) is currently in building 660-4E (Pad 4) in E-Area.

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

- System stability as evidenced by the implementation and effectiveness of QC measurements and calibration verifications
- Applicability of each system's calibration and operational range to the matrix, geometry, and radionuclide content of waste being assayed
- Successful participation in the CBFO-sponsored NDA PDP for Drum Cycle 31A (approval expires on July 20, 2025, letter CBFO:ONTPWCD:DS:AF:24-0476) and Box Cycle B23A (approval expires on November 30, 2024, letter CBFO:ONTPWCD:DS:AF:23-0798 – data has been collected, analyzed, and submitted for Box Cycle B24A) (NDA PDP Registration #SR06/SRG4)
- A review of BDRs generated through project level to ensure data are reported, analyzed, and reviewed as required

- Data generation and documentation legibility, accuracy, and completeness
- Data and documentation review, storage, control, protection, and retrievability
- Personnel qualification and training for operators, ITRs, SPMs, SMEs, SME/on-the-job-training (OJT), and NDA EAs
- Data quality and use of operational logbooks and the verification of the current software versions in use

The operations process and associated procedures CCP-TP-048 and CCP-TP-076 were evaluated and observed for the SRS/CCP NDA system. The audit team witnessed waste characterization startup activities at the MILCC6. Through observations and interviews with operators/ITRs, the description and steps of operations were discussed and documented by the audit team on audit checklists as being adequately implemented.

MILCC6

The MILCC6 systems consist of two gamma spectrometers, each mounted on a cart and aligned 180 degrees apart, aiming at the waste container with a current capability of measuring the gamma-ray fluence in containers consisting of 55-gallon drums, SWBs, and the recently added 85-gallon drums from two calibrated positions known as “NEAR” and “FAR” positions (SWBs are characterized from a single position). The two gamma spectrometers on each system acquire spectra for direct quantification of gamma-emitting radionuclides as well as providing isotopic ratios for plutonium isotopes analyzed through Multi-Group Analysis (MGA) or Fixed-energy Response function Analysis with Multiple efficiencies (FRAM) software. The gamma spectrometers use a multi-curve efficiency calibration to compensate for variations in waste matrix density. The MILCC6 does not employ “filters,” but does use a 90° collimator on each detector and can be operated from either a near field (33.5”) or far field (72”) for drums or a fixed 36” for SWBs, as specified and verified in procedures and operator aids.

The CCP successfully participated in PDP Cycle 31A. The sample test matrices were combustibles and glass. The MILCC6 has assayed containers resulting in the generation of two BDRs through project level review as of the audit cutoff. Both BDRs were derived from the CH SCG S5000 debris waste stream.

The audit team performed a detailed review of the two BDRs to verify implementation and compliance with the requirements for documenting MILCC6 activities, as specified in CCP-TP-076. These BDRs were:

BDR Number	SCG	Number of Containers
• SR-MILCC6-0061	S5000	1
• SR-MILCC6-0062	S5000	1

No NCRs were written against the two BDRs and one calibration verification was performed by the CCP on the MILCC6 since the last audit.

Mobile ISOCS Large Container Counter 6 (MILCC6) Calibration Verification Report, 7/25/24, documents a condition where, on July 23, 2024, the Gamma Instrument Check measurement resulted in an “Ab” (above) flag for the 964 keV Full Width Half Max (FWHM) Detector #2 parameter. An examination of the system by the operator showed no external condition causing the flag. The system was removed from service and NCR-SRS-0077-24 was initiated.

After reviewing the previous six months of quality control data results, the CCP concluded that the detector resolution is likely degrading slightly due to age and could benefit from a minor adjustment in the upper limit boundary and lower limit boundary to better represent the current detector performance. Review of the low energy gamma spectrum resolution at 121.8 keV showed no change in performance over the same period. The resulting new 964 keV FWHM for Detector #2 above and below limits are summarized in Table 1 in the calibration verification report.

The audit team’s review of the calibration verification documents and interviews with the author and cognizant operators/ITRs demonstrated the date the verification was performed; the reason the verification was required; and the records that document the activities were thorough, technically adequate, and completed in accordance with the program requirements.

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

- CI-MILCC6-NDA-1000, Rev. 0, 1/27/2020, *Savannah River Site MILCC6 ISOCS Calibration Report*
- CI-MILCC6-NDA-1000, Rev. A, 7/8/2020, *Savannah River Site MILCC6 ISOCS Calibration Report*
- CI-MILCC6-NDA-1001, Rev. 0, 7/1/2020, *Calibration Confirmation Report for the Mobile ISOCS Large Container Counter (MILCC6) at the Savannah River Site*
- CI-MILCC6-NDA-1001-ADD, Rev. 0, 10/28/2021, *Calibration Confirmation Report Addendum for the Mobile ISOCS Large Container Counter 6 (MILCC6) at Savannah River Site*
- CI-MILCC6-NDA-1001-ADD, Rev. 1, 4/29/2024, *Calibration Confirmation Report Addendum for the Mobile ISOCS Large Container Counter 6 (MILCC6) at Savannah River Site*
- CI-MILCC6-TMU-1001, Rev. 1, 3/6/2024, *Central Characterization Project Mobile ISOCS Large Container Counter 6 (MILCC6) Total Measurement Uncertainty Report*

The audit team interviews of MILCC6 NDA staff adequately verified the calibration range, operating parameters, and measurement uncertainty was in accordance with upper-tier requirements and CCP-TP-077.

The audit team examined training records for NDA personnel and confirmed personnel were appropriately trained and qualified as required. The software versions installed and used to perform NDA operations were appropriately identified, documented in logbook # CCP-CH-SRS-NDA-MILCC6-04 (2023), and were consistent with the versions listed in the CCP-QP-022.

NDA – K-Area Recertification

The audit team assessed the adequacy, implementation, and effectiveness of the NDA systems used by the CCP at the SRS to characterize SCG S5000 waste through review of objective evidence, interviews with cognizant personnel, and onsite observation of waste characterization activities. The CBFO audited the NDA assay activities in CBFO Audit QAD-A-24-03 in October 2023 in K-Area at facility 163-70K (SRS-KAC-CCP Pad). The CCP uses two High Efficiency Neutron Counters (HENCs), designated “HENC4” and “HENC5,” to characterize waste for shipment to WIPP. The audit team 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-048, Rev. 19, *CCP NDA System Data Reviewing, Validating, and Reporting Procedure*
- CCP-TP-058, Rev. 8, *CCP NDA Performance Demonstration Program*
- CCP-TP-204, Rev. 0, *CCP Calibrating SRS HENC 4 & 5 using NDA 2000*
- CCP-TP-205, Rev. 0, *CCP Operating SRS HENC 4 & 5 using NDA 2000*

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

The two HENC units each have a single broad-energy Germanium detector (BEGe) for the detection and analysis of gamma-emitting radionuclides, and an array of 113 Helium-3 tubes arranged in a 4π geometry to measure spontaneous fission neutrons. Passive neutron measurements use both coincidence and multiplicity signal analysis to directly measure the spontaneous fission content in waste drums. The assay chambers are enclosed by High-density polyethylene to moderate source neutrons for more efficient detection and shield background neutron interferences. The BEGe detectors have been “ISOCS characterized” so they use a geometry file that relates to the specific shape of the material placed inside the 55-gallon CCOs. The 55-gallon CCOs are placed on a turntable and rotated during the assay process. The neutron detectors are well characterized with National Institute of Science and Technology (NIST) traceable sources and standards at the Mirion Technologies factory to ensure the measured

neutron flux detector has a flat response. The system is operated using Genie 2000 and NDA 2000 software.

Calibration standards were developed by the SRS with assistance from LANL, specifically for assaying the waste type from K-Area. Pure materials, identical to that to be measured, were obtained from New Brunswick Laboratory with Certificates of Analysis that were reviewed by the audit team to verify authenticity, accuracy of the material assay, and traceability to NIST, National Bureau of Standards, and American Society for Testing and Materials standards and requirements. The audit team also reviewed the Certificate of Calibration from Savannah River Standards Laboratory Metrology to verify that the components of the calorimeters (i.e., multi-meter, resistors) used to measure the standards material were properly calibrated.

Separate from the calibration standards, the SRS has developed “working standards” that are developed from the actual material that will be sent to WIPP. These working standards allow the HENC units to account for matrix effects from within the waste.

The SRS has broken the potential waste into “families” based on the types of impurities that may be contained in the waste and how those impurities might affect the measurement—wastes with similar effects on measurement are grouped into the same family. Currently, 19 “families” have been identified. These families are further broken down into subfamilies. The audit team specifically discussed subfamily 2D.

Based on a review of the current revisions of CCP procedures provided prior to and during the audit, checklists were prepared and used to evaluate the following:

- System stability as evidenced by the implementation and effectiveness of quality control measurements and calibration verifications
- Applicability of each system's calibration and operational range to the matrix, geometry, and radionuclide content of wastes to be assayed
- 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, ITRs, SMEs, SME/OJTs, SPMs, and NDA EAs
- Operability and condition of the HENC4 and HENC5
- Data quality, operational logbooks, and verification of the current software versions in use for all systems as listed in the Software Inventory List

The operations process and associated procedures CCP-TP-048 and CCP-TP-205 were evaluated for the NDA systems. The audit team witnessed characterization of 55-gallon CCO waste containers KDB23006582 (HENC4) and KDB24005109 (HENC5) activities.

The HENC4 and HENC5 units successfully performed measurements and submitted data for scoring on February 26, 2024, in PDP cycle C04A. The audit team reviewed the data collected as part of the PDP program and reviewed the approval status notification issued by the CBFO on March 14, 2024 (24-0201 memo), documenting that both HENC units had passed the PDP test criteria.

The HENC4 unit performed assays resulting in the generation of 93 BDRs. The audit team selected the 11 BDRs listed below and performed a detailed review.

BDR Number	SCG	Number of Containers
• SR-HENC4-0184	S5000	5
• SR-HENC4-0185	S5000	6
• SR-HENC4-0188	S5000	5
• SR-HENC4-0192	S5000	2
• SR-HENC4-0207	S5000	5
• SR-HENC4-0224	S5000	6
• SR-HENC4-0237	S5000	7
• SR-HENC4-0251	S5000	6
• SR-HENC4-0266	S5000	6
• SR-HENC4-0273	S5000	3
• SR-HENC4-0277	S5000	3

NCR-SRS-0500-23 was written on the HENC4 BDR SR-HENC4-0192 because the ITR did not sign the Last Result Report QC check on page 7 of the BDR and the CCP performed two calibration verifications documented in reports dated January 3, 2023, and November 13, 2024.

High Efficiency Neutron Counter 4 (HENC4) Calibration Verification Report, 1/3/23 (2023_01_03_SRS_HENC4_CALIBRATION_VERIFICATION_REPORT) documents a condition where, beginning on 12/27/2022, the HENC4 Gamma Instrument Check measurement resulted in an Investigate (In) Flag for the 964 keV Decay Corrected Activity (DCA) parameter. After CCP review of the result and system configuration, the failure was believed to be a statistical failure, and the measurement was re-performed. The next Gamma Instrument Check measurement resulted in an Action (Ac) Flag for the 964 keV DCA parameter. After reviewing the failed data, the system was declared out of service and NCR-SRS-689-22 was initiated.

After reviewing the gamma spectral data of the failed QC measurements, the CCP discovered the gamma peak areas were consistently all measuring 10% low for all Eu-152 peak energies believing the Lynx Multi Channel Analyzer (MCA) may have a hardware or power issue. The decision was made to power cycle the Lynx and take repeated Gamma Instrument Check measurements to determine if the unit was still failing. After power cycling the Lynx MCA, repeated QC measurements were performed,

and the new Eu-152 peak areas were evaluated. Review of the data showed the new Eu-152 peak area results were again measuring at their expected values.

Calibration verification measurements were performed on 1/3/2023. The calibration of the system's gamma modality was verified using CCO calibration standard KDB2100780 measurement results for Pu-239 Activity using energy lines 375.05 keV, 392.53 keV, 413.71 keV, 422.60 keV, 451.48 keV, 645.94 keV, and 769.26 keV. The calibration standard summary report container ID is documented as CCO#000780, but for K-area tracking purposes the CCO ID on the physical container is KDB2100780. Both IDs reference the same container, but for the remainder of this report the K-area tracking ID KDB2100780 is used. The calibration standard summary report is included in the calibration verification report appendix.

The calibration verification data are within the required 6.6% RSD value for each set of three replicate measurements. The verifications are also within the +/- 10% accuracy limits. The limits used for the calibration verification are taken from Table A-2 of document CCP-PO-002, *CCP Transuranic Waste Certification Plan,* and implemented in procedure CCP-TP-204, C*CP Calibrating the Savannah River Site High Efficiency Neutron Counters 4 & 5 (HENC4 & HENC5) Using NDA 2000*. The CCP determined the system is operating within acceptable limits but will continue to be monitored for any inconsistent performance.

High Efficiency Neutron Counter 4 (HENC4) Calibration Verification Report, 11/13/2024 (2024_11_13_SRS_HENC4_CALIBRATION_VERIFICATION_REPORT) documents a condition where on 9/16/2024, the NDA 2000 software displayed an error message stating: “Error during querying of hardware status: Start NDA2000 Self-abort Assay.” Immediate troubleshooting steps by CCP operators did not resolve the error, and the system was taken out of service. Initial troubleshooting indicated the JSR-15R (S/N 13000009) shift register was not communicating with the NDA 2000 software. The JSR-15R was replaced with a new unit (S/N 13000016) on 10/7/2024. Initial testing on 10/8/2024 indicated sporadic errors, indicating connection issues with Analyzer 1– pointing to a communication problem with the replaced JSR-15R. All other indicators of power and communication to the detection system components looked normal. On 10/24/2023, JSR-15R (S/N 13000016) was replaced with a new unit (S/N 13000008). After installation of the JSR-15R, NDA personnel discovered the front shield door +5VDC power cable indicator light did not turn on. SRS maintenance tests on the +5V power supply and cabling indicated an issue with the power cable. On 10/30/2024, SRS maintenance disassembled the front door cable track assembly and discovered the +5VDC cable was broken. No immediate cause of the cable break was discovered. On 11/6/2024, SRS maintenance replaced the broken +5VDC cable.

Calibration verification measurements were performed on 11/12/2024. The calibration of the system’s neutron modality was verified using CCO calibration standard KDB2100780 measurement results for Pu-240 effective mass ($Pu\text{-}240_{eff}$) and total Pu mass. The calibration standard summary report container ID is documented as CCO#000780, but for K-area tracking purposes the CCO ID on the physical container is

KDB2100780. Both IDs reference the same container, but for the remainder of the calibration verification report the K-area tracking ID KDB2100780 ID is used. The calibration standard summary report is included in the calibration verification report appendix.

The neutron results were verified using the known $Pu\text{-}240_{eff}$ mass (g) stated in the source certificate. Summarized neutron results are reported in Table 2 and listed in the attachments section of the calibration verification report. Because the gamma measurement components are not affected by the JSR-15R or network switch replacement, the gamma modality calibration was not required to be verified.

The calibration verification data are within the required 6.6% RSD value for each set of three replicate measurements. The verifications are also within the +/- 10% accuracy limits. The limits used for the calibration verification are taken from Table A-2 of document CCP-PO-002, *CCP Transuranic Waste Certification Plan*, and implemented in procedure CCP-TP-204, *CCP Calibrating the Savannah River Site High Efficiency Neutron Counters 4 & 5 (HENC4 & HENC5) Using NDA 2000*. The system is operating within acceptable limits, but the CCP will continue to monitor for any inconsistent performance.

The audit team review of these two calibration verification documents, and interviews with the author and cognizant operator/ITR, demonstrated the dates the verifications were performed; the reasons the verifications were required; the sources used for the verifications; and the records that document the activities were thorough, technically adequate, and complied with the program requirements.

The HENC5 unit performed assays resulting in the generation of 55 BDRs. The audit team selected the eight BDRs listed below and performed a detailed review.

BDR Number	SCG	Number of Containers
• SR-HENC5-0261	S5000	5
• SR-HENC5-0263	S5000	7
• SR-HENC5-0271	S5000	5
• SR-HENC5-0278	S5000	2
• SR-HENC5-0284	S5000	1
• SR-HENC5-0294	S5000	2
• SR-HENC5-0299	S5000	7
• SR-HENC5-0307	S5000	7

No NCRs were written on the HENC5 BDRs and the CCP performed one calibration verification documented in a report dated September 10, 2024.

High Efficiency Neutron Counter 5 (HENC5) Calibration Verification Report, 9/10/2024 (2024_9_10_SRS_HENC5_CALIBRATION_VERIFICATION_REPORT) documents a condition where, during the Environmental Background Check on 8/12/2024, the HENC5 system computer displayed a NDA2000 software communication

error message with Analyzer 1, which is the analyzer designated for the neutron detection system. The system was declared non-operational and system troubleshooting commenced. On 8/26/2024, JSR-15R S/N 13000001 was replaced by JSR-15R S/N 13000002. On 8/27/24, calibration verification measurements were performed. However, during the calibration verification measurements, the communication errors were observed once again. From 8/27 to 9/3, various troubleshooting tests were performed, including replacement of ethernet cables, JSR-I5R power cables, isolating power to various NDA instrument components, and Netgear GS305 network switch replacement. Additional assay test measurements indicated the communication errors issues were not resolved and were likely due to a malfunctioning JSR-15R. The JSR-ISR was again replaced, with S/NI3000005 being installed on 9/7/2024. Subsequent test measurements indicated communication errors had been resolved and calibration verification measurements were performed.

Calibration verification measurements were performed. The calibration of the system's neutron modality was verified using CCO calibration standard KDB2100780 measurement results for Pu-240 effective mass and total Pu mass. The calibration standard summary report container ID is documented as CCO#000780, but for K-area tracking purposes the CCO ID on the physical container is KDB2100780. Both IDs reference the same container, but for the remainder of the calibration report the K-area tracking ID KDB2100780 ID is used. The calibration standard summary report is included in the calibration verification report appendix.

The neutron results were verified using the known $Pu\text{-}240_{eff}$ mass (g) stated in the source certificate. Summarized neutron results are reported in Table 2 of the calibration verification report and listed in the attachments section of the report. Because the gamma measurement components are not affected by the JSR-15R or network switch replacement, the gamma modality calibration was not required to be verified.

The calibration verification data are within the required 6.6% RSD value for each set of 3 replicate measurements. The verifications are also within the +/- 10% accuracy limits. The limits used for the calibration verification are taken from Table A-2 of document CCP-PO-002, *CCP Transuranic Waste Certification Plan,* and implemented in procedure CCP-TP-204, *CCP Calibrating the Savannah River Site High Efficiency Neutron Counters 4 & 5(HENC4 & HENC5) Using NDA 2000*. The system is operating within acceptable limits, but CCP will continue to monitor for any inconsistent performance.

The audit team review of this calibration verification, documents, and interviews with the author and cognizant operator/ITR demonstrated the date the verification was performed; the reason the verification was required; the sources used for the verification; and the records that document the activities were thorough, technically adequate, and complied with the program requirements.

Specifically, the audit team reviewed:

- 6-4-21, Rev. 0, *HENC4 Calibration Confirmation and Validation Plan At SRS*
- CI-HENC4-HENC5-NDA-1000, Rev. 0, *Savannah River Site HENC4 and HENC5 ISOCS Calibration Report*
- CI-HENC4-NDA-1001, Rev. 0, 8-3-21, *Calibration Confirmation Report for the HENC4 SRS*
- CI-HENC5-NDA-1001, Rev. 0, 8-3-21, *Calibration Confirmation Report for the HENC5 SRS*
- CI-HENC4-HENC5-TMU-1001, Rev. 0, 8-16-21, *Savannah River Site High Efficiency Neutron Counter Total Measurement Uncertainty Report*
- PNNL-31054, FINAL, March 2021, *HENC Modeling Measurement Uncertainties*
- CI-HENC4-NDA-1001-ADD, Rev. 0, April 19, 2022, and Rev. 1, August 3, 2022, *Calibration Confirmation Report Addendum for the High Efficiency Neutron Counter 4 (HENC4) at Savannah River Site for Subfamily 1B*
- CI-HENC4-NDA-1001-ADD, Rev. 2, December 5, 2022, *Calibration Confirmation Report Addendum for the High Efficiency Neutron Counter 4 (HENC4) at Savannah River Site for Subfamily 2D*
- CI-HENC4-NDA-1001-ADD, Rev. 3, February 22, 2023, *Calibration Confirmation Report Addendum for the High Efficiency Neutron Counter 4 (HENC4) at Savannah River Site for Subfamily 1A*
- CI-HENC5-NDA-1001-ADD, Rev. 0, April 19, 2022, and Rev. 1, August 3, 2022, *Calibration Confirmation Report Addendum for the High Efficiency Neutron Counter 5 (HENC5) at Savannah River Site for Subfamily 1B*
- CI-HENC5-NDA-1001-ADD, Rev. 2, December 5, 2022, *Calibration Confirmation Report Addendum for the High Efficiency Neutron Counter 5 (HENC5) at Savannah River Site for Subfamily 2D*
- CI-HENC5-NDA-1001-ADD, Rev. 3, February 22, 2023, *Calibration Confirmation Report Addendum for the High Efficiency Neutron Counter 5 (HENC5) at Savannah River Site for Subfamily 1A*

The audit team determined the procedures applied to HENC4 and HENC5 and the reports documenting their calibration range, operating parameters, and measurement uncertainty are technically adequate and show a proper flow-down of upper-tier requirements. Training documentation for a selection of NDA operators and EAs was reviewed by the audit team and found to be satisfactory. The audit team verified OE reviewed was in the CCP records system as required.

The procedures reviewed and objective evidence assembled provided evidence that applicable requirements for NDA characterization of CH SCG S5000 debris waste using the three NDA systems (MILCC6, HENC4, and HENC5) are adequately established for compliance with upper-tier requirements, effectively implemented, and satisfactory in achieving the desired results. No non-WAP-affecting concerns were identified.

5.6.2 Container Management

The audit team interviewed SRS/CCP container management (CM) personnel and reviewed documentation and the implementing procedure for CM activities. The audit team verified that CCP conducts CM activities only for CH waste using procedure CCP-TP-068, Rev. 14, *CCP Standardized Container Management*. Results of the review indicate the procedure adequately addresses upper-tier requirements.

The audit team entered building 163-70K in K-Area and Pad 4 in E-Area to verify the CM procedure walk-down. The team verified the use of hold tags and radiological labels on containers. A scale calibration check in K-Area was completed on the Mettler Toledo scale, identification tag KX-222 (K-163070-AHS-SCL-100), with calibration due date 11-13-2025, using a 50-pound (22.68 Kg) calibration check weight, identification number KA-105-40, with expiration date 6/30/2025. Additionally, a scale calibration check in E-Area was completed on the Weigh-Tronix scale, identification tag LIFT-SCL-001 (E-660004-LIFT-SCL-001), with calibration due date 7/17/2025, using a 25-pound (11.34 Kg) calibration check weight, identification number SW0007-28, with expiration date 1/30/2027. The Container Traveler (CCP-TP-068 Attachment 1) was observed to be located on the top of the drums as a sticker that is placed on the container lid. This, according to procedure, has been accepted by the Host Site.

Records stored at the site were properly maintained for integrity in a 1.5-hour fire-rated FireKing file cabinet. Documents were completed as required and entered into the CCP records system. Container Inspection/Weight Reports (CCP-TP-068 Attachment 2) were reviewed for the following containers:

- 231108_KDB23001853_CIR
- 231115_KDB23000978_CIR
- 20240220_SRSB01313_CIR
- 20240422_CLAB180009_CIR
- 20240502_SRSDUN782_CIR
- 20240522_SRSB01362_CIR
- 20240709_KDB24002515_CIR
- 20240829_HCA140009_CIR
- 20241009_KDB24003568_CIR
- 20241024_KDB24003432_CIR

All Container Inspection/Weight Reports were completed, reviewed, and entered into the CCP records system as required.

The audit team examined training and qualification documentation for CM personnel and determined the operators were qualified and capable of performing CM operations.

The procedures reviewed, field operations observed, and objective evidence assembled provided evidence the applicable requirements for container management of CH SCG

S5000 debris wastes were adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No WAP-affecting concerns in the area of container management were identified. No non-WAP-affecting concerns were identified.

5.6.3 Flammable Gas Analysis

The audit team conducted interviews with responsible personnel and reviewed DOE/WIPP-06-3345, Rev. 13, *Waste Isolation Pilot Plant Flammable Gas Analysis*, to determine the degree to which the procedure addresses upper-tier requirements. This procedure does not adequately flow down upper-tier requirements. CAR 24-009 was written in 20224 due to the failure of the procedure to adequately flow down upper-tier requirements. CAR 24-009 is considered a WIPP programmatic CAR that will be managed through the WIPP CAS and not through the CCP.

Field activities were verified at the PAD 4 facilities. Verification of compliance was demonstrated though the review of FGA BDRs, logbook FGA Unit 14 - CCP-CH-SRS-FGA-UNIT14-03 and CCP-CH-SRS-UNIT14-04, training documents, and interviews conducted with FGA operations personnel.

The audit team interviewed an FGA operator to verify compliance with the implementing procedures applicable to FGA. The audit team examined training records and determined FGA operators were appropriately trained and qualified as required.

During BDR reviews, the audit team examined the following calibration and detection limit reports to verify implementation and compliance with the requirements for documenting FGA activities as specified in DOE/WIPP-06-3345:

- SR23FG14002 (BDR)
- SR23FG14003 (BDR)
- SR23FG14004 (BDR)
- SR23FG14005 (BDR)
- SR23FG14006 (BDR)
- SR24FG14002 (BDR)
- SR23FG14001_ICAL (Initial Calibration Report)
- SR24FG14001_ICAL (Initial Calibration Report)
- SR20FG14004_MDL (Minimum Detection Limit Level Report)

All reports were complete, reviewed as required, and maintained by CCP Records. Another auditor completed the review of SR20FG14004_MDL in support of this audit because the assigned auditor cannot verify his own work completed in 2020. There was one NCR associated with SR23FG14006 FGA BDR (NCR-SRS-0054-24). The audit

team examined training and qualification documentation dated November 21, 2023, for FGA operators and determined the operators were qualified and able to perform FGA operations. The audit team verified the results contained in the BDRs. The Agilent Technologies Gas Chromatograph 7890B series Gas Chromatograph (GC) (S/N: US19303035), an Agilent Technologies Mass Spectrometer (MS) 5977B (S/N: US1930M020), and computer (S/N: MXL91742T6) were non-operational for the audit, but were utilized in producing the reviewed BDRs.

The audit team also verified the use of the procedure to determine the drum age criteria or CM Waiting Time, recording of the filter number, and all information properly documented on the procedure attachments. The team verified the analytes in the list of the flammable compounds and the tentatively identified compounds (TICs) reported for all reports and the verified run. No TICs were reported in the BDRs selected. The audit team verified the lot numbers for the side port needle assemblies and their filters. The audit team verified the paddles used to block the filter for sampling through the side port via the approved filter NFT-19DS. All sampling was performed in a mock sampling evolution and verified in accordance with the procedure by the audit team. No discrepancies were identified in sampling.

The audit team verified an independent technical review was performed following analytical BDR completion, that any discrepancies were noted and returned to the analyst for correction, and the completed and reviewed BDR was submitted to CCP Records in accordance with CCP procedures.

NorLab Certificates of Accuracy were examined for Internal Standards and Bromofluorobenzene (BFB-CC135999 exp. 9/2026) identified in the field, Initial Calibration Standards (EB0075449, exp. 9/2026), and for Continuing Calibration Standards (CC45375, exp. 9/2026). All standards were within their expiration dates and contained the required number of volatile compounds, including hydrogen and methane. Carrier gases such as nitrogen and helium were verified as well.

The procedure reviewed and objective evidence assembled provided evidence the applicable requirements for FGA characterization of CH SCG S5000 debris wastes are marginally established. The processes for characterizing CH SCG S5000 debris waste are satisfactorily implemented and effective. No non-WAP-affecting concerns were identified.

5.6.4 Dose-to-Curie

Dose-to-curie is not applicable to the scope of this audit.

6.0 CARs, CDAs, OBSERVATIONS, RECOMMENDATIONS, AND STRENGTHS

6.1 Corrective Action Reports

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

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

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

6.1.1 WAP-Affecting Corrective Action Reports

No WAP-affecting CAQs were identified, and no WAP-affecting CARs were issued, during the audit.

6.1.2 Non-WAP-Affecting Corrective Action Reports

One non-WAP-affecting CAQ was identified and documented in a CAR during the audit.

CAR 25-003

Condition:

M5043, Waste Stream Container Evaluation Memorandum (WSCEM), dated 7/2/21, for CCP-AK-SRS-23 Waste Stream SR-KAC-PuOx, includes the following statement:

The 137 Criticality Control Overpacks (CCOs) were packaged prior to the development of an Interface Waste Management Document List (IWMDL) therefore, an Acceptable Knowledge Assessment (AKA) will be prepared in accordance with CCP-TP-005, Section 4.13 and submitted to CCP Records prior to the containers being certified for shipment.

The statement that 137 CCOs (different number of CCOs for each subsequent Addendum) were packaged prior to the development of an IWMDL is incorrect for WSCEM Addendum 2 through Addendum 86 (84 separate memos).

The initial IWMDL for the PuOx waste stream was signed on 8/10/2021. The initial WSCEM was issued on 7/2/2021 and the subsequent Addendum 1 was issued on 7/27/21; therefore, the CCOs listed in the initial WSCEM and Addendum 1 were packaged prior to the development of an IWMDL. However, an IWMDL was developed

for CCOs listed in the WSCEM, Addendum 2, dated 10/15/21, through Addendum 86, dated 10/30/24; therefore, the incorrect statement was included in 84 WSCEM Addendums issued over a 3-year time frame.

Requirement:

WP 13-1, Rev. 44, *Waste Isolation Pilot Plant Quality Assurance Program Description*, Section 1.5.2, *Generating QA Records*, directs that: “Individuals shall create QA records that are legible, accurate, and complete.”

6.2 Deficiencies Corrected During the Audit

During the audit, the audit team may identify CAQs. The Audit Team Leader (ATL) and the CBFO Quality Assurance Lead (QAL) will evaluate the CAQs to determine if they are significant. Once a determination is made that the CAQ is not significant, the ATL and QAL determine if the CAQ is isolated, requiring only remedial actions and, therefore, can be corrected during the audit (CDA). Upon determination that the CAQ is isolated, the ATL and QAL will evaluate/verify any OE/actions submitted or taken by the audited organization and determine if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been corrected, the ATL and QAL classify the condition as a CDA according to the definition below.

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

6.2.1 WAP-Affecting Deficiencies Corrected During the Audit

No WAP-affecting CAQs were identified or corrected during this audit.

6.2.2 Non-WAP-Affecting Deficiencies Corrected During the Audit

Three non-WAP-affecting CAQs were identified and corrected during this audit.

CDA-1

Condition:

During the review of NDE-Training-190, the audit team noted the RTR operator did not identify the Button Batteries in (OM) Other Metals on the audio/video recording or document the waste material parameter and waste material parameter weight on attachment 6 from CCP-TP-053, Rev. 19, correctly, and Non-DQO item discrepancies were not identified on attachment 2 from CCP-QP-043, Rev. 7, block 7, *Discrepancies*

(Non-DQO items), unacceptable estimated container size or liquid amount), and not documented by the NDE cognizant engineer.

Objective evidence was provided to show this issue will be corrected within SIMCO's issues management system.

Requirement:

CCP-QP-043, Rev. 7, *CCP Operations Level Training and Qualification*, Section 13.2, states: "Document discrepancies, or other comments, as defined above, in Section 7 of Attachment 2, if applicable."

Actions Taken by Auditee:

In section 7 of attachment 2 from CCP-QP-043, the NDE cognizant engineer documented Button Batteries in (OM) Other Metals non-DQO item discrepancy and re-signed and dated as required per the operations level training and qualification procedure.

CDA-2

Condition:

There were two instances where the AKE did not document the evaluation of the procedure revision for potential impact to waste stream management and packaging. The tabletop discussion verified the procedure revision requirements are followed, but did not review the procedure revision for potential impact to waste stream management and packaging.

P5071, *Packaging Blend Cans into Criticality Control Overpack(s)*, Rev. 3, 8/14/24 Procedure Revision Verification: On 9/5/2024, through a tabletop discussion on implementation of Revision 3 with the SRS SME and the CCP AKE verified the requirements in this document are followed by all facility personnel involved.

P5060, *Packaging Blend Cans into Criticality Control Overpack(s)*, Rev. 18, 8/14/2024 Procedure Revision Verification: On 9/25/2024, through a tabletop discussion on implementation of Revision 18 with the SRS SME and the CCP AKE verified the requirements in this document are followed by all facility personnel involved in the management of TRU waste.

Requirement:

CCP-TP-005, Rev. 34, Section 4.2.9 [H] – [J]:

> [H] Review new and revised procedures or documents potentially affecting the waste stream management and packaging associated with the

activities listed in step 4.2.9, sub steps [A] and [B] and ensure the IWMDL is updated, as needed.

[I] IF it is determined that a new procedure or revision affects waste stream management or packaging, THEN update the IWMDL to include the procedure AND include the following additional verification information in the Acceptable Knowledge Source Document Summary Attachment (see Section 4.3), as applicable:

[A] Description of activities affecting waste stream management or packaging, and
[B] IWMDL POCs/SMEs contacted by the AKE to verify the procedure.
[C] The date the verification with the POCs/SMEs was conducted.

[J] 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 IWMDL to include the procedure revision AND note in the Acceptable Knowledge Source Document Summary Attachment that the review did not identify any relevant changes to TRU waste management from the previous revision(s).

Actions Taken by Auditee:

P5071, Att. 3, Rev. 3, was revised to include the review of the potential impact to waste stream management and packaging.

P5060, Att. 3, Rev. 18, was revised to include the review of the potential impact to waste stream management and packaging.

CDA-3

Condition:

AK Summary Report CCP-AK-SRS-4, Rev. 17, Section 8.2, *Waste Stream Volume and Period of Generation*, states that waste stream SR-W027-221-HET-C includes 495 55-gallon drums and seven SWBs. However, Section 4.2.1, *Types and Quantity of TRU Waste Generated,* (page 38), states that for this waste stream there are 452 containers. Attachment 8 coincides with this number of containers.

Requirement:

CCP-TP-005, *Acceptable Knowledge Documentation*, Rev. 34, Attachment 12, *Template Content Guide for AK Summary Reports*, Section 5.0, *Required Waste Stream Information*, states:

> This section presents the mandatory TRU waste stream specific information required by the WIPP-WAP (RH only - and the WCPIP) for waste stream (number) (References __ and __). The area of generation, waste stream volume, period of generation, prohibited items, waste packaging, and the physical, chemical, and radiological composition of the waste stream are described.

The CBFO QAPD, Rev. 14, Section 1.4.1.D, states: “The requesting organization shall identify the applicable criteria for the review. These criteria shall consider technical adequacy, accuracy, completeness, and compliance with established requirements.”

Actions Taken by Auditee:

A DR was generated addressing the condition and when the AKSR is updated, they will revise Sections 4.2.1 and 8.2 to specify both the number of active and emplaced containers in the waste stream AND include the specific date associated with this container count. A revised Attachment 8 will be generated at the same time to reflect the number of active and emplaced containers in the waste stream so that there is an Attachment 8 that coincides with the AKSR, noting that container counts in future Attachment 8s may differ from that presented in the AKSR which shows a “snapshot” container volume at a specific date.

6.3 Observations

During the audit, the audit team may identify potential problems that should be communicated to the audited organization. The ATL and the QAL 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 ATL and QAL classify the condition appropriately.

6.3.1 WAP-Affecting Observations

No WAP-affecting Observations were identified during the audit.

6.3.2 Non-WAP-Affecting Observations

Two non-WAP-affecting Observations were identified during the audit.

Observation-1

During the review of RTR Operational Logbooks CCP-CH-SRS-NDE-RTR2-03 and CCP-CH-SRS-NDE-RTR8-05, observed inconsistencies in CCP-PO-005, Rev. 34,

Conduct of Operations, Section 10.1, wording as to how all personnel attending a pre-job briefing are documented in the applicable operational logbook when maintenance is performed, i.e., a list of all personnel attending the briefing is not being logged.

Observation-2

The audit team identified two instances of procedure revisions that were reviewed by the CCP AKE greater than 60 days after the approval date of the following procedure revisions:

1. D5044, (U) *Downblend Kit Specification*, Rev. 4, approved 6/19/23 (per the SRS SMR 10/24/23 email to the CCP SPM), but not reviewed until 8/30/23 (per Att. 3) (time between effective date and review date: 70 days).

2. D5044, (U) *Downblend Kit Specification*, Rev. 5, approved 5/2/24 (per the SRS SMR 10/24/24 email to the CCP SPM), but not reviewed until 7/30/24 (per Att. 3) (time between effective date and review date: 90 days).

NOTE: CAR-24-006 Remedial Actions:

- Meet with staff of SRS and “K” area to reiterate the requirements of CCP-TP-005 and CCP-PO-004.

- Establish protocols for “K” area to provide CCP with new procedures, revised procedures in a timely manner.

6.4 Recommendations

During the audit, the audit team may identify suggestions for improvement that should be communicated to the audited organization. The ATL and QAL 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.

No Recommendations were identified during the audit.

6.5 Strengths

During the audit, the audit team may identify a practice or performance that exceeds requirements, expectations, or industry standards in a beneficial, safe, efficient, and effective manner, it may be considered a Strength. Some organizations refer to this as a “Good Practice.”

No strengths were identified during the audit.

7.0 LIST OF ATTACHMENTS

Attachment 1: *Meeting Attendees and Personnel Contacted During Audit QAD-A-25-16*
Attachment 2: *Personnel Contacted During the Audit by Subject Area*
Attachment 3 *Summary Table of Audit Results*
Attachment 4: *WAP-Related OE Reviewed During the Audit*
Attachment 5: *Table of Audited Procedures*
Attachment 6: *List of Processes and Equipment Evaluated*

MEETING ATTENDEES AND PERSONNEL CONTACTED DURING CBFO AUDIT QAD-A-25-16				
NAME	**ORG/TITLE**	**PRE-AUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
James Adams	SRNS/Operations	X		X
Camille Allred	SIMCO/QA Manager	X	X	X
Bridget Ams	Technical Specialists/CCP AKE	X	X	X
Denis Asay	SIMCO/Performance Improvement Deputy Manager	X		
Veronica Ballew	CBFO ONTP/Observer	X		X
Joseph Bazemore	Mirion Technologies/NDA Operator		X	
Candace Brintley	Mirion Technologies/NDA Operator		X	
Zach Bukiewicz	SIMCO CCP/CM	X	X	
Tim Carlton	Mirion Technologies/NDA Lead Operator	X	X	
Cindi Castillo	CTAC/Deputy Program Manager	X		
Rick Castillo	NMED ONTP/Observer	X		X
Angela Chavez	SIMCO CCP/Records Analyst	X	X	
Page Courtney	SRNS NMM/RPD	X		
Kerri Crawford	SRNS/SMR	X	X	X
Alexis Donahue	NMED/Observer	X		
Phil French	SRNS/SPD Programs			X

MEETING ATTENDEES AND PERSONNEL CONTACTED DURING CBFO AUDIT QAD-A-25-16				
NAME	**ORG/TITLE**	**PRE-AUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
Kristin Garlick	SRS DOE/TRU Waste Program Manager	X	X	X
Adam Gallegos	Mirion Technologies/NDA Site Manager/Expert Analyst	X	X	X
Katie Gentry	SIMCO CCP/QA Programs Manager	X	X	X
Sarah Goodgion	SIMCO CCP/Records Analyst		X	
Keely Greenwood	Technical Specialist/ CCP AKE	X	X	X
Terri-Ann Groover	SIMCO CCP/ Cognizant Engineer	X	X	X
Donald Hampton	SIMCO CCP/Records Program Manager		X	
Larry Hampton	SIMCO CCP/MLUPM TCO		X	
Joe Harvill	SIMCO CCP/NDA Technical Advisor	X	X	X
Andy Hasson	SIMCO CCP/RTR Operator		X	
Chuck Hayes	SRNS/K-Area Operations	X		
Savannah Hixon	SIMCO CCP/SPM	X	X	X
Jared Hueser	SIMCO CCP/TCO	X		
Darren Jolley	CBFO QAD Director/QAL	X	X	X

MEETING ATTENDEES AND PERSONNEL CONTACTED DURING CBFO AUDIT QAD-A-25-16				
NAME	**ORG/TITLE**	**PRE-AUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
Rich Kantrowitz	SIMCO CCP/Technical Support	X		
Creta Kirkes	SIMCO CCP/WCO		X	X
Ricardo Maestas	NMED/Observer	X		X
David Martinez	SIMCO CCP/Technical Support Services Manager	X	X	X
Porf Martinez	CBFO ONTP/Observer	X		X
Maxcine Maxted	NNSA/Observer			X
Christina McDonald	SIMCO CCP/Deputy Records Manager	X	X	
Megan McLean	NMED/Observer	X		X
William Mussman	SIMCO CCP/NDA Operator	X		
Berry Pace	SIMCO CCP NTP/Issues Coordinator		X	
Michelle Parsons	Mirion Technologies/NDA Operator		X	
Kevin Peters	Technical Specialist/ CCP AKE		X	X
Christina Poulos	Technical Specialist/CCP AKE	X	X	X
Ryan Riordan	Technical Specialist/CCP AKE	X	X	X
Jeremy Robinson	SIMCO CCP/FGA Operator	X	X	

MEETING ATTENDEES AND PERSONNEL CONTACTED DURING CBFO AUDIT QAD-A-25-16				
NAME	**ORG/TITLE**	**PRE-AUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
Chris Santos	Mirion Technologies/NDA Operator	X	X	
Sherri Saiz	SIMCO/CCP QA	X		
Robert Semon	SIMCO CCP/ Operations Manager	X	X	X
Craig Simmons	CBFO ONTP/Observer	X		X
Kristina Stancel	SRNS/K-Area Operations			X
Kimberly Steely	SRNS NMM/RPD	X		
Bob Thielke	NMED/Trinity Engineering Observer	X	X	X
Pat Tilmon	SIMCO CCP/PM	X	X	X
Shawn Treadway	SIMCO CCP/VPM	X	X	
Laura Turner	SIMCO CCP/Certification Manager	X	X	X
Daniel Wade	SIMCO CCP/Program Manager		X	X
Connie Walker	Technical Specialist/CCP AKE	X	X	X
Tyler Watson	SIMCO CCP/RTR Operator	X	X	

PERSONNEL CONTACTED DURING THE AUDIT BY SUBJECT AREA (WAP-RELATED)

Acceptable Knowledge	Bridget Ams Katie Gentry Keely Greenwood Berry Pace Kevin Peters Christina Poulos Ryan Riordan Laura Turner Daniel Wade Connie Walker
Project Level V&V	Savannah Hixon Laura Turner
Real-Time Radiography	Andy Hasson Savannah Hixon Terri-Anne Groover Robert Semon Craig Simmons Pat Tilmon Laura Turner Shawn Treadway Tyler Watson
Personnel Qualification and Training	David Martinez
Control of Nonconforming Items	Katie Gentry David Martinez
Records	Angela Chavez Sarah Goodgion Donald Hampton Savannah Hixon Christina McDonald
WIPP Waste Information System (WWIS Data Entry)	Larry Hampton Creta Kirkes

CBFO AUDIT QAD-A-25-16
SUMMARY TABLE OF AUDIT RESULTS

QA / Technical Elements	Concern Classification					QA Evaluation		Technical Evaluation
	CARs	CDAs	Obs	Rec	Strength	Adequacy	Implementation	Effectiveness
Program Status/Program Changes/Interface						A	S	E
Acceptable Knowledge & Waste Certification	1	2	1			A	S	E
Project Level V&V						A	S	E
Real-Time Radiography		1	1			A	S	E
Nondestructive Assay						A	S	E
Container Management						A	S	E
Flammable Gas Analysis						M	S	E
C6 General QA Elements (NCRs, Quals & Training, Records)						A	S	E
C6 General QA Elements (WWIS/WDS)						A	S	E
Other (QA-NCR Trend Codes)						A	S	E
TOTALS	1	3	2			See Above	S	E

Definitions: CAR = Corrective Action Report CDA = Corrected During Audit Obs. - Observation Rec. = Recommendation A = Adequate S = Satisfactory
U = Unsatisfactory E = Effective I = Indeterminate M = Marginal TBA = To Be Audited

WAP-Related Objective Evidence Reviewed During the Audit

The WAP-related objective evidence supporting the Audit QAD-A-25-16 is included in the shipping box(es) submitted with this final audit report. Included in the shipping box(es) is a “Content Map” describing the location (using color coding) and identity of all required objective evidence supporting the performance of the audit.

CBFO Audit QAD-A-25-16
TABLE OF AUDITED PROCEDURES

	Document No.	Revision Number	Document Title
1.	CCP-PO-001	24	CCP Transuranic Waste Characterization Quality Assurance Project Plan
2.	CCP-PO-002	33	CCP Transuranic Waste Certification Plan
3.	CCP-PO-004	41	CCP/SRS Interface Document
4.	CCP-PO-005	34	CCP Conduct of Operations
5.	CCP-PO-043	2	CCP Interface Document Preparation
6.	CCP-PO-047	4	CCP Training and Qualification Program Document
7.	CCP-QP-002	49	CCP Training and Qualification Plan
8.	CCP-QP-005	29	CCP TRU Nonconforming Item Reporting and Control
9.	CCP-QP-008	30	CCP Records Management
10.	CCP-QP-010	37	CCP Document Preparation, Approval, and Control
11.	CCP-QP-022	21	CCP Software Quality Assurance Plan
12.	CCP-QP-041	6	CCP Job Needs Analysis and Design
13.	CCP-QP-042	4	CCP Project Level Training and Qualification
14.	CCP-QP-043	7	CCP Operations Level Training and Qualification
15.	CCP-TP-001	25	CCP Project Level Data Validation and Verification
16.	CCP-TP-002	30	CCP Reconciliation of DQOs and Reporting Characterization Data
17.	CCP-TP-005	34	CCP Acceptable Knowledge Documentation
18.	CCP-TP-021	0	CCP Real-Time Radiography #8 Operating Procedure
19.	CCP-TP-028	16	CCP Radiographic Training Container Assembly
20.	CCP-TP-030	41	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
21.	CCP-TP-033	26	CCP Shipping of CH TRU Waste
22.	CCP-TP-048	19	CCP NDA System Data Reviewing, Validating, and Reporting Procedure
23.	CCP-TP-053	19	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
24.	CCP-TP-058	8	CCP NDA Performance Demonstration Program
25.	CCP-TP-068	14	CCP Standardized Container Management
26.	CCP-TP-076	7	CCP Operating the Mobile ISOCS Large Container Counter Using NDA 2000
27.	CCP-TP-077	5	CCP Calibrating the Mobile ISOCS Large Container Counter Using NDA 2000
28.	CCP-TP-079	3	CCP Real-Time Radiography #2 Operating Procedure
29.	CCP-TP-200	8	Enhanced Acceptable Knowledge Review
30.	CCP-TP-204	0	CCP Calibrating the Savannah River Site High Efficiency Neutron Counters 4 & 5 (HENC4 & HENC5) Using NDA 2000
31.	CCP-TP-205	0	CCP Operating the Savannah River Site High Efficiency Neutron Counters 4 & 5 (HENC4 & HENC5) Using NDA 2000
32.	DOE/WIPP-06-3345	13	Waste Isolation Plant Flammable Gas Analysis
33.	WP 13-1	44	Waste Isolation Pilot Plant Quality Assurance Program Description
34.	WP 13-QA.03	35	Quality Assurance Independent Assessment Program

NOTE: Any changes to procedures that affect performance criteria or data quality, testing procedures, quality assurance objectives, calibration requirements, or QC sample acceptance criteria comply with the WIPP HWFP WAP (Attachment C) and shall not be made without prior approval of the CBFO.

List of Processes and Equipment Evaluated During CBFO Audit QAD-A-25-16

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams
PREVIOUSLY APPROVED PROCESSES OR EQUIPMENT		
3MILCC6	Non-Destructive Assay (NDA) Equipment Mobile ISOCS Large Container Counter (MILCC)	Debris (S5000) - CH
1HC4	High Efficiency Neutron Counter with Integrated Gamma Spectrometer (HENC4)	Debris (S5000) - CH
1HC5	High Efficiency Neutron Counter with Integrated Gamma Spectrometer (HENC5)	Debris (S5000) - CH
1RR2A	Non-Destructive Examination (NDE) Equipment Real-Time Radiography (RTR2)	Debris (S5000) - CH
1RR8	Non-Destructive Examination (NDE) Equipment Real-Time Radiography (RTR8)	Debris (S5000) - CH
1HG14	Flammable Gas Analysis (FGA) FGA14	Debris (S5000) - CH
N/A	Acceptable Knowledge (AK) Enhanced Acceptable Knowledge (EAK)	Solids (S3000) - RH Debris (S5000) - RH
N/A	Acceptable Knowledge (AK) Enhanced Acceptable Knowledge (EAK)	Solids (S3000) – CH Debris (S5000) - CH
N/A	Project Level Validation and Verification (V&V)	Debris (S5000) - CH
N/A	WIPP Waste Information System/Waste Data System (WWIS/WDS)	Debris (S5000) – CH Solids (S3000) - CH
N/A	Quality Assurance Program	Debris (S5000) - CH
NEW PROCESSES OR EQUIPMENT		
NONE		
DEACTIVATED PROCESSES OR EQUIPMENT		
NONE		